

Cognitive Factors in Social Anxiety Disorder and Relevant Interventions

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Abstract. Understanding how social interactions and fear responses affect mental health requires research on cognitive aspects of social anxiety disorder (SAD). SAD could be a substantial factor in a person's emotional, interpersonal, and professional areas of life. By examining cognitive issues, researchers can develop more effective treatments by understanding the biases and thought patterns that can contribute to the emergence and duration of SAD. Previous research focused on cognitive functioning, self-esteem, attentional biases, and the impact of cognitive biases on social interactions. The information-processing model and the cognitive model of SAD, which emphasizes negative interpretations and high expectations of oneself, are the main theories. To improve therapeutic outcomes, studies primarily focused on people with social anxiety across a range of age groups. In looking at different studies done on interventions for SAD, it has been shown that individualized treatment plans had the greatest impact on diminishing SAD symptoms and treating individuals to overcome their anxiety.

Keywords: Social Anxiety Disorder; cognitive factors; interventions.

1. Introduction

Anxiety disorders include social anxiety disorder (SAD), also named as social phobia. It is primarily distinguished by extreme fear, discomfort, and anxiety that are unsuitable for the social setting and that trigger severe physiological reactions like lightheadedness, stomach problems, tense muscles, panic attacks, etc. Patients are usually afraid to interact with others and worry about receiving bad criticism from others, so they show social withdrawal for a long time [1]. People receive information from the outside world, which is processed by the brain and converted into internal language, forming internal psychological activities and then dominating people's behavior [2]. This process of information input and output is cognition. Cognition is the most basic psychological activity, including feeling, perception, memory, thinking, imagination and so on. With the prevalence of cognitive behavioral therapy, the role of cognitive factors in the development and treatment of various mental diseases has been widely considered. Investigating and studying cognitive factors in SAD holds significant importance as it unveils the intricate workings of the human mind in the context of social interactions and fear responses. By delving into the cognitive aspects of SAD, researchers and mental health professionals gain valuable insights into the thought processes, biases, and beliefs. Understanding these cognitive variables helps people better understand SAD and opens up the possibility of creating therapies that are more focused and efficient. Through developments of specific tailored treatments to address specific cognitive challenges, individuals with social anxiety can receive personalized therapeutic approaches, cognitive restructuring techniques, and exposure-based interventions that systematically challenge anxious thoughts and behaviors.

In recent years, with the change of the world economic situation, economic downturn and technological change, the social employment environment is deteriorating, and the pressure of social competition is intensifying, social anxiety has become a social mental problem that cannot be ignored more and more. The World Health Organization and the American Psychiatric Association estimate that between 7% and 13% of people worldwide suffer from social phobia. In addition, there is an association between social anxiety and suicide, but it is important to note that this association is not a direct causation [1]. SAD may increase the risk of suicide. According to studies, people with SAD

are more likely than the general population to experience suicidal thoughts and attempt suicide. Due to anxiety and fear in social situations, patients may feel isolated, helpless, low self-esteem, low self-efficacy, and even lose hope for the future. In extreme cases, these negative emotions and mental health issues can lead patients to consider or commit suicidal acts. It is worth noting that SAD is also comorbid with other diseases, such as alcohol addiction or drug dependence.

The impact of social anxiety on individual functioning is enormous. Due to social withdrawal and isolation, people with SAD are unable to complete school, work and form close relationships as normal people. SAD can cause intense distress in individuals, not only high levels of tension and discomfort in social situations, but also a sense of loneliness and a desire to establish social relationships when the individual is alone. Previous studies have shown that SAD is associated with higher quitting rates and reduced health, job performance, and quality of life. Among older persons, impairments may exist in terms of caregiving obligations and voluntary activities. Leisure time activities can also be hampered by SAD. Only half of people with SAD in Western cultures ever attend therapeutic sessions. Plus, they typically attend them 15-20 years after feeling these symptoms. This is despite the pervasive discomfort and social impairment associated with the illness [1]. At the initial onset of social anxiety, it is hidden and difficult to detect. The family and friends often just think that the patient is in poor mood, but when the later symptoms worsen, the patient cannot get effective treatment due to the escape or fear of going out to communicate.

