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Case Report

Application of Cognitive Behavioral Techniques in Stuttering and Social Anxiety Disorder: Case Report

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Abstract

Stuttering is defined as a communication disorder characterized by involuntary interruptions in the progressive flow of speech. Many adults with stuttering might have moderate anxiety and significant social anxiety. In this case report, the effects of cognitive behavioural therapy-based intervention on an individual with stuttering and social anxiety on the fluency of speech will be discussed. The patient is a 20-year-old female, single, second-year university student. The primary complaint is the increased level of anxiety in social situations and the concomitant stuttering. She does not receive any medication. The psychotherapy process consists of 12 sessions. Pre-psychotherapy Liebowitz Social Anxiety Scale (LSAS) score was 192, post-psychotherapy LSAS score was determined to be 144.

It was concluded that cognitive behavioural therapy techniques were effective in reducing the incidence of stuttering, which increased with anxiety, and speech fluency improved. As a result of the behavioural experiments, it was observed that the individual's focus of attention control improved, and the use of safety behaviours decreased. As a result of cognitive behavioural therapy, which was applied to individuals with stuttering and social anxiety, it was found that negative thoughts of individuals decreased significantly and their quality of life enhanced. It is considered that the use of cognitive behavioural therapy techniques in individuals with a larger study group in further studies would increase the level of evidence and would be crucial in terms of generalizing the results.

Keywords: Stuttering; Social anxiety disorder; Cognitive behavioural therapy; Self-focused attention

Introduction

Stuttering is defined as a communication disorder characterized by involuntary interruptions in the progressive flow of speech. It has been revealed that stuttering involves sound, syllable, or monosyllabic word repetitions, as well as prolongations of vowel or consonant sounds, and intermittent blocks in word out [1]. It is estimated that the lifetime incidence of stuttering is nearly 4 to 5% and that it has a prevalence of 1% [2]. In general, the onset can be between the ages of 2 and 5, when the language and speech skills of children develop [1]. It has been found in the study of Reilly, et al. (2013) that 8.5% of children were impacted by stuttering at the age of 3. The spontaneous recovery rate in the first year following the onset age was determined to be 6.3% [3]. Albeit stuttering has a neurological background, anxiety remains to be one of the most common concomitant factors [4]. However, it has been suggested that stuttering might be associated with a social anxiety disorder. Exposure to peer bullying in childhood, mockery, exclusion and adverse peer reactions, negative attitudes and behaviours experienced in adulthood, professional and educational disadvantages might be experienced.

These negative outcomes might lead to abashment, embarrassment, low self-esteem, withdrawal, and decline in school performance. It is considered that countless negative outcomes associated with stuttering lead to the development of anxiety [5-7]. It has been found out that preschool children with stuttering are neither more shy nor more socially anxious compared to their peers without stuttering. However, speech-related social anxiety can develop in most cases of pre-adult stuttering [6]. Many adults

with stuttering might have moderate anxiety and significant social anxiety. There is compelling evidence that significantly supports the prevalence of social anxiety disorder among adults with stuttering. It has been found that individuals with stuttering have higher anxiety levels, and this high level of anxiety is limited to social and performance-based situations [8]. Social anxiety disorder (SAD) (also known as social phobia) is a very common anxiety disorder and, based on the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders), it is defined as an apparent and intense fear that is felt due to social or performance-based conditions in which one might be assessed or examined by other individuals [9].

To illustrate, these feared situations can be listed as talking in front of the public, meeting new people, and talking to figures who represent authority. Physical and motor symptoms associated with SAD might include blushing, tremors, sweating, and inability to speak. Most individuals with SAD fear that these symptoms might be observable by others. As a result, anxiety expectation, distress, and avoidance are typically accompanied when exposed to fearful situations [10]. Social anxiety disorder is typically associated with fear of being evaluated negatively, expectations of social disaster, negative cognitions, attentional bias, avoidance, and security behaviours. Individuals with social anxiety disorder fear or avoid various social situations. It has been suggested that these characteristics of social anxiety disorder might play a central role in the stuttering experience. Individuals with stuttering might fear or avoid social situations they have to talk about because of the reactions and negative attitudes of other people/listeners [11,12].

