# Exploring Telepractice for Stuttering: A Case Study

Yatta D. Barnett

# Exploring Telepractice for Stuttering: A Case Study

Yatta Barnett

An undergraduate honors thesis submitted in partial fulfillment of the

requirements for the degree of

Bachelor of Science

in

University Honors and Speech and Hearing Sciences

Thesis Adviser

Dr. Megann McGill

Portland State University

June 2020

## Abstract

**Purpose:** The purpose of this research was to describe how telepractice can be used as a speech-language pathology service delivery model with a school-age child who stutters. Specifically, the research questions were: 1) Can a school-age client who stutters increase their use of stuttering modification strategies to manage their stuttering through telepractice? 2) Can a school-age client who stutters increase acceptance of stuttering through telepractice treatment?

**Methods:** The participant in the study was a 12-year-old female who stutters who received weekly speech-language pathology treatment sessions via telepractice for nine months. Outcome measures for this study were: disfluency counts (% of words stuttered; % of total disfluencies), responses to the Overall Assessment of the Speaker's Experience of Stuttering-School-age Version (OASES-S), accuracy using stuttering modification techniques, and participant drawings of her speech/stuttering.

**Result:** Result showed that a school-age client who stutters can indeed increase their use of stuttering modification strategies to manage their stuttering through telepractice. Results also revealed that the client increased self-acceptance of stuttering through telepractice treatment.

**Conclusion:** Results of the current study support the notion that telepractice services with a school-age child can be successful for both managing stuttering moments and increasing self-acceptance of stuttering.

# 2. Introduction

## 1.1 Stuttering

According to the National Institute of Deafness and Other Communication Disorder, stuttering is a speech disorder that is characterized by "repetition of sounds, syllables, or words; prolongation of sounds; and interruptions in speech commonly known as blocks" ("Stuttering," 2018, p. 1). Stuttering affects more than 70 million people worldwide and approximately 3 million Americans ("Stuttering and Cluttering," p. 1). Although stuttering is not curable, it is a treatable, genetic disorder with an unknown cause. Stuttering is present in every language and culture across the world and it has been reported to cause people physical and emotional distress, lack of jobs, and discomfort.

The cause of stuttering is unknown, but according to the American Speech Language-Hearing Association (ASHA), there may be a unique group of factors that make someone start stuttering and keep stuttering. For example, for some stutterers, their genes will make them more likely for them to stutter. The National Institute on Deafness and Other Communication Disorders (NIDCD) reported that researchers discovered "three genes as a source of stuttering in volunteers in Pakistan, the United States, and England" (Researchers Discover First Genes for Stuttering, 2015, p. 1). According to the NIDCD, approximately 9% of people who stutter demonstrate mutations on one of the three genes discovered (Researchers Discover First Genes for Stuttering, 2015). For other stutterers, there is no clear genetic link, but there may be additional factors such as motor speech, language, and environmental factors that contribute to their stuttering (ASHA, 2020, p.1).

Regardless of the etiology, people who stutter may experience a range of physical and emotional behaviors as a result of their disfluent speech production and seek treatment from a licensed speech-language pathologist (SLP). SLPs provide services to people who stutter in many ways. For example, SLPs may help families learn how to respond when their children stutter, how to improve their child's fluency, and how to improve how their child feels about talking/stuttering. However, not all individuals who stutter have the opportunity to receive SLP services due to geographic and/or financial barriers. Additionally, even if patients have the financial ability to pay for services, they may still face difficulties receiving good healthcare due to differences in quality, equity, and cost-effectiveness of services available (Houston, 2014).

**1.2 Telepractice**

ASHA states telepractice is a "telecommunications technology for delivery of professional services at a distance by linking clinician to client, or clinician to clinician for assessment, intervention, and/or consultation" (Gabel et al., 2013, p. 44). In the 21st century, utilizing telepractice to treat stuttering or other language and speech sound disorders is one of the most rapid developments in healthcare around the world.