Research focused on cognitive factors of SAD has been revolved around understanding the role of cognitive biases and attentional processes. Studies often focus on attentional biases towards threat stimuli, such as important social cues or unfavorable facial expressions, as a major cognitive element causing increased anxiety in social situations. Additionally, studies have examined the connections between cognitive functions and other elements such as self-efficacy, self-esteem, and the influence of cognitive biases on social relationships. Furthermore, there is growing interest in examining how cognitive factors may differ across cultural contexts and exploring the potential influence of social media and technology on social anxiety development. The cognitive model of social anxiety, proposed by Clark and Wells, remains one of the primary theories in this area [2]. According to this concept, people who have social anxiety often interpret social settings negatively and set unreasonably high expectations for themselves in social interactions, which causes them to become more focused on themselves and fear receiving a bad review. It is thought that cognitive biases including attentional bias and interpretive bias augment the danger perception and support the persistence of social anxiety symptoms. Another theoretical framework is the information-processing model. It is an important theoretical paradigm that looks at how people process and encode social information differently in socially anxious states compared to non-anxious people. Existing research in the area of cognitive factors in SAD primarily focuses on individuals diagnosed with social anxiety, across various age groups, ranging from adolescence to adulthood.

At present, the explanation of SAD in psychiatry and psychology mainly focuses on three aspects: physiological factors, psychological factors and environmental factors. Many imaging data and medical studies in the past have proved that brain structure and genetics are related to SAD. In the study of environmental factors, psychologists have also conducted some studies on the impact of family, school and social environment on individuals suffering from SAD, which has been supported by some evidence. It is generally believed that economic, cultural and other factors in the social environment also play a certain role in the generation of SAD. In the past, psychologists focused more on the relationship between family parenting style and SAD in their research on psychological factors. Studies have shown that there may be a mediating chain model for the influence of family parenting style on personal social anxiety level, while cognitive factors play a role in the relationship between family parenting style and social anxiety level [3]. Family parenting style may have an impact on individuals' self-evaluation and sensitivity to others' evaluation. Individuals who grow up in healthy and warm families are more likely to form correct cognition, establish a good self-evaluation system, and form a correct attitude toward social evaluation, while individuals who grow up in unhealthy families are more likely to form wrong or unhealthy cognition. High sensitivity to the evaluation of

others, more fear of negative evaluation of society, resulting in social withdrawal behavior. In addition, imaginary audience and fear of social evaluation, two cognitive psychological phenomena, seem to be related to social anxiety.

2. Self-Concept, Cognition, and Emotional Regulation in SAD

Safety behavior refers to some behaviors that individuals do in order to avoid bad consequences in social interaction, which can be hidden or open. For example, in order to avoid making a fool of yourself in public speaking situations, people will choose to recite and rehearse in advance. Rehearsing and reciting in advance is a safe behavior. There may be some correlation between safety behavior and SAD. This paper holds that safe behavior will increase the anxiety level of SAD patients, because in the process of performing safe behavior, individuals need to repeatedly experience the emotion of anxiety, and no matter what the final result is, the anxiety level of safe behavior practitioners will be increased. This is consistent with previous studies. Emily Gray et al. designed a dialogue experiment to test the impact of safety behaviors on social anxiety [4]. The researchers made specific requirements on the subjects, such as asking them to avoid talking, with specific instructions of "avoid talking about yourself", "keep quiet" and "talk less", or asking them to manage their personal image. Specific instructions include "Imagine how you look in front of others," "examine how you meet them," and "Try to be good." When the participants were not asked to perform safe behaviors, they talked according to their daily habits. Participants were asked to rate their own and others' anxiety and performance. Finally, they found that SAD patients used avoidance and impression management more frequently, and both of these safety behaviors increased the anxiety of the performers, and the negative impact of avoidance was greater.

