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## Perspectives on Stuttering and Social Anxiety

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### Abstract

Speech is the central mechanism that supports daily communication with others and plays an important role in establishing and sustaining social relationships. It is the core factor in establishing and sustaining all academic and occupational links as well. Stuttering disrupts normal flow of speech and interferes with social interactions and quality of life. Disfluencies and secondary behaviors associated with stuttering can be socially disconcerting and individually frustrating. Consecutively this may hinder academic, occupational and social development. Anxiety might co-occur with stuttering as the social communicative interactions will be affected in a substantial manner. There has been increased evidence of the relationship between stuttering and related psychiatric symptoms such as chronic anxiety, depression and social phobia. The aim of this article is to understand the interaction between stuttering and social anxiety. It also

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Dr. Vandana.V.P., Ph.D.

Perspectives on Stuttering and Social Anxiety

855

highlights the existing intervention strategies for stuttering and the need to develop intervention protocols that directly address the social fears accompanying disfluencies or intervention strategies that may be more efficacious in reducing or eliminating stuttering behaviors.

**Key words:** Stuttering, social impact, social anxiety, intervention

## **Introduction**

Speech is the verbal method of communication and is crucial for effective social communication, occupational achievement and quality of life. Stuttering is a speech disorder that interrupts smooth flow of speech and hence communication. Stuttering manifests as automatic interruption of an individual's ability to speak. It is a fluency disorder that results in frequent repetitions or prolongations of sounds or syllables, while speaking or reading aloud<sup>1</sup>. It manifests in childhood and may persist into adulthood. It is primarily characterized by repetitions of sounds, syllables or words, audible or inaudible prolongations (around 1-4 sec) or blocks. These may be seen in the beginning of a word or sentence. Several secondary behaviours also accompany stuttering behaviors. This may include eye blinking, avoiding eye contact, jaw jerks while speaking, hand or finger fidgeting, restlessness while speaking etc. These may be construed as learned approaches to minimise the disfluencies and can add to the patients discomfort and awkwardness while speaking. These secondary behaviors may manifest differently in adults as linguistic escape and avoidance behaviors including word substitutions, interjections and modification of sentences. The disturbances causes anxiety about speaking or limitations in effective communication, social participation, or academic or occupational performance, individually or in any combination<sup>2</sup>.

The cause for stuttering is unidentified. It is speculated that cognitive-linguistic processing abilities (reaction time and speech processing), gender, environmental situations and genetics abilities may play a role in stuttering. Imaging studies have reported increased activation in the ventral limbic cortical and subcortical regions. These regions are strongly associated with the modulation of speech. Among the various speculations on the cause of stuttering, inadequate neural processing of spoken language due to basal ganglia involvement also deserves mention<sup>3,4</sup>. Environmental effects of stuttering which is the focus of this article may include any

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Dr. Vandana.V.P., Ph.D.

Perspectives on Stuttering and Social Anxiety

856

anxiety provoking situations prior to or during speaking and negative emotional reactions that accompany the stuttering behaviors. There is evolving indication of the role of anxiety in inducing and maintaining associated disfluencies and struggle in speaking.

Repressed anger, sexual obsessions and emotional conflicts have all been thought of as possible etiologies for stuttering 5. Existing opinion of stuttering is as a speech motor control disorder. Many factors may affect synaptic transmission to motoneurons 6. One of those variables is anxiety7-9 . This is elaborated in the communication - emotional idea of stuttering. 10 This model proposes that anxiety may influence disfluencies through its effect on speech motoneurons. Also Davis et al. (2007) reported that individuals with stuttering in general have increased state anxiety compared to control and recovered group.

### **Anxiety and stuttering**

Stuttering can affect children, adolescents and adults in particular ways. It may be in the form of children being intimidated in school and adolescents performing below their abilities in school and having poor peer interaction. Adults may have to face adverse listener responses to their stuttering behaviors11, 12. In the long run these can lead to a helpless outlook, indignity and humiliation and can affect academic and occupational accomplishment and quality of life. This may, in turn, lead to emotional problems and anxiety. Anxiety has been stressed as one of the psychological correlates of the negative consequences associated with stuttering8.

