A Review on Stuttering and Social Anxiety Disorder in Children: Possible Causes and Therapies/Treatments

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Abstract

In the past two decades, stuttering and its relation to social anxiety disorder have been researched using different approaches in study fields such as neurolinguistics and neuropsychology. This paper presents a review of research publications about social anxiety disorder in children who stutter. It takes into account studies of stuttering, social anxiety disorders, the possible causes as well as attitudes and beliefs towards stuttering. Also, therapies or treatments that have been conducted on both English-speaking children who stutter in the Western context and Mandarin-speaking children stutterers in Asia, Taiwan in particular; will be looked at.

Keywords: stuttering, stammering, social anxiety disorder, children, therapies, treatments, English speakers, Mandarin speakers.

Introduction

Stuttering or stammering is a language disorder in which there is disturbance in the speech flow, preventing an individual from communicating effectively (*World Health Organization* 2010; Iverach and Rapee, 2014). It is most commonly associated with involuntary repetition of sounds, syllables, phrases and words (Carlson, 2013). A stutterer usually becomes unable to produce sounds, which includes pauses or blocks before speech, and prolongs vowels or semi-ivowels in an attempt to produce fluent speech (Carlson, 2013).

Stuttering can be categorized into three subtypes (*New Scientist* 2016). The first is a developmental disorder that appears in early childhood and continues in adulthood, related to many different brain structures. The second is neurogenic stuttering, acquired in adulthood due to a neurological event as a result of stroke, brain injury or trauma. The third is psychogenic stuttering, which is a rare form that arises after severe emotional trauma. The impact of stuttering on the emotional state of an individual can be severe, which may lead to fear of stuttering in social situations, anxiety, stress, and being a target of bullying especially in children.

This article focuses on childhood stuttering and aims at giving a deeper insight into how both English and Mandarin-speaking children stutterers develop

social anxiety disorder, the possible causes of stuttering in children, as well therapies or treatments available. Firstly, it will introduce stuttering as a childhood language disorder and also look at the autonomic nervous system in children stutterers. Then, it will look at perceptions of stuttering and social anxiety disorder in children stutterers both in Western and Asian contexts. Next, it will describe and explain the benefits of different therapies on stuttering. Finally, it will conclude current status and future directions of social anxiety disorder in children who stutter, and offer some suggestions for future research in the field.

Research in the Past Two Decades

Stuttering typically begins to occur when children are developing language and speech skills, particularly between the age of two and five years old (Yairi, Ambrose, and Cox, 1996). Stuttering, however, is most responsive to treatment during the preschool years due to significant neuronal plasticity (Iverach and Rapee, 2014). The disorder becomes far less treatable after the preschool years, and by adulthood it often turns out to be a long-term problem.

Types of Disfluencies and examples

More Typical Disfluencies	Examples
Hesitation	*I.. (pause)..want the red one*
Interjections	*I um want the red one*
Unfinished Words	*I want the oran....red one*
Sentence Revision	*I um want the red one*
Phrase Repetition	*I want...I want the red one*
Word Repetition	*I I want the red one*
Less Typical Disfluencies	**Examples**
Word Repetition	*I I I I want the red one*
Interjection Repetition	*Um Um Um I want well well well the red one*
Sound Repetition	*I wa wa want the red one*
Syllable Repetition	*I want the r r r red one*
Prolongation	*IIIIIIII want the red one, or I waaaaaaaant the red one*
Blocks	*I want.........the red one*
Multi-component	*I I I waaaaaaaant the red one, or I, uh uh, wa wa wa want the red one*

Source: Gregory et al., 1996

There are two types of stuttering: more typical disfluencies and less typical disfluencies (Gregory et al., 1996). Stutterers with more typical disfluencies stutter without tension. This type of stutterers shows characteristics of hesitat-ing, using interjections and unfinished words, revising sentences, repeating phrases as well as

words. On the contrary, less typical disfluencies stutterers exper-ience tension in their stuttering. These could be identi-fied by their repetitions of words, interjections, sounds, and syllables for three times or more. This type of stutterers also tend to prolong the duration of a phoneme, experience blocks in their speech, and combine a set of less or more typical disfluencies characteristics consecutively in their speech. Several examples of the stutterer language are shown in the table above.