Implicit self-esteem refers to an individual's evaluation and feelings of self deep inside, usually an unconscious and hidden emotional state, which can affect an individual's thinking, emotions and behaviors. Implicit self-esteem is correlated with emotional stability, mental health, and self-confidence. While those with low implicit self-esteem tend to have less self-confidence and have doubts about their own accomplishments, those with strong implicit self-esteem frequently display overconfidence, a lack of regard for others, or a lack of self-reflection. They tend to be more sensitive to criticism and rejection, over-interpret the words and actions of others, and avoid social situations for fear of being rejected by others. Rely more on the approval of others to boost their self-esteem. For example, people with low implicit self-esteem may rarely speak up in work meetings and remain silent even when they have ideas, for fear that their opinions will be ignored or criticized by others. Since negative self-evaluation and fear of negative evaluation of others are often associated with SAD, it is likely that low implicit self-esteem is one of the cognitive factors contributing to SAD. Previous studies have shown that implicit self-esteem affects social anxiety in different situations. Thomas S. Hiller et al. designed an experiment that divided the subjects into four groups based on whether they had social fear and whether they needed to improvise speech, so as to investigate the influence of the social situation of impromptu speech on social anxiety [5]. Their study found that the implicit self-esteem of the SAD group was significantly lower than that of the control group in the impromptu speech condition, and there was no significant difference in the condition without speech. The anxiety state under impromptu speech condition is significantly higher than that without speech condition. Low implicit self-esteem is associated with situational situations and anxiety states.

Personality traits also have an impact on social anxiety. Self-criticism and dependence are two types of personality traits. Self-criticism means that individuals reflect on and evaluate what they think and do. Highly self-critical personality traits are similar to low implicit self-esteem. Highly self-critical individuals often worry excessively about the evaluation of others, and often feel worthless and have unattainable expectations of themselves. Individuals fear socializing because they are worried about the negative evaluation of society, "as long as they do not socialize, they will not hear the bad evaluation that others may have on them." Dependent personality is a kind of psychology that is dependent on others. Individuals with high dependent personality traits usually pursue dependence

on others excessively, lack self-confidence and independence, and are afraid of being abandoned. In social interactions, dependent personality traits make individuals fear socializing for fear of being abandoned, "as long as they don't socialize, they won't be abandoned." What these two personality traits have in common is a low self-evaluation. The difference lies in the behavior they take when facing social contact. The self-critical person prefers to solve difficulties alone (or avoid social contact alone), and the dependent person expects to rely on others to solve difficulties. In other words, the influence of personality traits on social anxiety may work through the individual evaluation system.

Daniel C Kopala-Sibley et al. explored how self-critical and dependent personality traits modulate situational interpersonal cues to influence social fear in individuals with SAD [6]. They screened the subjects by interviewing, filling out the scale and excluding irrelevant variables, and finally divided them into 40 people in the control group and 40 SAD patients in the experimental group. The only significant distinction between the two groups was their level of anxiousness. The subjects in the two groups were asked to complete the event record form after each important social interaction of more than 5 minutes within 20 days. They found that self-awareness was positively correlated with the level of social fear, participants with high self-criticism showed more fear than those with low self-criticism, emotional security was negatively correlated with the level of social fear, and participants with high dependence on social anxiety were negatively correlated with the level of social fear after their emotional security perception. Participants with social anxiety showed less fear than those with lower dependence. This may be because high dependents associate the object of dependence with security, and when they face social situations, the object of dependence can greatly soothe their unease. Self-awareness and emotional security work together to influence social fear. This is consistent with the theory proposed.