### **Educational Under-attainment and Stuttering**

Academic establishments, from preschool to degree and postgraduation, give importance to effective verbal communication. In addition to socialisation, speech is required to read aloud, peer group interaction for social and academic pursuits, to interact with superiors and group speaking. Stuttering arouses undesirable peer responses and affects peer interactions. This is seen right from preschool age with peers acting in response to stuttering by interfering and disregarding stuttering children12. These children have struggle during play, classroom dialogues and description13. These early experiences gets entrenched in the child's persona and attitude towards social communication 14. Children with stuttering also differ from their peers in terms of having a sensitive personality with increased levels of annoyance and resentment. This

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Dr. Vandana.V.P., Ph.D.

Perspectives on Stuttering and Social Anxiety

857

predisposes them to anxiety disorders. This is aggravated in adolescence with the need to conform to group standards and to be recognised in the group. Difficulty in focusing and learning can occur due to the immense mental energy spent in anticipating disfluencies and thinking how to counter them.

### **Impact of Stuttering on Employment Opportunities and Job Performance**

Communication skills are essential for adequate performance in most jobs. This may be affected in individuals with stuttering due to the negative effect of disfluencies on their quality of work or vocational choices. The attitude of their employers, peers or colleagues as well as their attitude towards themselves may further impede social interaction at various levels. Negative attitude towards themselves and anxiety may develop gradually due to their alteration of self-impression over a period to match the perceptions that others have of them. Because of these factors individuals with stuttering may end up working in less paid jobs or in jobs that cannot stimulate the maximum potential of the individual leaving themselves and their employers discontented.

There may be a biased attitude and underestimation towards them in work environment and peer group, with individuals with stuttering being perceived as less productive, efficient and incapable than their colleagues or peers. Dysfluencies may affect their performance in job interviews, may reduce their chances of being promoted. This may, in turn, affect their self-regard, self-image, educational and professional relationships.

Considering all these aspects it is only quiet natural that stuttering behaviors induce and perpetuate significant anxiety in these individuals.

Anxiety has been consigned different roles in stuttering. These include anxiety as the (a) key factor that leads to stuttering (b) triggering, maintaining, or increasing factor (c) consequence of stuttering (d) overall stress attribute (e) state anxiety related to speaking. Several studies suggest that anxiety is a predisposing and co-occurring factor in individuals with stuttering. However, it is a matter of debate whether social anxiety leads to stuttering or is a consequence of stuttering. It is not clear whether anxiety leads to stuttering or whether stuttering

behaviors lead to anxiety. Persons with severe stuttering may fear speaking situations which may lead to physical concomitants such as tense muscles and emotional effects such as fear, avoidance and embarrassment.

Research evidence on social anxiety based on state anxiety reveals that individuals with stuttering have increased state anxiety 15 and stuttering varies under conditions innately related to state anxiety, like audience proportions and professional status of conversational partner. Research evidence demonstrates that trait anxiety is not typical of individuals with stuttering and does not vary with the stuttering severity. On the contrary, correlation between stuttering severity and state anxiety indicates that situation and speech task-specific anxiety was directly proportional to stuttering severity. This is a reasonable explanation given the fact that stuttering behaviors are situation specific and depends on requisite speaking, number of and acquaintance with listeners, and command of listeners. State anxiety will not affect automatic language processing such as semantic selection, grammar and selection of speech sounds. However, the phonetic or execution stage is non-automatic, requires attention and is prone to the effects of anxiety. This may well explain the correlation between stuttering severity and disfluencies. It may be speculated that there may be subgroups of persons with stuttering with increased state anxiety.

Physiological findings with increased catecholamine excretion in those who stutter than in control subjects have also been reported. This is also found to correlate with the severity of stuttering 16. Increased heart rate is also reported to be associated with anxiety subsequent to stuttering behaviors<sup>17</sup> and this is related to poor treatment outcomes. More than half of the individuals who stutter have associated social phobia<sup>18, 19</sup>. Physiological anxiety also has been stated in individuals with stuttering with measures of blood pressure and skin conductance. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) (American Psychiatric Association, 2000) 2 precludes a concomitant diagnosis of anxiety and social phobia related to stuttering behaviors. The nature of social anxiety disorder in individuals who stutter is unclear. DSM-V does not approve of a diagnosis of stuttering with social anxiety as it is presumed that the social anxiety is a result of their stuttering. Criteria D of the DSM V clearly say that disturbance is not attributed to any other medical condition and is not better explained by

another mental disorder. DSM-, is of the opinion that social phobia and stuttering co-morbid diagnosis is not entertained. This is one of the draw back of the DSM-V criteria.