SLPs can use telepractice to treat clients who stutter, clients who have neurogenic communication disorders, voice disorders, dysphagia, and/or childhood speech and language disorders. McGill, Siegel, and Noureal (2018) recently reviewed the use of telepractice for stuttering assessment and treatment. They found that live-stream, video telepractice is a promising service- delivery method for treating stuttering using a variety of therapeutic approaches.

Gabel, et al. (2013) also described the characteristics and effectiveness of telepractice. " … from a school-based telepractice therapy program, the turnout of the data related to the amount of work in terms of number of cases, type and amount of intervention, and student progress were compared to the K-12 Schools National Outcomes Measurement System (NOMS) of the American Speech-Language-Hearing Association" (Gabel, et al., 2013, p. 44). They also reported, "NOMS provides data for students receiving intervention through direct, in-person service delivery models" (Gabel, et al., 2013, p. 44). The researchers found that telepractice resembles in person-therapy in terms of how well the treatment approaches work. The results of this study "support the described telepractice service delivery model as a viable option for speech-language therapy services delivered to public school students with communication impairments" (Gabel et al., 2013, p. 44).

Despite research indicating that telepractice can be effective, some SLPs report concerns about lack of funds for starting telepractice with clients, insufficient infrastructure to support services, technical support for audio-visual issues, and questions about the reliability of data (Shenker, & Tetnowski, 2012, p. 16 ). SLPs may also be concerned about licensure restrictions for practicing across state lines in addition to ethical and legal issues (Shenker, & Tetnowski, 2012, p. 3). Additionally, SLPs have reported concerns regarding telepractice appropriateness and privacy for clients (Brown, 2009).

Researchers have also explored the enjoyability of telepractice for clients receiving speech-language pathology services. McGill, Cullen, and Webb (2019) interviewed adult clients who stutter to understand the experiences and perspectives of clients who were receiving telepractice treatment. Participants reported feeling that they could develop a rapport with their

SLP, that their therapy goals could be met in telepractice treatment, and that the sessions were not significantly impacted by audio-visual interruptions. The researchers reported that, "qualitative and quantitative results indicate that clients in the current study have mostly positive experiences and perspectives about treatment for stuttering via telepractice but that clients may still prefer in-person treatment" (McGill, Cullen, & Webb, 2019, p. 553). They found that the participants' experiences and prospective overall satisfaction were varied, but that all participants indicated a slight preference for in-person as compared to telepractice services.

Another study also explored clients' perspectives on telepractice and in-person treatment. Freckmann, Hines, and Lincoln (2017) conducted a study to determine the perspectives of therapeutic alliance in face-to-face and telepractice speech–language pathology sessions. Thirty-two clinicians in the study reported that there weren't significant differences between therapeutic alliance in face-to-face and telepractice speech–language pathology sessions. Freckmann et al. reported, "Our findings suggest that concerns regarding therapeutic alliance in telepractice may be unsubstantiated. They then went on saying, 'our results also demonstrated that SLPs delivering telepractice and face-to-face therapy sessions report similar levels of comfort with technology" (2017, p. 294).

### 1.3 Stuttering Therapy via Telepractice

Several studies have explored the use of telepractice for clients who stutter. McGill, Cullen, and Webb (2012) referenced a survey that was conducted by Tucker (2012). Tucker surveyed 170 school-based SLPs about their experiences with and concerns about telepractice as a service delivery model so that they could understand clinician concerns about telepractice

more. According to the study, SLPs may have concerns about implementing telepractice, but if they had prior experience with telepractice their opinions differed. This idea of comfort with telepractice after experience with the modality is also substantiated by Freckmann et al.'s (2017) study that compared therapy delivered via telepractice and an in-person delivery model in terms of developing a "therapeutic alliance" (McGill, et al. 2019, p. 554). The result of the study indicated no difference between compared therapy delivered via telepractice and an in-person delivery model. "Thus, although clinicians indicate concern about establishing rapport with clients via telepractice, this concern does not persist once the clinician has the opportunity to utilize telepractice" (McGill, et al. 2019, p. 554).