Stuttering has been reported to have effects on the school life as well as emotional functioning of children (Hayhow, Cray, and Enderby, 2002). This is because it is often associated with negative stereotypes (Blumgart, Tran and Craig, 2010; Klein and Hood, 2004), affecting quality of life by putting an individual in threatening states, for example neurotrauma (Craig, Blumgart, and Train, 2009). Negative perceptions towards children stutterers are shown by empirical 'evidence of preschool children who stutter experiencing bullying, teasing, exclusion, and negative peer reactions' (Iverach and Rapee, 2014). These negative results that are connected with stuttering are believed to be the origin of anxiety (Blood and Blood, 2007).

Before the year of 2000, however, findings about the correlation between stuttering and anxiety showed ambiguity and inconsistency, and were difficult to interpret (Menzies, Onslow, and Packman, 1999; Ingham, 1984). The findings also included methodological flaws and weaknesses such as small scope of sampling, insufficiency to differentiate groups, and sample selection bias such that stutterers seeking treatment for their disorder were recruited as participants instead of those who stutter from the general community (Menzies, Onslow, and Packman, 1999; Ingham, 1984). The application of physiological and one-dimensional anxiety measurements instead of measures designed to evaluate social anxiety specifically were also deficiencies in the methodology (Menzies, Onslow, and Packman, 1999; Ingham, 1984).

Regardless of the uncertainties in the findings, publications of studies in the last twenty years have shown evidence of the relationship between stuttering and social anxiety disorder to be more convincing. Menzies, Onslow, and Packman (1999) reported that many studies have particularly established the existence of intensified anxiety in stutterers, with developing evidence showing that anxiety only occurs in performance or social-based situations. These findings are led by more studies that have been centered on social anxiety, fear of negative evaluation, and

expectancies of social harm (Iverach et al., 2011; Craig and Tran, 2006; Menzies, Onslow, and Packman, 1999).

Autonomic Nervous System Activity

In relation to stuttering and social anxiety disorder, the association between developmental stuttering and emotional processes has been researched using psychophysiological methods to assess the autonomic nervous system in preschool-age children who stutter to increase understanding of this connection (Jones et al., 2014). The autonomic nervous system is the function of internal organs influenced by a division of the peripheral nervous system, which is responsible for controlling unconscious bodily functions such as breathing, the heartbeat and digestive processes (Schmidt and Thews, 1989). It is reported that pre-school aged children stutterers show less adaptability, poor attention span and more negative mood compared to children who do not stutter (Jones et al., 2014).

Jones and colleagues (2014) investigated the potential differences in the autonomic nervous system activity to emotional stimuli between preschool stutterers and non-stutterers. The study included 15 male and 5 female preschool-age stutterers as well as 11 male and 9 female preschool-age non-stutterers as participants. The experiment used Respiratory Sinus Arrhythmia (RSA) and Skin Conductance Level (SCL) to index the activity of both parasympathetic nerves that arises from the brain and the lower end of the spinal cord, and sympathetic nerves, which are located in the ganglia, near the middle part of the spinal cord supplying the internal organs, blood vessels, and glands (*Oxford Dictionary* 2016). The study discovered that preschool stutterers displayed a greater emotional vulnerability and mobilization of emotional reactivity rather than preschool children who do not stutter, showing a link between stuttering and the development of anxiety in a child stutterer (Jones et al., 2014).

Attitudes of Children in the West

In the United States, Weidner et al. (2015) has conducted a study on non-stuttering preschool and kindergarten children and their attitudes towards schoolmates who stutter. The purpose of the study is to understand better the origins of attitudes towards stuttering. The study examined attitudes toward stuttering using the Public Opinion Survey on Human Attributes-Stuttering/Child (POSHA-S/Child) that was suitable to be used with young children. The participants were 27 preschool and 24 kindergarten non-stuttering children. The findings showed that preschool students had more negative attitudes towards stuttering compared to kindergarten students. Although stuttering was viewed negatively, children actually

viewed their stuttering peers positively. However, their knowledge and experience about stuttering were generally limited. Overall, investigation of the specific study provided empirical evidence for the need of educating young children about stuttering and how to respond appropriately to peers who stutter (Weidner et al., 2015).