Emotional beliefs may also influence the level of social anxiety. Emotion is a subjective attitude towards reality. A belief is a person's unwavering conviction and belief in an idea. Emotional belief is an individual's unwavering view of their own emotions, which is essentially a kind of cognition. Emotional belief plays an intermediary role between emotion and behavior. Emotional beliefs can be divided into two dimensions: whether emotions are beneficial and whether emotions are controllable, and some scientists believe that emotional beliefs can be divided into a third dimension: whether they are variable. Positive and healthy emotional beliefs can help individuals cope with negative emotions and better deal with various situations encountered in social interactions.

Emotional beliefs can have a lasting and stable effect on levels of social anxiety. Previous studies on emotional control values and emotional plasticity beliefs showed that SAD patients support higher emotional control values and lower emotional plasticity beliefs than healthy controls [7]. In other words, SAD patients prefer to control their emotions rather than reveal their emotions, and they believe that emotions are difficult to change. They may doubt their ability to change or regulate their emotions. For people with SAD, they are more likely to form negative views of themselves or others, self-doubt and self-criticism, which can cause them to avoid socializing for fear of rejection. At the same time, due to the lack of confidence in their ability to regulate emotions, SAD patients are more reluctant to accept negative emotions, and feel ashamed or annoyed about the negative emotions they experience. They also avoid showing their emotions to others. Once people form some wrong emotional beliefs, such as that individuals cannot control their emotions or others do not like to talk to them, under the guidance of the wrong emotional control values and emotional plasticity values, people may choose to silently digest some negative emotions that are difficult for individuals to cope with alone, instead of talking to the outside world or seeking outside help. Social withdrawal is inevitable in the long run.

3. The Effectiveness of Cognition-Related Interventions

The experiment aimed to investigate the impact of role-playing combined with role reversal versus role-playing alone in SAD patients' negative thoughts about other people's opinions. 36 adult SAD patients were randomly given 2 roles; the role-playing condition or the role-reversal condition [8].

The findings demonstrated that role-playing in combination with role reversal significantly reduced negative cognitions compared to role-playing alone. The believability of negative cognitions and the probability and cost estimates of negative judgments by others were greatly diminished after role reversal. The effects of role-playing alone, however, were minimal because after the second block of role-playing, there was no additional decrease in negative cognitions. These findings suggest that role reversal is an effective technique for correcting negative cognitions in SAD and may contribute to improving treatment outcomes. However, it's crucial to take into account the study's limitations, including the absence of a control group and the repetitive nature of role-playing in the experimental design. The results of the experiment suggest that the combination of role-playing, then followed by role reversal was more effective in reducing negative cognitions rather than role-playing alone. The role-playing phase likely allowed the participants to experience the triggering situations that cause their anxiety and negative beliefs, while role-reversal allows those individuals to challenge and correct their beliefs by seeing the situation from other perspectives.

SAD is characterized by an individual who suffers from fear or worry about social settings. Two evidence-based treatments for SAD are based on mindfulness and cognitive approaches respectively [9]. However, not every patient who suffers from SAD responds favorably to these therapies. The outcomes of cognitive and mindfulness treatments for SAD were studied in a study to determine the moderating effects of two anger-related factors, anger suppression, and anger expression. The results showed that greater decreases in social anxiety in cognitive compared to mindfulness treatments were linked to higher levels of fury expression and repression. The study shows that cognitive group treatment may be more advantageous for SAD patients who express and repress their anger to a greater extent than for those who do not. Results in the experiment showed the effectiveness of cognitive group therapy compared to mindfulness-based stress reduction in treating rage expression and repression. However, not every patient suffering from general anxiety responds positively to either treatment. Cognitive group treatment is shown to be more beneficial in treating patients who suffer from higher levels of anger expression and repression. Patients who respond positively to cognitive group therapy may have better reactions towards group-based therapies, which is why they have positive reactions.