Additionally, Irani and Gabel (2011) explored a hybrid-style case "investigation with an adult who stutters that combined in-person and telepractice treatment for stuttering" (McGill, et al. 2019, p.554). The in-person portion of the hybrid treatment lasted 3 weeks, then, the participant received subsequent treatment via telepractice twice a week for 6 months. Finally, the participant received weekly therapy for an additional 6 months. Irani and Gabel (2011) reported that participants experienced positive changes in their attitudes and self-perceptions of their speech as a result of this hybrid delivery of speech-language pathology treatment via in-person and telepractice-modalities.

### 1.4 Research Questions

The goal of the current research study was to further describe how telepractice can be used as a service delivery model to treat stuttering with a school-age client. The research questions were as follows:

1) Can a school-age client who stutters increase their use of stuttering modification strategies to manage their stuttering through telepractice?

2) Can a school-age client who stutters increase acceptance of stuttering through telepractice treatment?

## 2. Method

### 2.1 Participant and Procedures

The participant was a 12-year-old female who stutters with no concomitant speech or language disorder diagnoses. She was diagnosed as a person who stutters by a certified, licensed speech-language pathologist prior to beginning telepractice treatment. After the initial evaluation, the participant received weekly 60-minute therapy sessions via telepractice. Within the one hour therapy session, she received 30 minutes of individual treatment with a graduate student clinician. Then, she received 30 minutes of group treatment with two other school-age clients who stutter and their graduate student clinicians. This telepractice treatment occurred every week for nine months in 2018. Each term the participant worked with a different graduate student clinician who was trained and supervised by a licensed speech-language pathologist who specializes in stuttering. The general goals of the participant's treatment were focused on using stuttering modification strategies (e.g., cancellation, pull-out, preparatory set) and on increasing self-acceptance of stuttering.

## 2.2 Outcome Measures

Outcome measures for this study were: disfluency counts (% of words stuttered; % of total disfluencies), responses to the Overall Assessment of the Speaker's Experience of Stuttering- School-age Version (OASES-S), accuracy using stuttering modification techniques, and participant drawings of her speech/stuttering. These measures were used to collect data across the nine months the participant was enrolled in telepractice treatment.

## 2.3 Data Coding

To code the data used to answer the research questions, recorded telepractice clinical research sessions were observed. To code the participant's speech production for % of words stuttered, each word was coded as either fluent or disfluent. If the word was disfluent, it was further coded as either stuttering-like disfluencies or typical disfluencies, as indicated in Table 1.

The OASES-S was administered at the onset of telepractice therapy and at the conclusion of telepractice therapy to determine if the participant's attitudes and perceptions of her speech had changed over the course of the nine months. The pre- and post-therapy OASES-S section and overall scores were compared to determine if the participant's self-attitudes towards stuttering shifted as a result of therapy via telepractice.

Additionally, the participant's use of stuttering modification strategies such as cancellation, pull-out, and preparatory set were analyzed. Although the participant did not work on stuttering modification techniques in each therapy session, data was collected across the

participant's enrollment in therapy to determine the impact of telepractice therapy on successful implementation of modification techniques across the duration of treatment.

Finally, the participant was asked to report her feelings, attitudes, and emotions about stuttering through drawing. This drawing was analyzed for themes and was used as a springboard for discussion with the client about her attitude towards speaking/stuttering.

**Table 1. Types of Disfluencies**

| **Stuttering Disfluencies** | **Non-Stuttering Disfluencies** |
|---|---|
| Sound-Syllable Repetition (sh-sh-she) | Interjection (um; uh; like) |
| Whole Word Repetition (my-my-my) | Phrase Repetition (They said - They said) |
| Audible Sound Prolongation (ssssssocks) | Revision (I went- I'm going) |
| Inaudible Sound Prolongation/Block ((n)----name) | |

### 2.4 Data Analysis

Disfluency count data was aggregated in Microsoft Excel. Charts and graphs were used to visualize the data. The data was analyzed to determine fluency trends and efficacy of treatment strategies. Additionally, the participant drawing, which was also one measure of acceptance of stuttering, was visually analyzed for themes.

