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Case Report

A cognitive behavioural therapy-based intervention for an adolescent experiencing social anxiety and stuttering: a clinical case study

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ABSTRACT

Stuttering is frequently associated with social anxiety, resulting in avoidance, negative self-evaluation, and impaired social functioning. This case study describes the assessment and cognitive behavioral therapy (CBT)-based treatment of a 17-year-old adolescent presenting with stuttering and severe social anxiety. Case formulation and intervention were guided by Rapee and Heimberg's cognitive model of social anxiety. Treatment included psychoeducation, development of a hierarchy of feared situations, cognitive restructuring, Socratic questioning, behavioral experiments, and attentional refocusing. Outcomes were assessed using the social phobia inventory (SPIN). The adolescent's SPIN score decreased from 40 (severe social anxiety) to 22 following treatment, accompanied by improved self-confidence and greater participation in social situations. This case highlights the effectiveness of CBT in modifying maladaptive cognitions and safety behaviors that maintain anxiety in adolescents who stutter. It also contributes to the limited literature supporting CBT-based interventions for this population and emphasizes the need for further clinical research.

Keywords: Stuttering, CBT, Social anxiety, intervention

INTRODUCTION

Stuttering has been identified as one of the most prevalent disorders of fluency of speech which is marked by disruptions while maintaining the flow of speech due to fast rate of words or prolonged sounds of words.[1,2] It could present in different ways, developmental stuttering is the more prevalent type which surfaces during early childhood and could extend up till adulthood. The common characteristics of this type are frequent word repetitions and prolongations and abrupt stops between words or sentences which could be followed by secondary behaviours such as rapid blinking of eyes and experiencing muscle tension.[3] Whereas neurogenic stuttering could result if the individual has suffered any neurological injuries or illnesses. The clinical features of this type could be irregular patterns of disfluency of speech and the secondary behaviors are absent unlike development stuttering.

Stuttering features could be compared to an iceberg which have below the surface depth and only the surface level direct impact on speech is visible to the people who observer. The actual impact of stuttering could be deeper than what is just visible. It could hence be labeled as a disorder that is multifaceted.[4,5] The facets that aren't visible on the surface level could be personal and emotional. It is obvious that individuals who experience stuttering don't find joy in doing.[6]

Individuals who stutter could experience a wide range of emotional and psychological challenges such as anxiety, shame and extreme frustration.[7] The most restricting part of the disorder is the heightened awareness of an individual of his/her fluency difficulties that could reinforce negative coping mechanisms such as avoidance to escape situations where they stutter or could possibly stutter. These avoidant patterns could prove to be detrimental to their social and occupational life in turn leading them into a vicious cycle of experiencing self-esteem issues and heightened negative emotions.[8]

Regular life of individuals who stutter is highly impacted in various aspects. Usually, people employ their verbal communication as a means of displaying their individuality, understanding of themselves, others and the world, and their thought process and belief system. The difficulty in communicating could present challenges for the individual to express themselves as a whole. Stuttering could leave individuals feeling extremely frustrated, annoyed, ashamed and even doubting themselves. The concern of feeling ashamed and frustration is common in school going children who stutter in situations when they are asked to read aloud some text from their coursebook or answer to teacher's questions. Whereas adults who stutter and also require good communication skills at their workplace find it hard to meet their professional demands and potential. Stuttering could become a potential factor in holding them back from achieving their desired professional heights.[7]

While stuttering has traditionally been viewed as a speech disorder, recent research uncovers the critical link between social anxiety and onset and maintenance of stuttering.[9] Individuals who stutter have been observed to have a significantly higher prevalence rate of social anxiety disorder in comparison to the general population i.e., approximately 40-60% higher rates.[10]

Stuttering and social anxiety usually share a bi-directional relationship. Stuttering could act as an immediate antecedent for social anxiety as a result of experiencing negative experiences socially whereas social anxiety could intensify stuttering in individuals by making them shift their attention towards self, leading to heightened self-monitoring and anxiety.[11] A model explaining social phobia by Rapee and Heimberg offers a vigorous structure to comprehend this relationship.[12] The framework suggests that individuals experiencing social anxiety exaggerate the possibility and outcomes of their negative appraisals, intensifying their attention to self and leading them to perform safety behaviours which then maintain anxiety levels.