Common avoidance behaviours include avoiding or substitution of difficult words. The prevalence rate varies between 21.7% and 60% in studies, which have examined the prevalence of social anxiety disorder among adults with stuttering. It has been revealed in the study of Menzies et al. (2008) that two-thirds of adult individuals with stuttering met the diagnostic criteria for social anxiety disorder, while in the study of Iverach et al. (2018) approximately one-third [13] of adult individuals with stuttering met the criteria, and it was 46% for 50 adult individuals with stuttering in the study of Baumgart et al [14]. In the treatment of stuttering, direct and indirect interventions can be made to improve the fluency of speech. Direct interventions include prolonged speech and rhythmizing, while indirect interventions include methods such as medication and psychotherapies. It has been suggested that comprehensive treatment for stuttering, specifically psychological assessment and intervention, should address anxiety as it can improve overall stuttering management. When the psychological interventions for social anxiety disorder were reviewed, it was determined that the most effective method was cognitive-behavioural therapies (CBT) [15,16].

Previous studies support that CBT applied to individuals with stuttering enhances the functionality of individuals [17,18]. It is aimed through CBT to reduce social avoidance and anxiety in individuals with stuttering [19]. The cognitive social anxiety model of Clark and Wells (1995) suggests that self-focused attention is essential for creating anxiety, and maintaining it, as well as disrupting social performance in social situations. Fear of undesirable outcomes in social situations (for instance; being negatively assessed by other individuals) might cause the individual with social anxiety to focus on internal cues (for instance; physiological arousal, negative thoughts) and decrease in the use of cues from the external environment. Individuals with social anxiety can also examine themselves from the perspective of others (from the observer's perspective) to guess how they are viewed by others. This attentional bias towards internal cues prevents awareness of social information from the positive external environment, validates social fears, and causes behaviours that might lead to a negative assessment by others [20,21].

Five basic assumptions that can play a role in maintaining social anxiety in stuttering can be summarized as follows:

- Individuals with social anxiety assume that they could be assessed negatively by other people and overstates the outcomes of the negative assessment.
- Individuals with social anxiety create a negative image in their minds about themselves, which is perceived by the audience/other people.
- Individuals with social anxiety are preoccupied with negative self-focused attention and display biased attention towards social threats.
- Individuals with social anxiety employ cognitive and behavioural strategies to lessen their anxiety temporarily.
- Individuals with social anxiety perform proactive and post-event processing.
- In this case report, the effects of CBT-based intervention on an individual with stuttering and social anxiety on the fluency of speech will be discussed.

Case

The patient was diagnosed with Social Anxiety Disorder based on the DSM-5 (APA, 2014). She does not receive any medication. The psychotherapy process consists of 12 sessions, and Leigh and Clark's (2018) cognitive therapy model of social anxiety disorder was utilized (Table 1).

Table 1: Therapy Process.

Sessions	Interventions
1st Session	Evaluation, problem conceptualization, goal setting
2nd Session	Psychoeducation; presenting a cognitive model of social anxiety Negative automatic thoughts, revealing self-focus and images content, identifying safety behaviours and anxiety symptoms (creation of cognitive formulation) (Figure 2)
3rd Session	Experimenting with self-focused attention and safety behaviours (Table 1)
4th Session	Video feedback (Related to the self-focused attention and safety behaviour experiment)
5th Session	Learning automatic thoughts and thought processing features
6th Session	Attention training
7 to 11th Session	Behavioural experiments (Table 2)
12th Session	Relapse prevention

Measurements were made before the 1st session and at the end of the 12th session. Pre-psychotherapy Liebowitz Social Anxiety Scale (LSAS) score was determined to be 96 for anxiety sub-dimension and 96 for avoidance sub-dimension, while post-psychotherapy LSAS score was determined to be 78 for the sub-dimension of anxiety and 66 for the sub-dimension of avoidance (Figure 1).

Psychiatric Case Summary

The patient is a 20-year-old female, single, second-year university student and continues her education. She is not employed in any job. She lives in a state dormitory for students in Ankara. When the schools are on vacation, she lives with her family. In the past, she did not seek any treatment for her anxiety. Complaints related to anxiety started during her primary school years. The primary complaint is the increased level of anxiety in social situations and the concomitant stuttering. When she has to speak in crowded and stranger environments, she experiences an increase in the level of anxiety, tremors in the hands, blushing, rapid heartbeat, focusing on her speech, and avoiding to speak words starting with a vowel and speaking rapidly and it comes to her mind a blushed, stammering and crying image of herself, and she thinks that she will be disgraced by other people through making fun of her and laughing at her. She usually avoids participating in such environments to cope with her anxiety.