## 3. Results

To review, the first research question was: Can a school-age client who stutters increase their use of stuttering modification strategies to manage their stuttering through telepractice? As shown in Tables 2 and 3, the participant in the current study demonstrated decreased % of words

stuttered and increased accuracy using stuttering modification techniques over the course of her telepractice treatment.

Table 2 shows the participant's progress from when she started telepractice treatment at Portland State University. The blue graph indicates STG/word %. In other words, the participant demonstrated decreased overall percentages of stuttering throughout the telepractice treatment, but with the inherent variability that is characteristic of stuttering. The red graph shows the total disfluencies/words %, (disfluencies is the interruption in normal flow of speech. Similarly to the participant's % of stuttering/words, her overall production of disfluencies decreased over time.

**Table 2. Disfluency Counts Over Time**

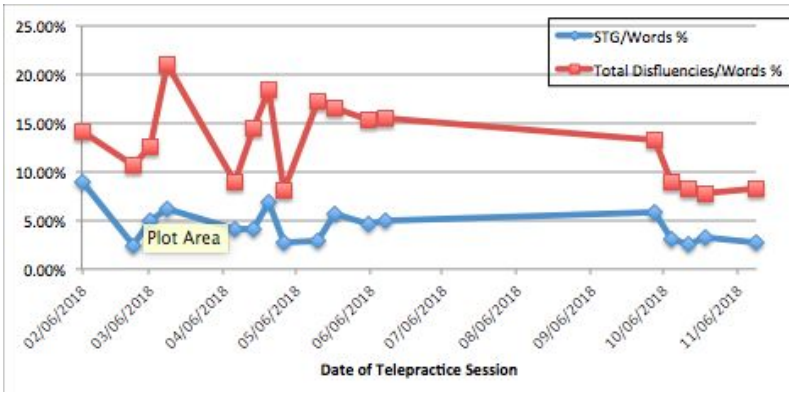
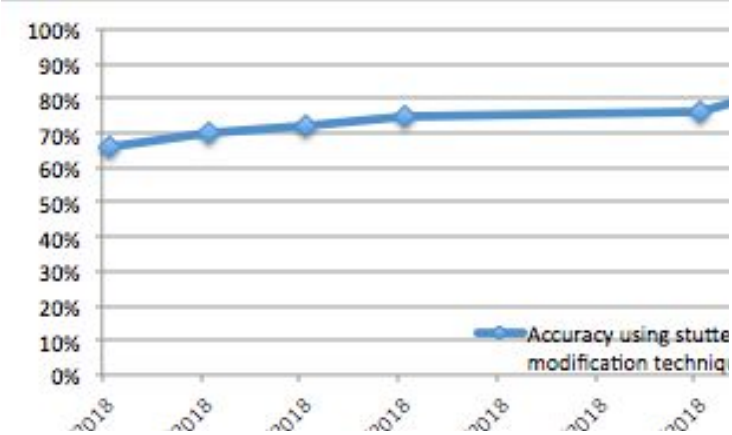