Literature suggests that cognitive behavior therapy (CBT) has been effective enough in dealing with symptoms of social anxiety disorder and also recent research shows its efficacy in addressing the emotional and psychological difficulties that manifest with stuttering.[13,14] Nonetheless, there is still a scarcity of research to understand the comprehensive application and effectiveness of CBT based interventions for adolescents who stutter and the condition is principally steered by social anxiety.

The current case-based study aims to address these gaps in literature by highlighting the assessment, case formulation and intervention techniques employed for a 17-year-old boy who presented stuttering as a primary concern along with being anxious in social settings. Rapee and Heimberg model has been used to provide a conceptual framework for the study.

CASE REPORT

S. G, a 17-year-old adolescent boy was born in an upper middle class joint family setup in South Delhi. Later, during early years of his life, his parents decided to move out to a nuclear family setup. He is the second born child of his parents, three years apart from his elder sister. His father is a third-generation businessman and his mother is a homemaker. His parents uphold strong religious and cultural beliefs while also being modern and outgoing. The family relationships are cordial but his father has been the authoritative figure in the family and has the most decision-making power among the family members.

Presenting complaints

S. G reported experiencing stuttering since he was around 12 but it has become quite distressing since last two years. He complained of stuttering becoming worse in social situations such as responding in the classroom, presentations, asking questions in times of doubt and even at home. The situation made his self-confidence decline which led him to completely avoid or run away from situations that required social or academic involvement. He constantly heard a voice in his head that told him that he would be judged and looked down upon.

History

S. G's school counsellor had referred him to a speech therapist but it didn't really help him (minimal improvement) despite attending multiple sessions. S. G did not receive a formal diagnosis of a speech disorder (stuttering) but his symptoms did indicate towards enough evidence of the disorder based on clinical criteria and his history. During formal assessment and questioning, he stated that stuttering made him feel more anxious socially which then lead to maintenance of disfluencies in his speech.

Assessment

The child was asked to fill out responses on the social phobia inventory that would help develop an understanding about whether the child faced anxiety in social situations and to what intensity.[15] The child reported a high score of 40 which highlighted the severe social anxiety experienced by the child. The child also met the DSM 5 criteria for social anxiety and stuttering.

Case conceptualization

The case was conceptualized using the Rapee and Heimberg cognitive model of social anxiety, which provides a framework for understanding the cognitive, behavioural, and physiological processes that maintain social anxiety.[12] As illustrated in Figure 1, S. G. perceived his classmates, teachers, family members, and unfamiliar individuals as highly critical and likely to judge his speech negatively. He developed a negative mental representation

of himself, believing that his stuttering was the most noticeable aspect of his identity and that it made him appear foolish. This self-image was reinforced by excessive self-focused attention, where he continuously monitored his speech and anticipated moments of disfluency instead of attending to the ongoing conversation.

Simultaneously, he became hypervigilant to both internal cues, such as increased heart rate, sweating, trembling, and throat tightening, and external cues, including facial expressions or behaviours that he interpreted as signs of negative evaluation by others.