Attitudes & Beliefs of Teachers in Asia

In Taiwan, Yang (2009) conducted a study to explore Taiwanese teachers' views of Mandarin-speaking stuttering children. The investigation first started by inviting parents and teachers of first year elementary students in Pingtung area of Southern Taiwan to fill out a stuttering screening form for their children or students individually. By collecting the stuttering screening forms, it was found that 1.38% of the children were reported as having stuttering. In addition, speech samples of the Mandarin-speaking first-graders were also collected using a digital audio recorder. Yang (2009) used frameworks such as Stuttering-Like Disfluency (SLD) and Weighted Stuttering-Like Disfluency (WSLD) to measure the average disfluency in two speech samples per student to identify children who stutter (Ambrose and Yairi, 1995; Yairi, 1997; Ambrose and Yairi, 1999). The results showed that 63 students were suspected of having stuttering.

Following the results, the teachers who taught the stuttering students were interviewed about their students who stutter. There were 13 teachers, 8 of them were aware of their students' stuttering, however, the remaining were not until the researcher informed them. Most of the teachers did not take stuttering seriously therefore they did not ask for medical or professional assistance. Seven teachers reported that the stuttering students act openly, actively and are even talkative whereas 3 teachers described the children with negative personalities, such as being nervous and shy. Out of 13 teachers interviewed, 8 of them did not think that personality caused stuttering. To add, 3 teachers also reported that their non-stuttering peers did not tease the children who stutter.

After analyzing the data collected, the findings of this study were inconsistent to what have been found in English-speaking cultures. Previous studies in English-speaking cultures suggested that both stutterers and stuttering were perceived negatively, considering that children are able to detect stuttering as early as the age of four and a half years old leading to an initiation of bullying children stutterers (Craig, Hancock, Tran and Craig, 2003; Dorsey and Guenther, 2000; Franck, Jackson, Pimentel and Greenwood, 2003; Klassen, 2001; Ruscello,

Lass, Schmitt and Pannbacker, 1994; Ambrose and Yairi, 1994). On the contrary, the study of views towards stuttering in Taiwan found that most first-grade students were not aware of the disfluencies of their classmates (Yang, 2009). It also displayed that Taiwanese teachers had more positive attitudes and beliefs toward the personality of their stuttering students. Taiwanese teachers, however, had a lack of knowledge on managing their students' stuttering appropriately. Therefore, this suggests that the teachers need to receive more training about stuttering.

Therapy

Cognitive Behavior Therapy

Reviews have found that Cognitive Behavior Therapy (CBT) is effective for treating children with anxiety disorders (James et al., 2013; Cartwright-Hatton et al., 2004). Evidence has shown that CBT engages children who stutter, particularly those who have experienced social exclusion and negative peer reactions (Grave & Blisset, 2004; Friedburg & McClure, 2002; Langevin et al., 2009). At the Michael Palin Center (MPC) in London, England, CBT is applied as 'an integrated approach to the management of stuttering' (Kelman and Wheeler, 2015; Cook and Botterill, 2005). The therapy center builds a child-friendly environ-ment, incorporating speech management techniques as well as trainings on cognitive and social communicative skills for children of 5 to 14 years old and their parents (Kelman and Wheeler, 2015; Cook and Botterill, 2005). With younger children the therapy starts indirectly to help the family by providing the foundations that support the fluency of the child (Kelman and Nicholas, 2008). Unlike traditional therapy of stuttering which focuses only on providing strategies for a stutterer to manage fluency, CBT focuses on discussing challenges about how language can be adapted to support a child stutterer, particularly focusing on helping the child to access their thoughts and develop strategies to manage challenging situate-ions (Kelman and Wheeler, 2015). It is aimed at supporting children stutterers to identify and understand the connection of their emotions and cognitions that impacts their speech by using a cognitive model (Kelman and Wheeler, 2015). It also trains them to create their experiences more normal by predicting and developing more helpful responses in situations in which they are likely to stutter by exploring the link of their behavior, emotions and cognitions.