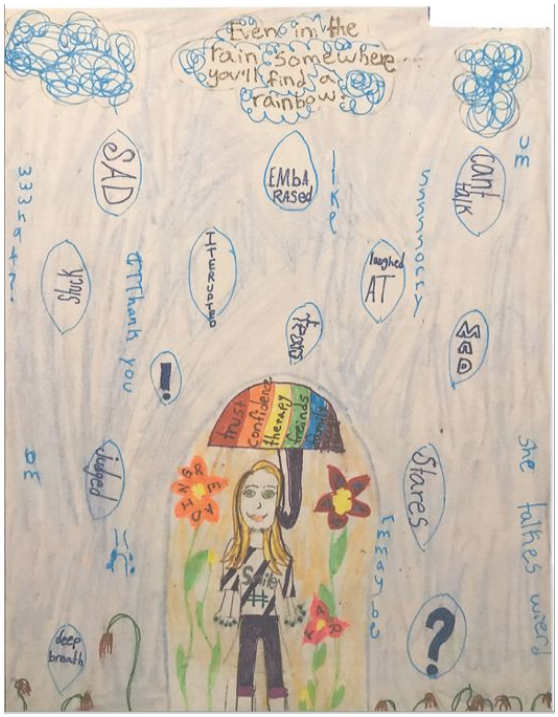

**Table 3. Stuttering Modification Accuracy Over Time**



The second research question was: Can a school-age client who stutters increase acceptance of stuttering through telepractice treatment? As shown in Figure 1 and Tables 4 and 5, the current study supports the notion that a school-age client can express her feelings, attitudes, and perceptions about stuttering in telepractice treatment. Tables 4 and 5 indicate that stuttering is having less of an impact on the client's life as a result of telepractice therapy.

Additionally, throughout the 9 months of telepractice therapy, the client drew pictures about how she feels about being a stutterer. Figure 1 demonstrates that the client felt that therapy had a positive impact on her overall sense of self.

**Figure 1. Drawing of "What my speech looks like."**




**Tables 4 & 5. Overall Assessment of the Speaker's Experience of Stuttering- School-Age Edition (OASES-S)**

**Table 4. OASES-S Results from Spring 2018**

| Section | Impact Score | Impact Rating |
|---|---|---|
| I | 3.17 | Moderate/Severe |
| II | 2.9 | Moderate |
| III | 2.2 | Mild/Moderate |
| IV | 1.8 | Mild/Moderate |
| Overall | 2.58 | Moderate |

**Table 5. OASES-S Results from Winter 2019**

| Section | Impact Score | Impact Rating |
|---|---|---|
| I | 2.2 | Mild/Moderate |
| II | 2.1 | Mild/Moderate |
| III | 2.2 | Mild/Moderate |
| IV | 1 | Mild |
| Overall | 2.875 | Mild/Moderate |

## 4. Discussion

The current study was designed to follow a single, school-age child who stutters throughout a nine month stuttering treatment conducted via telepractice. The results of the study suggest that a participant receiving telepractice treatment can successfully manage their stuttering using learned techniques and that stuttering can have less of an impact overall on a participant's life. These findings are consistent with previous research conducted by Irani and

Gabel (2014) which described the benefits of using telepractice as part of a hybrid treatment approach for stuttering.

Additionally, other research has also verified that clients who stutter can meet their goals, establish rapport, and enjoy treatment via telepractice. For example, McGill, Cullen, and Webb (2019)'s research reported that adult clients who stutter can make therapeutic progress when enrolled in a telepractice treatment program. The current results extend those of McGill et al. (2019) to a school-age child who stutters.

### 4.1 Clinical Implications

Although the results of the current study cannot be generalized to all school-age children who stutter, the findings of the study support the notion that a client who stutters can meet their goals and make progress towards accepting their stuttering through a telepractice program. Since the initiation of the current study, many speech-language pathologists, school districts, private practices, hospitals, and rehabilitation clinics have transitioned to remote learning and/or telepractice services in response to the COVID-19 global pandemic. In the United States, SLPs report transitioning much of their caseload to telepractice from an in-person modality in response to physical distancing legislation. Given that there is limited data demonstrating the comparability and best practices of telepractice services for school-age children who stutter, the current study has important clinical implications for SLPs and the students with whom they work.

### 4.2 Limitations and Future Directions

The current study is limited in that it explored the experiences, attitudes, and perceptions of one school-age child who stutters. Thus, additional research with a larger sample size is

needed to further understand the utility of telepractice with a wider range of participants. Additionally, the experimental design in the current study could have been strengthened by using an AB-single subject design with more opportunities to compare baseline behaviors and attitudes to those present during and after treatment.