In obligatory cases, she displays behaviours such as not making eye contact, clenching her hands together, and avoiding saying words and/or numbers that start with a vowel. She believes that if she experiences challenges such as difficulty in saying the words, which she can say to herself when she does not have any anxiety, in crowded and unfamiliar environments and inability to get the word out, other individuals will mock her and laugh, she will be disgraced and ultimately, she will be isolated. Her characteristics of thought include mind-reading (example: she can't even say her name), must-have expressions (example: I have to codify my brain that I should speak properly. I must not ruin this speech), reading the future (example: I'm going to be isolated), labeling (example: I'm stutterer), arbitrary inference (example: they have an unusual look, they feel sorry for me).

Case Formulation

The patient was afraid of dogs barking when she was 5 years old and did not speak at all for almost 1 month. Subsequently, she started having difficulty pronouncing the words while speaking. When she was 6, the primary school first-grade teacher suggested that she should go to a school providing special education. However, her parents did not accept this situation. As there were a few other people around them who stuttered and their parents did not seek any treatment for their unrecovered stuttering. She was an inactive and quiet person who did not speak to anyone except a few people in the classroom during her primary education. Throughout her primary education, there were occasionally some people making fun of it. Her friends were not laughing, but the patients could tell from their gaze that they were sorry for her. In the 8th grade technology and design class, classmates laughed and made fun of him as she couldn't pronounce the word "bottle" while she was reading aloud in class (she can't pronounce that word too). She continued to read while crying and left the class when the reading was over. "The sad part for me is that this was done by my best friend. My friend thought that someone else couldn't say the word "bottle" and didn't realize it was me. So, she didn't make fun of me because she was sorry for me. Later on, nothing like this happened again since I always ran away."

After finishing the 8th grade, upon the suggestion of her neighbour she went to the treatment centre for stuttering (her neighbour's son was also stuttering, she went to that centre where he went) for a month during the summer holiday. She expressed that she was comfortable there and did not stutter by saying "There was no one to make fun of me since everyone was with stuttering." Her stuttering lessened significantly. Since it was a new and different environment when she started high school, her stuttering started again, even if a little. She didn't have many friends throughout her high school education. In the 9th grade of high school, she had to make a presentation in English with her group friends in front of her class due to a mandatory performance assignment. She cried for stuttering, her friends did not laugh, but they talked looking at each other (they said she couldn't speak; they made fun of me) and applauded (They applauded me so I wouldn't be sad).

1st Session

- Reduced stuttering during the conversation.
- Expressing oneself in social situations such as classroom, group of friends.

2nd Session: (Figure 2).

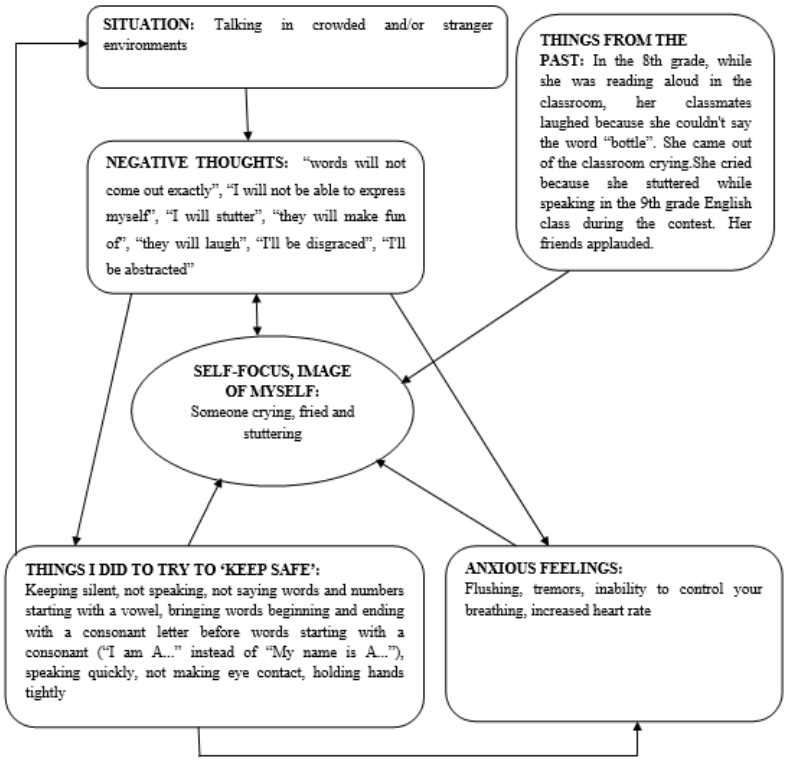

Figure 2: Cognitive Model of the Case (Leigh & Clark, 2018).