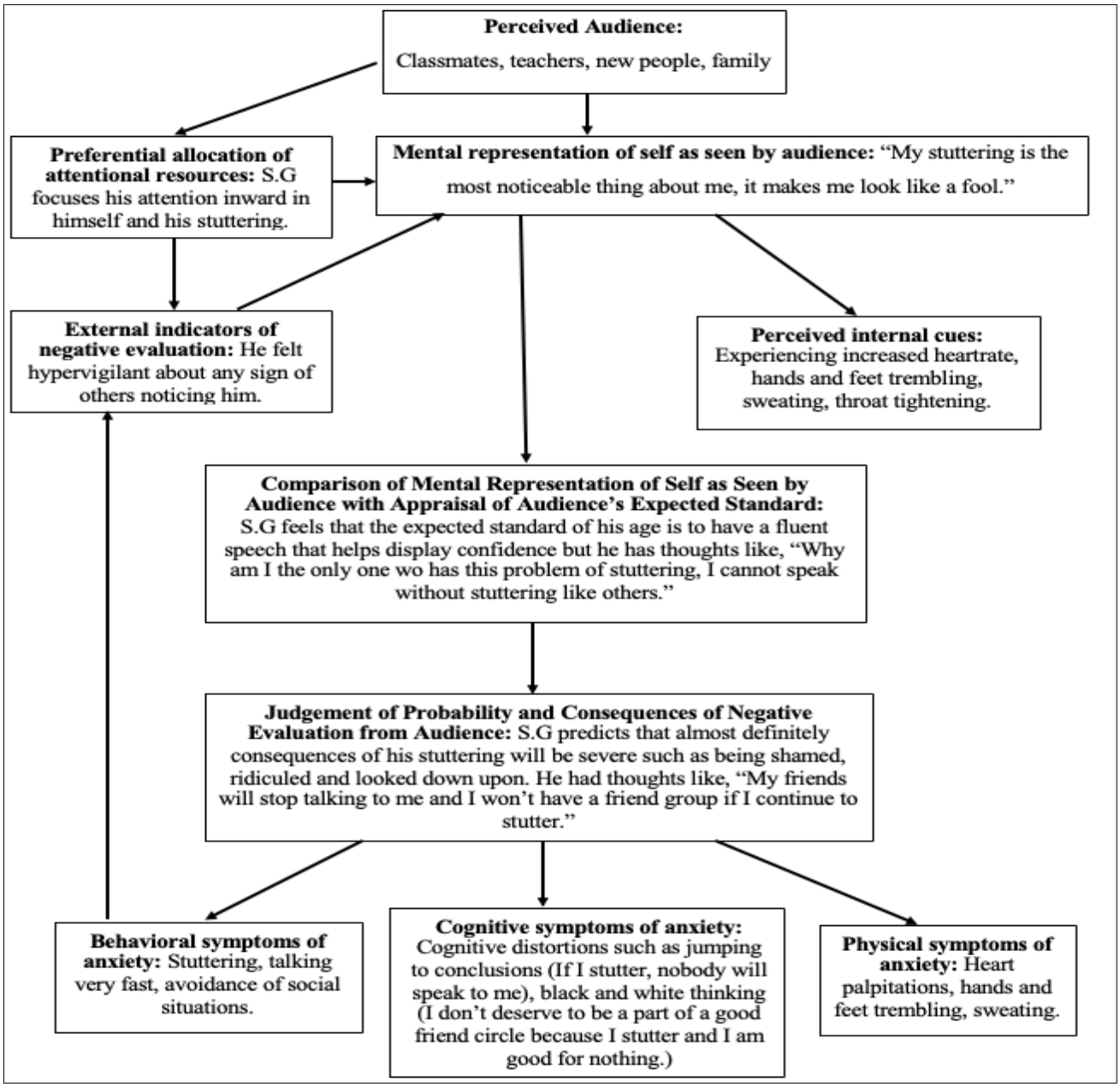

Figure 1: Case formulation: Rapee and Heimberg model (1997).

These cognitive processes led S. G. to compare his perceived performance with what he believed others expected that adolescents should speak fluently and confidently. Consequently, he consistently overestimated both the likelihood and severity of negative evaluation, believing that stuttering would inevitably result in ridicule, social rejection, and loss of friendships. Such appraisals contributed to cognitive distortions, including black-and-white thinking and jumping to conclusions, alongside behavioural symptoms such as avoidance of social situations, speaking rapidly, and increased stuttering during interactions.

According to the Rapee and Heimberg model, these maladaptive cognitions, physiological arousal, and safety behaviours interact to form a self-perpetuating cycle that

maintains social anxiety. This formulation guided the selection of CBT interventions aimed at challenging dysfunctional beliefs, reducing self-focused attention and safety behaviours, promoting outward attentional focus, and encouraging behavioural experiments to modify maladaptive assumptions and improve social functioning.

Course of treatment and assessment of progress

Following assessment and case conceptualization, an intervention based on the framework of CBT was planned and initiated. The mother of the child was kept informed about the goals and progression of therapy to facilitate a supportive home environment while monitoring his progress. Therapy was conducted at weekly intervals over a total of eight sessions.

Session 1 and session 2

The first two sessions primarily focused on rapport building, gathering important information from the child and his parents about recent episodes of anxiety while psycho educating the child about stuttering and anxiety. On being asked about how he was doing, he expressed feeling scared while talking to new people due to fear of being judged and being embarrassed due to his stuttering. While S. G. described the recent episode when he had experienced anxiety, the information was put into a diagram depicting the conceptual framework of CBT (situation, thoughts, emotions and behaviour) on a white board to help him develop an understanding of how his thoughts could be impacting his emotions and behaviour. He was shown few audio visuals having certain examples which helped him develop a better understanding of the connection between thoughts, emotions and behaviour.