## 5. Conclusion

This current study described how telepractice can be used as a service delivery model to treat stuttering with a 12-year old school-age client who stutters. The results indicate that telepractice treatment of stuttering can be effective at addressing both the overt components of stuttering (% of words stuttered, % of total disfluencies, use of stuttering modification techniques) and the covert aspects of stuttering (attitudes, perceptions, thoughts/feelings about stuttering).

## Acknowledgements

We would like to thank the PSU Stuttering Lab and the clients who participate in our clinical research program related to telepractice. We could not do this work without them.

## References

Brown, J. (2009) "Telepractice Ethics, Licensure, and Reimbursement." *American Speech-Language-Hearing Association Convention*. https://www.asha.org/Events/convention/handouts/2009/1445_Brown_Janet/.

Coufal, K., Parham, D., Jakubowitz, M., Howell, C., & Reyes, J. (2018). Comparing Traditional Service Delivery and Telepractice for Speech Sound Production Using a Functional Outcome Measure. *American Journal of Speech-Language Pathology*, *27*(1), 82–90. doi: 10.1044/2017_ajslp-16-0070

Freckmann, A., Hines, M., & Lincoln, M. (2017). Clinicians' perspectives of therapeutic alliance in face-to-face and telepractice speech–language pathology sessions. *International Journal of Speech-Language Pathology*, *19*(3), 287–296. doi: 10.1080/17549507.2017.1292547

Gabel, R., Grogan-Johnson, S., Alvares, R., Bechstein, L., & Taylor, J. (2013). A Field Study of Telepractice for School Intervention Using the ASHA NOMS K-12 Database. *Communication Disorders Quarterly*, *35*(1), 44–53. doi: 10.1177/1525740113503035

Grogan-Johnson, S., Schmidt, A. M., Schenker, J., Alvares, R., Rowan, L. E., & Taylor, J. (2013). A Comparison of Speech Sound Intervention Delivered by Telepractice and Side-by-Side Service Delivery Models. *Communication Disorders Quarterly*, *34*(4), 210–220. doi: 10.1177/1525740113484965

Houston, K. T. (2014). *Telepractice in speech-language pathology*. San Diego, CA: Plural Publishing, Inc.

Linster, C., & Fontanini, A. (2014). Functional neuromodulation of chemosensation in vertebrates. *Current Opinion in Neurobiology*, *29*, 82–87. doi: 10.1016/j.conb.2014.05.010

Mcgill, M., Cullen, L., & Webb, H. (2019). Clients Experiences of Telepractice for Stuttering. *Perspectives of the ASHA Special Interest Groups*, *4*(3), 553–562. doi: 10.1044/2019_pers-sig18-2018-0025

McGill, M., Noureal, N., & Siegel, J. (2019) "Telepractice Treatment of Stuttering: A Systematic Review." *Telemedicine and e-Health*, vol. 25, no. 5, 2018, pp. 359–368., doi:10.1089/tmj.2017.0319.

Researchers Discover First Genes for Stuttering. (2015, August 12). Retrieved May 20, 2020, from https://www.nih.gov/news-events/news-releases/researchers-discover-first-genes-stuttering

Shenker, R. C., & Tetnowski, J. A. (2012) "The Use of Telepractice in the Treatment of Stuttering." *American Speech-Language-Hearing Association Convention*. www.asha.org/Events/convention/handouts/2012/1123-The-Use-of-Telepractice-in-the-Treatment-of-Stuttering/.

Smith, A., & Weber, C. (2017). How Stuttering Develops: The Multifactorial Dynamic Pathways Theory. *Journal of Speech, Language, and Hearing Research*, *60*(9), 2483–2505. doi: 10.1044/2017_jslhr-s-16-0343

Stuttering and Cluttering. (n.d.). Retrieved May 20, 2020, from http://katzspeech.com/stuttering-cluttering-services/

Stuttering Foundation Hails New Research. (n.d.). Retrieved May 20, 2020, from https://www.stutteringhelp.org/content/stuttering-foundation-hails-new-research

Stuttering. (2018, June 11). Retrieved May 20, 2020, from https://www.nidcd.nih.gov/health/stuttering