CBT applies creativity through methods such as children's drawing, analogies and stories (Stallard, 2014; Lamb-Shapiro, 2000; Sobel, 2000; Thomas and Jolley; 1998). The children stutterers are asked to

imagine situations they fear and think of possible outcomes if the worst were to happen. Then, they are helped to develop strategies to cope with these situations through problem solving involving both the child and parents, encouraging him/her to seek out solutions by thinking flexibly and increasing the internal locus of control of the child (Kelman and Wheeler, 2015). It also involves action planning, using collaborative approach that involves the child and the therapist working together, giving him/her an ownership of the whole process by planning the agenda for each meeting and homework tasks that can be problem-solved together (Kelman and Wheeler, 2015).

Direct Therapy and the Efficacy of Parent Education

Studies reported that direct therapy is recommended for school-age children who stutter provided that it can improve their speech by treating them with skills that shape their fluency and modify their stuttering (Yang, 2015; Guitar, 2014; Ramig and Dodge, 2010). The treatment includes sessions that help different grades of school-age children to discover primary and secondary symptoms of stuttering through sharing sessions about stuttering experiences and emotional states during the occurrences (Yang, 2015). They are also taught of the skills to modify stuttering and rehearse an easy and relaxed speaking manner (Yang, 2015). In general direct therapy is suitable for stuttering children because it has helped decrease their disfluencies (Yang, 2015).

Equally important to treating children who stutter, it is also suggested that parents have sufficient education regard-ing their stuttering children (Guitar, 2014; Ramig and Dodge, 2010). Indeed, Yang (2015) reported that parents are the most critical people for stuttering children due to a primary role they play in shaping speech behavior and reducing stressful factors in the surroundings of their children. By receiving education about stuttering, parents are encouraged to understand and accept their children's stuttering, recognize speech mechanism and the cause of stuttering, facilitate communicative environment and attent-ion, as well as strategies to improve the language abilities of their children (Yang, 2015).

Conclusion and Suggestions

Based on the discussion above, research has shown methodological improvements leading to more consistent evidence that support how stuttering is associated with social anxiety disorder. This essay has pointed out how social anxiety disorder can develop in stutterers, especially children, and the possible negative consequences that threaten the life quality of stutterers. It has also reviewed therapies

or treatments that are suitable for children due to its critical contribution in creating better quality of life for children who stutter (Iverach and Rapee, 2014). However, access to published papers in English about stuttering in the context of China was limited. Therefore, further research of Mandarin-speaking stutterers in China is necessary to understand and provide better assistance to stutterers in the Mandarin-speaking culture.

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Reference

Ambrose, N., & Yairi, E. (1994). The development of awareness of stuttering in pre-school children. *Journal of Fluency Disorders*, 19, 229-245.

Ambrose, N., & Yairi, E. (1995). The role of repetition units in the differential diagnosis of early childhood incipient stuttering. *American Journal of Speech and Language Pathology*, 4, 82-88.

Ambrose, N. & Yairi, E. (1999). Normative disfluency data of early childhood stuttering. *Journal of Speech-Language and Hearing Research*, 42, 895-909.

Blood, G. W., & Blood, I. M. (2007). Preliminary study of self-reported experience of physical aggression and bullying of boys who stutter: Relation to increased anxiety. *Perceptual and Motor Skills*, 104, 1060–1066.

Blumgart, E., Tran, Y., & Craig, A. (2010). Social anxiety disorder in adults who stutter. *Depression and Anxiety*, 27, 687–692.

Carlson, N. (2013). *Physiology of behavior*. Boston: Allyn & Bacon.

Cartwright-Hatton, S., Roberts, C., Chitsabesan, P., Fothergill, C., & Harrington, R. (2004). Systematic review of the efficacy of cognitive behaviour therapy for childhood and adolescent anxiety disorders. *British Journal of Clinical Psychology, 43,* 421-436.