3rd session: 1st video= Having a 3–5-minute conversation with someone she does not know, whether she focuses her attention on negative thoughts and/or images in her mind by doing the safety behaviours of the case. 2nd video= Talking for 3-5 minutes by paying attention to the other person and the content of the conversation without doing the safety behaviour of the case (Table 2).

Table 2: Summary of the self-focused attention and safety behaviours experiment (Leigh & Clark, 2018).

RATING	Self-focused attention and safety behaviours experiment	
	In the first condition self-focused attention	In the second condition an external focus of attention
Anxiety symptoms 0 50 100 (none) (high level)	(It is increasing from 0 to 100)	
Tremors in the legs	100%	30%
Anxiety level (It is increasing from 0 to 100) 0 50 100 (none) (high level)	Decreased from 100% to 40%	Decreased from 50% to 20%

Self-focused attention X1 X2 -3 -2 -1 0 +1 +2 +3 (self-focused) (focus on the outside)	X1	X2
How much did you use your safety behaviours? (It is increasing from 0 to 100) 0 50 100 (not at all) (totally)		
Talking in a low voice, Holding hands tightly, Not making eye contact, Bringing words ending with a consonant before words starting with a vowel	100%	20%
How she thought she came across, her assumption about herself Score your belief in this idea (It is increasing from 0 to 100) 0 50 100 (not at all) (totally)		
I could not speak properly, I stuttered. I could not speak like a normal person. Someone who can't quite say the words but tries to say. "Why is she stuttering like that?" is said. I made a disgraced impression.	100%	30%
Did you get a picture of how you think you looked?		
Shaking hands, trembling legs, slightly hunched, stuttering	Passed through my mind	Didn't passed through my mind

4th Session: Before watching the video footages; Reminding

- 1st video=The patient displays safety behaviours and then focuses her attention on the negative thoughts and/or images in her mind, and chats with someone she does not know for 3 to 5 minutes.
- 2nd video= The patient's conversation for 3-5 minutes by paying attention to the person and the content of the conversation without exhibiting safety behaviours.
- I met and chatted with someone I did not know at all, my anxiety became quite increased. If I couldn't speak, I was already disgraced. Someone who cannot say the words exactly but tries to say it would be disgraced.
- We can understand that I was disgraced from the moments in the video I try to talk faster.

After watching the video footages

- By watching the first video, I have an impression of someone who has a hard time with talking, not like a disgraced one.
- There was sporadic stuttering in the second video. As the conversation progressed, I focused on the conversation and was able to speak more comfortably.
- My method -speaking by putting a word ending with a consonant in front of the word starting with a vowel- was not working, apparently, I used to pronounce vowels more easily

5 to 6th Session

The concepts of thought and truth were talked over, and the characteristics of thought were discussed. Attention training was performed (1st stage: maintaining attention, 2nd stage: changing attention, and 3rd stage: developing divided attention). Attention training was assigned to be performed twice a day.

7 to 11th Session

She had the session without displaying safety behaviours, and focusing attention on what is happening outside rather than negative thoughts and/or images that pass across her mind.

12th Session

- "I'm more comfortable when talking on the phone with my parents".
- "I have less stuttering when I am with my close friends".
- "I started talking more comfortably in banks, markets, and public transportation".
- "I can answer when the teacher asks a question in lessons with a smaller group of students. My close friends state that they noticed the change in my speech" (Table 3).

Table 3: Rating of anxiety in feared situations.

Rating of anxiety in feared situations	Anxiety level		
	1st Session	4th Session	12th Session
Talking in class	100%	80%	70%
Talking in a clinical setting	100%	60%	40%
When a sudden question is asked	100%	70%	60%
Reading to other people	90%	70%	50%
Talking to the teachers	90%	60%	50%
Talking at the bank, market, etc.	80%	40%	20%
Chatting with people I don't know	80%	50%	40%
Saying my name when meeting	70%	50%	50%

Assessment on the Psychotherapy Process of the Case

My self-confidence has increased. If I hadn't taken therapy -since I have less confidence in myself- I would have less conversation with my friends on the phone. I can video chat on WhatsApp. I cannot think of using security behaviours during calls, I can concentrate on the call and express my view. My communication level with my friends increased. People around me say that I speak more comfortably and participate more in the conversation. During this process, I read aloud and in front of the mirror, I didn't give up when I couldn't get the word out. I started to be at peace with myself, and I started not to worry about this situation, though I stuttered. I do not think any more such that "If I stutter, they will laugh at me, and I will be disgraced". I have admitted that the people around me don't think negatively about me because I stuttered. I was thinking about these myself. We had never met with a friend from high school for 8 months. When we spoke on the phone, he told me that "my speech has changed a lot" and that "I improved myself". I cannot notice the change in me, but I felt very happy when someone from the outside said this.