### **Anxiety in Children and Adolescents Who Stutter**

Social anxiety is very likely in stuttering due to the adverse appraisal of the speech patterns by others. This negative valuation is evident right from childhood. Evidence indicates that typically developing children recognise and negatively appraise disfluencies in their peers even by the age of four years of age15. Adolescent children presenting with stuttering and anxiety also pose particular challenges as there are chances of lower peer interaction and avoidance due to the same 20. Anxiety if not intervened may be one reason for relapse in certain children and adolescents with stuttering.

### **Assessment**

Assessment is usually done by a multidisciplinary team consisting of Speech Language Pathologist, Psychiatrist and Psychologist. Referral for therapy is essential if the stuttering persists, if there is a family history or if there are significant emotional concomitants associated with dysfluencies. Dysfluencies may be characterized as normal non-fluency in children, mild or severe stuttering. Normal non-fluency usually occurs between 18 months to three years of age and is characterized by repetitions of syllables and words in the beginning of a sentence. These children are not cognizant of their dysfluencies and parental counselling is an integral part of intervention for the same. They will have slight or no frustration or awareness of their dysfluencies.

There is no anxiety associated with normal non-fluency. Mild and severe stuttering is usually diagnosed above the age of three years and is characterized by dysfluencies in initiating words in a sentence and can have prolongations and blocks also. These types are associated with secondary behaviors, significant anxiety and embarrassment, fear and avoidance of speaking situations . This occurs due to inability to perform well in speaking situations at school, peer group, jobs, interviews, etc.

### **Speech evaluation**

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Dr. Vandana.V.P., Ph.D.

Perspectives on Stuttering and Social Anxiety

860

The Speech Language Pathologist evaluates the speech which comprises detailed case history, onset of stuttering, disfluency types, situational variations, emotional reactions to stuttering etc. Evaluation also involves formal testing with Stuttering Severity Instrument and Stuttering Prediction Instrument for young children. Specifics regarding type, duration and frequency of stuttering, type of secondaries can be obtained from these tests. Influence of dysfluencies on the quality of life can also be assessed.

### **Tests That Are Suitable for Evaluation of Social Anxiety Associated with Stuttering**

More than a few self-report questionnaires have been established for evaluating individuals with stuttering. These tests are helpful in assessing insights and self-appraisals about stuttering behaviors. These include

- a) Inventory of Interpersonal Situations<sup>21</sup> (Van Dam-Baggen&Kraaimaat, 1999)
- b) “Negative Social Evaluation Scale”<sup>22</sup> (Morris-Yates, 1993)
- c) Stuttering Severity Instrument for children and adults<sup>23</sup> (Riley, 1994)
- d) Liebowitz Social Anxiety Scale<sup>24</sup> (Liebowitz, 1987)
- e) Task-Related Anxiety-TRA<sup>15</sup>(Ezrati-Vinacour& Levin, 2004)

### **Stuttering Intervention**

Stuttering should be identified and intervened at an early age. If not, it will cause several incapacitating somatic (tense musculature) and psychosocial issues (fear and anxiety due to job related performance and promotion). This may lead to weakening of self-esteem and perception. As of now there is no comprehensive intervention for stuttering. Nevertheless, it is imperative that the clinicians and professionals in the trans-disciplinary team be aware of existing intervention techniques for individuals who stutter.

The focus of speech therapy is twofold i.e. reducing secondary behaviors and techniques in dealing with dysfluencies instead of trying to stop dysfluencies per se. Overall goal is to reduce the consequences and frequency of stuttering. None of these techniques reduces stuttering completely.

There are few evidence-based intervention programs for stuttering. Delayed auditory feedback and choral speech are efficacious in reducing dysfluencies. Fluency shaping techniques (self monitoring speech) and stuttering modification technique are also equally efficacious. Techniques that emphasize the use of diaphragmatic breathing, continuous airflow (controlling breath pressure before speaking by controlling the diaphragm), initial prolongation and monitored speech are also used.