Cook, F., & Botterill, W. (2005). 'Family-based approach to therapy with primary school children: throwing the ball back'. In R. Lees & C. Stark (Eds.). *The Treatment of*

Stuttering in the Young School-aged Child. London: Whurr, 81-107.

Craig, A., Hancock, K., Tran, Y., & Craig, M. (2003). Anxiety levels in people who stutter: A randomized population study. *Journal of Speech, Language, and Hearing Research*, 46, 1197-1206.

Craig, A., Blumgart, E., & Tran, Y. (2009). The impact of stuttering on the quality of life in adults who stutter. *Journal of Fluency Disorders*, 34, 61–71.

Craig, A., & Tran, Y. (2006). Fear of speaking: Chronic anxiety and stuttering. *Advances in Psychiatric Treatment*, 12, 63–68.

Dorsey, M. & Guenther, P. K. (2000). Attitudes of professors and students toward college students who stutter. *Journal of Fluency Disorders*, 25, 1, 77-83.

Franck, A. L., Jackson, R. A., Pimentel J. T., & Greenwood, G. S. (2003). School-age children's perceptions of a person who stutters. *Journal of Fluency Disorder*s, 28, 1, 1-15

Friedberg, R.D. & Wilt, L.H. (2010). Metaphors and Stories in Cognitive Behavioural Therapy with Children. *Journal of Rationale-Emotive Cognitive Behavioural Therapy, 28, 100-113.*

Grave, J. & Blissett, J. (2004). Is cognitive behavior therapy developmentally appropriate for young children? A critical review of the evidence. *Clinical Psychology Review: 24, 399-420.*

Gregory, H., Hill, D. & Campbell, J. (1996). Stuttering Therapy Manual: Workshop for Specialists. *Northwestern University*, Evanston, Ill.

Hayhow, R., Cray, A. M., & Enderby, P. (2002). Stammering and therapy views of people who stammer. *Journal of Fluency Disorders*, 27, 1–17.

Ingham, R. (1984). *Stuttering and behavior therapy: Current status and experimental foundations.* San Diego, CA: College Hill Press.

Iverach, L., Menzies, R. G., O'Brian, S., Packman, A., & Onslow, M. (2011). Anxiety and stuttering: Continuing to explore a complex relationship. *American Journal of Speech-Language Pathology*, 20, 231–232.

Iverach, L. & Rapee, Ronald M. (2014). Social anxiety disorder and stuttering: Current status and future directions. *Journal of Fluency Disorders,* 40, 69-82.

James, A.C., James, G., Cowdrey, F.A., Soler, A., & Choke, A. (2013). Cognitive behavioural therapy for anxiety disorders in children and adolescents. *The Cochrane Collaboration.* Wiley.

Jones, R.M., Buhr, A.P., Conture, E.G., Tumanova, V., Walden, T.A. & Porges, S.W. (2014). Autonomic nervous system activity of preschool-age children who stutter. *Journal of Fluency Disorder*, 41, 12-13

Kelman, E., & Nicholas, A. (2008). *Practical intervention for early childhood stammering: Palin PCI approach.* Milton Keynes, UK: Speechmark Publishing Ltd.

Kelman, E. & Wheeler, S. (2015). 'Cognitive Behavior Therapy with children who stutter.' *Social and Behavioral Sciences*, 193: 165 – 174

Klassen, T. R. (2001) 'The complexity of attitudes toward people who stutter.' *Proceedings of the Third World Congress on Fluency Disorders*. Nijmegen, Netherlands: Nijmegen University Press, pp. 605-609.

Klein, J. F., & Hood, S. B. (2004). 'The impact of stuttering on employment opportunities and job performance.' *Journal of Fluency Disorders*, 29: 255–273.