The second session began with understanding the child's goals and what he was expecting to change. He shared that he wanted to feel more confident while talking and stutter less. Post goal formulation, he was asked to make a list of situations that made him feel anxious beginning from the most anxiety causing situation to the least (fear and avoidance hierarchy sheet). He was then asked to choose any one situation to begin working on (preferable from the least anxiety provoking situations). The triggers that he mentioned were being confronted, talking to new people, going to school, being blamed for something, talking to someone known and going for a school or family trip. He chose to address "talking to someone known" to begin with. Through introspection, the child was asked to reflect on what were the negative automatic thoughts that came to his mind every time he spoke to someone, he knew that made him feel anxious and led him to a maladaptive behaviour.

Homework assignment

He was asked to work on a thought record sheet for the week until the next session which would help understand what made him feel anxious and what were his thoughts about any anxiety provoking situation.

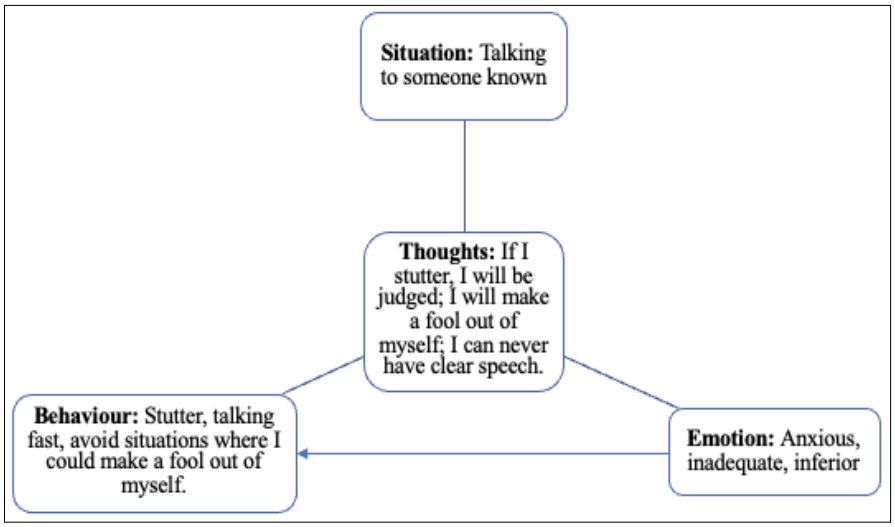

Figure 2: Cognitive triad of an anxiety provoking situation for S. G.

Session 3 and session 4

The third session began with helping the child develop an understanding of self-focused attention and heightened awareness of self. He was asked to reflect about what he focused on when he conversed with anyone and he expressed focusing on what he had to say next or how he came across which made him miss being mindful about the conversation. This made him worry about what needs to be said next in order to maintain a conversation and not embarrass himself which in turn lead him into displaying signs of discomfort and maintaining the vicious anxiety cycle for him. A fun 2-minute activity was carried out with the child in which he was asked to look around the room and find 5 beige things in a minute's time. Once he did, he was then asked to tell whether he noticed any items in the room that were of his favorite color, to which he responded with a no. This activity helped him understand that we

often have develop a blind eye to other things when we focus all our attention to looking for one despite the fact that those other things could be more pleasant to observe. Through Socratic questioning, S. G. was enquired about his beliefs about specific situations and what they meant to him and to what intensity he believed them. He was asked about worst-case scenarios that his mind presented to him about each situation.

In the fourth session, through socratic questioning, he was asked whether his thoughts were backed with valid evidence to be able to convince him enough that they would certainly become things or come true. The rest of the three columns of the thought record sheet were then introduced to him which made him reflect on looking for evidence that supports his thought and evidence that doesn't suggest that his thought is true. The concept of thought restructuring came in when he was asked to work on building a kinder thought which was balanced and not heavily biased based on his beliefs. This entire activity was done with keeping the situation of "talking to someone new" as an example.