Behavioral intervention focuses on altering the speech motor dynamics through the use of particular techniques and has not been proven to be efficacious in preventing relapse<sup>25</sup>. There is also research evidence for a majority of the clinical management techniques for stuttering having their underlying basis on anxiety management techniques. Evidence in general suggests that anxiolytic treatments like desensitisation should be an integral part of stuttering intervention. Family has an important role in the management of dysfluencies in children by providing time to speak slowly and demonstrating slow speech to the child. For all individuals who stutter a prudent combination of instruction, individualized and group interventions will lead to best results.

Stuttering in adults does not show much response to speech therapy. Behavioural speech programs like prolonged speech results in unnatural sounding speech and fail in averting relapse. Behavioral programs basically help to subdue stuttering behaviors by reducing the demands on speech motor control. These programs are not efficacious in retaining long term effects. This may be due to the issues pertaining to unaddressed social anxiety and listener attitude towards individuals with stuttering 26, 27.

### **Addressing Social Anxiety in Stuttering**

Techniques for the management of social anxiety must be integrated into behavioral treatments for stuttering because of the following reasons:

- a) Relapse after use of behavioural paradigms alone
- b) Difficult peer relationships and bullying
- c) Fear of negative appraisal – being laughed at etc
- d) Major social and occupational avoidance impacting quality of life and promotion

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Dr. Vandana.V.P., Ph.D.

Perspectives on Stuttering and Social Anxiety

- e) Manifestation of anxiety when speaking may worsen stuttering
- f) Poor response to intervention

### **Cognitive Behavioral Therapy and Stuttering (CBT)**

CBT is a generally accepted and established intervention in the disciplines of clinical psychology and psychiatry. Its role in the treatment of Speech and Language disorders is emerging. Research evidence suggests that a combination of prolonged speech and CBT is advisable for better long term treatment outcomes 27.

### **Speech-Language Pathologist and CBT**

The mechanisms of CBT that may be helpful for SLP includes exposure, behavioural trials, cognitive restructuring and attentional training<sup>27</sup>. In exposure, the individual has to face and speak in the anxiety provoking situation, without avoidance. This has to be practised till the individuals' anxiety for that particular situation is reduced. This could be in situations like using telephone, speaking to higher-ups, presentations etc. Behavioral trials use the technique of voluntary stuttering and proceeds in a grading from less-anxious to more anxious situations. Cognitive restructuring helps the individual with stuttering to deal with the undesirable opinions and judgments of themselves and others. The Unhelpful thoughts and beliefs about stuttering (UTBAS) scale by St Clare et al (2009) 28 can be incorporated as a part of cognitive behaviour therapy (CBT). Off late mindfulness-centred techniques are employed as a part of CBT program 29. This involves attentional training to reduce the frequency of threat or intimidation related thoughts by concentrating on alternative targets 30.

### **Pharmacological Intervention**

Pharmacologic therapy is reported to be ineffective in reducing stuttering. Its efficacy is more promising based on serotonin and dopamine models of stuttering. Among the few placebo controlled studies, Maguire et al 31 reported that on increasing the dosage of olanzapine from 2.5mg to 5mg each day, individuals with developmental stuttering had significant reduction in dysfluency compared with participants in the placebo group. Pagoclone also has shown to reduce

dysfluencies compared to placebo. Pharmacological treatments have generally not shown any positive effects in stuttering, whereas social phobia responds to pharmacological intervention.

## Conclusion

There is substantial evidence of a relationship between anxiety and stuttering. However several caveats need to be addressed on the exact association between the same. Understanding the nature of relationship between both factors is essential for developing intervention strategies that give efficacious and long-term benefits for individuals with stuttering. Moreover, the coexistence of an anxiety disorder in individuals who stutter can impair social skills and affect treatment efficacy. Fluency intervention for individuals with stuttering with associated social phobia should also focus on different anxiety ameliorating techniques for effective results and to prevent any possible relapse of stuttering. Prospective research should also aim to improve the pharmacological treatment options for people who stutter and having anxiety.

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**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 14:1 January 2014

Dr. Vandana.V.P., Ph.D.

Perspectives on Stuttering and Social Anxiety

864

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