Lamb-Shapiro, J. (2000). *The Bear Who Lost His Sleep: A story about worrying too much.* Childswork/Childsplay Early Prevention Series

Lamb-Shapiro, J. (2000). *The Hyena Who Lost Her Laugh: A story about changing your negative thinking.* Childswork/Childsplay

Langevin, M., Packman, A., & Onslow, M. (2009). Peer responses to stuttering in the preschool setting. *American Journal of Speech-Language Pathology*, 18, 264–276.

Langevin, M., & Prasad, N. G. (2012). A stuttering education and bullying awareness and prevention resource: A feasibility study. *Language, Speech and Hearing Services in Schools*, 43, 344–358.

Menzies, R. G., Onslow, M., & Packman, A. (1999). Anxiety and stuttering: Exploring a complex relationship. *American Journal of Speech-Language Pathology*, 8, 3–10.

Miller, N. (30 March 2016). 'Stuttering isn't only psychological – and a cure might be coming.' *New Scientist*. Retrieved April 1, 2016.

Oxford Dictionary (2016). In: *Oxford Dictionaries* [online] Available at http://www.oxforddictionaries.com/us/definition/american_english/parasympathetic [Accessed April 15, 2016]

Oxford Dictionary (2016). In: *Oxford Dictionaries* [online] Available at http://www.oxforddictionaries.com/us/definition/american_english/sympathetic [Accessed April 15, 2016]

Ruscello, D. M., Lass, N. J., Schmitt, J. F., & Pannbacker, M. D. (1994). Special educators' perceptions of stutterers. *Journal of Fluency Disorders*, 19, 125-132.

Ruscio, A. M., Brown, T. A., Chiu, W. T., Sareen, J., Stein, M. B., & Kessler, R. C. (2008). Social fears and social phobia in the USA: Results from the National Comorbidity Survey Replication. *Psychological Medicine*, 38, 15–28.

Schmidt, A; Thews, G (1989). Autonomic Nervous System. In Janig, W. *Human Physiology* (2nd ed.). New York, NY: Springer-Verlag, 333–370.

Slade, T., Johnston, A., Teesson, M., Whiteford, H., Burgess, P., Pirkis, J., & Saw, S. (2009). *The mental health of Australians 2: Report on the 2007 National Survey of Mental Health and Wellbeing.* Canberra: Department of Health and Ageing.

Sobel, M. (2000). *The Penguin Who Lost Her Cool: A story about controlling your anger.* Childswork/Childsplay Early Prevention Series.

Stallard, P. (2014). The Cognitive Behaviour Therapy Scale for Children and Young People (CBTS-CYP): Development and Psychometric Properties. *Behavioural and Cognitive Psychotherapy, 42,*269-282.

Thomas, G.V. & Jolley, R.P. (1998). Drawing conclusions: A re-examination of empirical and conceptual bases for psychological evaluation of children from their drawings. *British Journal of Clinical Psychology*, *37,* 127-139.

Weidner, M. E., St. Louis, K. O., Burgess, M.E., & LeMasters, S. N. (2015). Atittudes toward stuttering of nonstuttering preschool and kindergarten children: A comparison using a standard instrument prototype. *Journal of Fluency Disorders* 44, 74-87

World Health Organization (2016). In: *World Health Organization* Retrieved from http://apps.who.int/classifications/icd10/browse/2010/en#/F98.5 [Accessed March 25, 2016]

Yairi, E., Ambrose, N., & Cox, N. (1996). Genetics of stuttering: A critical review. *Journal of Speech and Hearing Research*, 39, 771–784.

Yairi, E. (1997). 'Disfluency characteristics of childhood stuttering.' In R. F. Curlee & G. M. Siegel (Eds.) *Nature and Treatment of Stuttering: New Directions*. Needham Height: Allyn & Bacon.

Yang, S-L. (2015). A preliminary comparative study on the efficacy of parent education and direct therapy on Mandarin-speaking children with stuttering. *Procedia – Social and Behavioral Sciences,* 193, 355.

Yang, S-L. (2009). Teachers' Attitudes and Beliefs Toward Mandarin-Speaking Stuttering Children. *The poster in the 2009 Conference of Oregon Speech-Language-Hearing Association.* Bend, Oregon.