For those with SAD, this study examined the potential role of estimated social cost, perceived social self-efficacy, and perceived emotional control as mediators in treatments using cognitive and exposure approaches. 50 SAD-afflicted adults were randomly allocated to either cognitive or exposure treatment [10]. In the start of each session, participants in the study were asked to score their level of social anxiety, estimated social cost, perceived social self-efficacy, and perceived emotional control. The findings demonstrated that whereas perceived emotional control did not predict changes in social anxiety, changes in perceived social self-efficacy and projected social cost did. The two treatment groups did not have major differences from each other. The study did, however, have certain flaws, including a limited sample size and a dearth of sufficient follow-up information. General perceptions of social self-efficacy and estimated social cost were identified as common mediators in both cognitive and exposure therapies, indicating a two-way interactive link between these mediators and social anxiety. The results show that after going through cognitive and exposure therapies, the study found that differences in predicted social cost predicted differences in social anxiety for individuals undergoing both cognitive and exposure therapies. This suggests that by modifying these negative cognitive appraisals and challenging the accuracy of these perceived costs, individuals can experience reductions in their social anxiety. The study also showed that for participants undergoing cognitive and exposure therapies, changes in perceived social self-efficacy predicted reductions in social anxiety. By enhancing social self-efficacy through therapeutic interventions, individuals can gain confidence in their social abilities, which can contribute to reduced anxiety and increased individuals willingness to participate in social situations. The results of the study imply that these cognitive variables (estimated social cost and perceived social self-efficacy) act as mediators in the treatment of SAD in both cognitive and exposure therapies. This indicates that

by targeting and modifying these cognitive factors through therapeutic interventions, individuals with SAD can experience positive changes in their symptoms.

In this randomized controlled trial, university students with SAD were treated with StudiCare [11]. The results showed moderate to large effect sizes in favor of StudiCare SAD when it was compared to the control group, demonstrating a significant reduction in SAD symptoms. The intervention group additionally displayed improvements in outcomes including sadness, life satisfaction, fear of praise, general psychopathology, and interpersonal issues. This study suggests that providing StudiCare SAD could be a potentially effective way to provide university students with SAD with early-stage treatment. StudiCare incorporates cognitive restructuring techniques to treat individuals suffering from SAD. The process of cognitive restructuring include confronting and altering unhelpful thought patterns and beliefs that support social anxiety. University students with SAD may have been able to reduce social anxiety symptoms by using the intervention to reframe their negative self-perceptions and social circumstance interpretations. The intervention may have also incorporated cognitive processing approaches to assist students in reinterpreting and reevaluating their ideas and feelings about those events, as well as exposure-based exercises that gradually exposed students to social situations they dread. This might be part of what caused the observed declines in social anxiety symptoms. The intervention might target and adjust cognitive processes linked to social anxiety, improving both primary and secondary outcomes, as seen by the favorable changes in a variety of cognitive and emotional characteristics seen in the intervention group.

4. Conclusion

This paper focused on the review of the cognitive factors and related therapies mentioned in previous studies of SADs. Safe behavior, implicit self-esteem, self-criticism, dependent personality traits, and emotional beliefs can all partially explain the cause of SAD. Safe behavior seems to be more suitable for behavioral therapy. Implicit self-esteem, self-critical and dependent personality traits, and emotional beliefs explain SAD from a cognitive perspective. While existing research has revealed a lot of important information about the cognitive aspects of SAD, there are still many overlooked aspects that need to be improved. One of the significant problems is the small sample size of most SAD cognitive studies. Plus, most studies were done in Western cultures. Due to lack cross-cultural studies, the experimental conclusions are not universal. In addition, many studies on SAD cognition have only collected data in the laboratory and have not been tested under natural conditions. Future studies can adopt field research and carry out experiments in real life scenarios to obtain more generalizable results. This review can provide some insights to the development of effective intervention programs for individuals with SAD.

Authors Contribution

All the authors contributed equally, and their names were listed in alphabetical order.

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