Homework assignment

S. G. was asked to work on thought challenging and trying to build a kinder though for himself every time his mind suggested something which made him feel anxious. Also, he was suggested to look for evidence that would support his thought or not support it.

Session 5 and session 6

The child recognized through his homework that he had strong beliefs that he would be embarrassed, he is not good enough and he will always make a fool out of himself and he will always stutter when he speaks to someone new. To help him challenge his thoughts, a behavioral experiment was designed for him that would help him gather evidence that does not support his thought. Before the experiment, S.G. was psycho educated about safety behaviors such as being extremely aware of his speech and actions while talking to someone to observe when he stutters or talks fast which in turn worsens anxiety and causes him to stutter. For the experiment, he was told that a fellow colleague would have two conversations with him, both for ten minutes each that would be recorded for reference purpose. During the first conversation, he was asked to maintain his safety behaviors while talking such as being observant of his speech and focusing on himself more than on the conversation. However, during the second conversation he was suggested to try and shift his attention to what the other person said and being more mindful of the conversation instead of himself. Post the conversations, the child was shown both the recordings and asked what he could see happening differently in the videos. S. G. expressed that he could see himself being more involved during the second conversation and also stuttering less in comparison to the first video. He also said that there was a difference in body language as he was rubbing the index finger with the thumb multiple times during the first conversation and during the second conversation his body seemed to be more at ease. When asked about what felt different for him in both the conversation while he was conversing, he said that he felt that he was able to listen more clearly to the other person during the second conversation which lessened the constant ruminating thought of stuttering from his mind.

Homework assignment

The child was given a worksheet that included questions for understanding his anxiety better and help him work on restructuring his thoughts and self-talk. Alongside, he was asked to test some of his safety behaviors while engaging in conversations with people. He seemed hesitant but agreed as that could be the only way he could also find evidence for the worst-case scenarios he had built in his mind regarding situations.

Session 7 and session 8

The session began with collaborative reflection on the child's homework about testing his safety behaviors while talking to people. The child expressed that he noticed that when he wasn't paying attention to his speech and how he came across while conversing, he could talk with more confidence and stuttered relatively less. To work on his belief that everyone would stop speaking to him due to his stuttering, he was asked whether his friends have ever told this to him or is it an assumption. He responded that it was his own thought and his friend usually displayed no sign of ignorance towards him. To understand this better, the child was handed over with a cognitive distortions sheet and was asked to read and identify which cognitive distortion was he employing in the given situation. He read and understood that he was jumping to conclusions and disregarding the positives as there was no evidence that supported his thought of receiving any form of ignorance from his friends.

In the next session, the child was made to rework on a fear and avoidance hierarchy sheet which helped analyze the progress (if any) made by him on the level of distress experienced by child after thought challenging and the behavioral experiment. There was a positive difference observed in levels of distress in situations of talking to someone new and going to school but the level of distress was high when being confronted about something and also being asked by the teacher to provide an answer to something in between the class. The child was asked some dispute questions to help build more clarity on his beliefs. He was asked about what he believed would happen if he had to answer to something his teacher asked him in class and if he was confronted. He felt that he would stutter when he answers to his teacher that would lead everyone laugh at him and eventually his friends would stop associating with someone who is laughed at and it would be a shame for them to call him their friend. He attached fear of judgement with confrontation for something as he

wouldn't be able to defend himself as he gets nervous in such situations leading to more stuttering or talking fast. These beliefs were challenged by asking him whether he was 100% certain that something that he thought could really happen and what is the likelihood of it to happen. He shared that he was not 100% sure and the likelihood was always 50-50 percent as it had never happened before and he didn't know for sure whether it could even happen.

Assessment of progress

Post delivering 8 sessions for S. G., his progress (if any) was reviewed by re administration of social phobia inventory. He showed significant improvement in scores from 40 to 22 and also expressed feeling more confident about himself and did accept that stuttering did not define him. Sessions were continued for him to help build strategies for maintaining progress while also working on other beliefs about social situations that he attached to himself. S. G. was also encouraged to continue using CBT techniques independently to help manage setbacks (if any).

Follow-up

Following completion of the initial eight-session intervention, S. G. demonstrated clinically meaningful improvement in both self-reported anxiety and confidence. Reassessment indicated a reduction in SPIN scores from 40 to 22, and he reported that stuttering no longer defined his identity. Therapy was continued beyond the initial intervention period to reinforce CBT skills, strengthen maintenance strategies, and address remaining beliefs related to social situations while encouraging independent use of CBT techniques to manage potential setbacks.