In one of our interviews, you said "if we leave the thought alone it will come and go", indeed, the more I keep anxiety in my head, the bigger the problem becomes. Before having therapy. If I had a conversation with someone in the social environment that conversation doesn't end there. Later on, my brain was constantly evaluating it. You talked too much here, spoken wrong here, stammered a little here, stuttered a lot here, etc. my mind was full of these thoughts, and it was tiring me a lot. Now I can resist these thoughts, and the therapy process made a great contribution. Now, I can say that so, what happened if I stuttered. My mind is more relaxed. People are not what I have in mind. People are not trying to find my disgrace, there is a thought in my mind that they will make fun of me, but people don't even care about it. When I saw a funny post on social media, I couldn't read it; I would show the phone screen so my friends could read it themselves. Now, I'm reading it myself. I am more comfortable when shopping at the grocery store, asking for something, or giving money. I am more comfortable than before.

Discussion

In this study, cognitive behavioural therapy techniques were performed on the individual with social anxiety disorder and stuttering. In cases where the anxiety of the individual, whose cognitive formulation was generated during the therapy process increased, it was observed that speech fluency was impaired, and physical anxiety symptoms such as blushing, tremors, inability to control his/her breathing, and increased heart rate occurred. It was concluded that the behaviour of continuing the speech by introducing words ending with a consonant letter in front of words starting with a vowel and rapid speech, which were aimed at reducing anxiety, increased the stuttering rather than reducing, and it was found during the video feedback that the individual spoke words starting with a vowel more easily than other words. It has been detected that the evidence analysis technique, which was performed using video footage, is helpful and effective in changing the individual's negative cognitions. As a result, the statements of "I am stutterer" changed to "I am someone who experiences difficulty in speaking when anxiety increases", and led to an increase in motivation for performing behavioural experiments in her daily life.

As a result of the behavioural experiments, it was observed that the individual's focus of attention control improved, and the use of safety behaviours decreased. The positive feedback from her parents and close friends regarding the change in her speech increased the self-confidence of the individual. In order to make an objective assessment of the change in speaking fluency during individual interviews, retrospective interview recordings were played and compared. In this case, it was concluded that cognitive-behavioural techniques were effective in reducing the incidence of stuttering, which increased with anxiety, and speech fluency improved. As a result of CBT, which was applied to individuals with stuttering and social anxiety, it was found that negative thoughts of individuals decreased significantly and their quality of life enhanced [22]. It was concluded in the study of Menzies et al. (2019) that the severity of stuttering among individuals with social anxiety and stuttering decreased, and their quality of life improved significantly following cognitive-behavioural interventions [23].

It was observed in the study of Reddy et al. (2010) that CBT techniques were effective in improving the quality of life and assertiveness skills of individuals by reducing their dysfunctional behaviours and severity of stuttering [24]. Gupta et al. (2016) determined that as a result of CBT interventions on individuals with stuttering, individuals' speech fluency, quality of life, communication attitudes, and anxiety symptoms significantly improved [25]. On the other hand, in the study of Scheurich et al. (2019), individuals with

social anxiety and stuttering were intervened with 10 sessions of progressive muscle relaxation technique and exposure method. As a result of the intervention, there was a significant decrease in the social anxiety levels of the individuals who participated in the study, whereas no change was observed in the incidence of stuttering. In this case report, the anxiety symptoms of the individual with social anxiety and stuttering reduced as a result of CBT intervention, and the fluency of speech improved.

It was found that the CBT techniques, which were used during the interviews of the case, were effective, and the most effective method in changing the negative thoughts of the individual occurred following the video feedback. It has been determined that displaying self-focused attention and security behaviours increase the anxiety of the individual and impact speech fluency negatively and increase the incidence of stuttering. It is suggested that self-focused attention plays a crucial role in various psychopathologies. Clark and Wells (1995) integrated this concept into a model for social anxiety and suggested that excessive self-focused attention causes and maintains social anxiety before, during, and after social interactions [20]. After watching behavioural experiment videos on self-focused attention and safety behaviours, individuals find out that they feel less anxious and are received by others in a better manner. It is considered that the use of CBT techniques in individuals with a larger study group in further studies would increase the level of evidence and would be crucial in terms of generalizing the results.

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Ethics Committee Approval

Written permission was obtained from the patient who participated in our study.

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