DISCUSSION

The current case study highlights an eight-session CBT based intervention for an adolescent who presented with stuttering and experiencing anxiety in certain social situations such as being confronted, talking to new people, going to school, being blamed for something, talking to someone known and going for a school or family trip. He shared his strong beliefs of judgement, embarrassment and facing ridicule. He reported a high score of 40 (severe social anxiety) on the social phobia inventory which improved to 22 post receiving the intervention. Alongside, he also expressed feeling more confident about himself and chose to not let stuttering define him or control his life. The results suggested the effectiveness of the intervention for children and adolescents dealing with social anxiety and stuttering as it suggests improved social functioning.

The psychosocial improvements in the current case that came about with the help of a CBT based intervention is consistent with literature as CBT interventions have persistently displayed huge improvements for symptoms of social anxiety disorder and avoidant patterns of individuals who stutter. Recently, various researches have confirmed the effectiveness of CBT based interventions (conducted online or offline) for showing significant improvement in anxious symptoms, avoidant patterns of behaviour and overall way of functioning and a first ever experimental study reported that CBT interventions were found effective enough in eliminating diagnosis of social anxiety for its participants in comparison to control groups.[11,14,16] Similarly, CBT intervention based researches have been conducted with child population but it is sparse. Recently, a randomized controlled trial was carried out with school going children who stuttered of an integrated cognitive behavioural play therapy which significantly reduced their scores on social anxiety inventory in comparison to control groups. The growing literature supports the effectiveness of CBT based interventions in lessening the psychological burden of stuttering for the younger population.[17]

The outcomes that have surfaced in the current case study could be understood with the help of existing and well documented cognitive frameworks of social anxiety. The current case has been formulated using the Rapee and Heimberg's framework that recognizes distorted ways of perceiving social information of individuals with social anxiety such as heightened sense of self awareness, biased expectations of negative evaluation and employing safety behaviours that maintains the vicious loop of anxiety.[12]

In the current case, S. G.'s thoughts such as "If I stutter, nobody will speak to me or be my friend" highlights that he is employing the cognitive distortion of black and white thinking and safety behaviours (excessive monitoring of his speech) while perceiving information in social situation. The intervention targeted these cognitive distortions and safety behaviours by helping him move his focus from inward to outward, challenging negative beliefs and worst-case scenarios, and designing appropriate behavioural experiments to challenge and contradict his beliefs. This method of approaching social anxiety in the current case study is in sync with suggestions by Iverach and Rapee who observed that evaluating social events negatively, negative thoughts or perceptions, safety behaviours and preferring to focus on negative information is what tends to maintain social anxiety in stuttering and CBT techniques such as cognitive restructuring, behavioural experiments, attention and social skills training can be an asset in targeting these maintenance factors.[9]

The behavioural experiment conducted for S. G. helped him rationalize his negative cognitions and challenge his safety behaviours and it is a typical technique in CBT that helps to break the vicious cycle that maintains avoidant patterns in social anxiety. It helped him also drop his safety behaviours and focus outward, building more focus on the conversation and in turn reducing stuttering.[10,14,16] Whereas, the interventions that solely focused on working with speech fluency blind sighted the symptom of anxiety followed by stuttering, highlighting the importance of working on cognition and emotion alongside speech.[11]

CONCLUSION

Very few RCT based studies exist that have presented CBT based work with child and adolescent population. Initial research has proposed probable benefits that CBT based interventions could have with children and adolescents while working on their socio-emotional modifications.[17,18] There is still a gap in literature as still no large clinical trials have been carried out for adolescents who stutter. This also suggests that S. G.'s case is a premature study and its success does not guarantee its generalizability and more RCT's are required.

For clinicians, this case underscores the importance of addressing the cognitive and emotional processes underlying stuttering rather than focusing exclusively on speech fluency. Integrating cognitive restructuring, behavioural experiments, and attention training into intervention may help reduce social anxiety and maladaptive safety behaviours that maintain stuttering-related distress. Future research should also investigate whether combining CBT with conventional speech therapy produces superior clinical outcomes compared with either intervention alone.

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