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Positive Messages And Traditional Therapy For Three Children With Persistent Stuttering

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Positive Messages And Traditional Therapy For Three Children With Persistent Stuttering

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ABSTRACT

As children age, they are less likely to experience spontaneous recovery from stuttering and are likely to develop negative attitudes about talking, necessitating counselling to address these feelings. The current exploratory case study examines children's response to traditional speech therapy to address fluency combined with a programmed message to modify negative attitudes about talking. A standard narration, saved to a compact disk (CD), was used as a counselling experience for children, ages 6, 7, and 10;11 years, recruited from a university clinic predominantly serving African American children. A one-tailed Mann-Whitney U-test was performed to examine differences in stuttering across three pretreatment sessions to treatment results from two experimental sessions. The analysis indicated that participants who completed the two treatment sessions stuttered significantly less during the sessions that included the CD, with a moderate clinical effect size as indicated by r , ($Mdn = 9$), $U = 12$, $p \leq .05$, $r = .53$. For 2 of 3 participants who completed post-testing with the Stuttering Severity Instrument-3 (SSI-3), testing indicated a reduction in overall scores and stuttering severity (Riley, 1994). There is a need for future studies to examine the content of motivational messages as components of therapy to address stuttering.

KEYWORDS

Stuttering; stuttering therapy; counselling; children; cognition; mediation; attitudes; psychotherapy

Introduction

Thirty years of research indicates that children who experience persistent stuttering are likely to develop negative attitudes about talking (Groner, Walden, & Robin, 2016; Guttormsen, Kefalianos, & Naess, 2015; Baxter, Johnson, Blank et al., 2016; Leung & Robson, 1990; Millard & Davis, 2016; St. Louis, Weidner, Gable, et al., 2014; Weidner, St. Louis, Nakisci, & Ozdemer, 2017). The current exploratory case study examines three African American children with persistent stuttering to determine if they had negative attitudes about talking. The author recruited from a university clinic whose predominant population of clients was African American. The study examines whether a programmed message's influence to encourage a positive attitude about talking would contribute to differences in fluency and talking attitudes. The study incorporated a standard narration saved to a compact disk (CD), used as counselling experience for children who received speech therapy for fluency. The study used the speech strategies of fluency shaping, rate control,

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and exercises that started with single words and moved to sentences and oral narratives. What follows is some background about counselling in fluency therapy, mediated Learning or coaching, and programmed counselling narration of positive messages for change.

Counselling

In 2004, Barlow described psychotherapy as a generic term regarding what is practiced by all professionals and non-professionals. Counselling to influence speech behaviour is considered a general form of psychotherapy and a necessary component to improve an individual's therapy outcomes and satisfaction with therapy (Barlow, 2004). The general assumption is that interactions that involve any type of therapy or medical treatment will require purposeful talk between the professional and individual served. The objectives are to inform, influence the individual's thinking, and motivate them to change behaviour to achieve some desired outcome. Speech-language pathologists counsel people who stutter to influence how they think and react to their stuttering. The counselling may take the form of frequent coaching to modify maladaptive coping skills for dealing with stuttering. In time, children must develop their internal coaching voice. Treatment may use recorded messages as a part of therapy, home, or school practice activities to support children's internalising the messages. The CD used in this study may be an optional experience in addition to speech therapy-counselling sessions with the SLP. The CD may be used as an alternative model to encourage the child's self-reflection, self-coaching, self-awareness (i.e. mindfulness), and positive attitudes about talking despite stuttering. The benefit to less disruptive consequences from stuttering includes the ability to focus on effective communication, defined as communicating an intended message to listeners in the home, school, or other social situations. The positive messaging delivered via CD represents cognitive mediation or Mediated Learning (ML), as influenced by Reuven Feuerstein's work on intelligence. Other research involving mediation to influence thinking and behaviour includes Cognitive Behavioural Therapy (CBT), further developed and described as Acceptance and Commitment Therapy (ACT) in the late 1990s. Additional examples include (Beck, 1960; Feuerstein, 1990; Fry, 2009; Greenberg & Marks, 1982; Leahy & O'Sullivan, 1987; Moleski & Tosi, 1976). There are thousands of articles available that talk about positive messaging to influence many health-related behaviours, including smoking cessation, recovery from post-traumatic stress syndrome, sleep disorders, and many other problems.

CD Message for Programmed Counselling

Technology continues to expand rapidly. So, storage systems of choice may be the Cloud, a Simms Card, thumb drive, smart pad, iPad, or numerous other devices. When the author developed the current narration, CDs were commonly used for media. The CD technology did provide a uniform, replicable way to make multiple copies for distribution, and manufacturers have not wholly abandoned production yet. Radford and Price-Watson developed the CD used in the study. Price-Watson completed hypnosis training and the psychotherapeutic strategies known then as Neurolinguistic Programming at the Michael Palin Centre in London, UK. The author developed the CD's talking script, and Price-Watson produced the CD and provided the child who narrated the CD. The author

published the CD with other materials (Smooth Talking: A Curriculum for School-age Children who Stutter) (Radford, 2010). The CD is 9 min long, and a child narrator talks about the negative feelings associated with stuttering (Radford & Price-Watson, 2010).

After describing negative feelings, the child narrator describes progressive relaxation levels and encourages the listener to imagine travelling on an elevator and being transported to a tranquil location while experiencing increasing success with talking. At the end of the CD, the child is encouraged to think about speaking in a new way, and to consider that talking may become more comfortable with practice. The advantages of the current approach are that a ride on an elevator is understandable to many children and the elevator imagery does not require a heavy emphasis on a particular cultural orientation or background knowledge of such. Moreover, the standard message may be supplemented or modified with real-time counselling sessions.

The study proposes that children who stutter and demonstrate negative attitudes, emotions, thoughts about talking and will benefit from therapy that includes counselling to change attitudes and feelings about talking as well combined with therapy for speech management.

Effect of Cognitive Mediation on Speech and Attitude

Children with moderate to severe stuttering participated in therapy that incorporated positive messaging delivered via CD. The treatment was traditional fluency therapy to manage speech. The study's purpose was to determine if listening to positive messaging combined with teaching speech strategies would positively affect attitudes about talking as well as fewer disfluencies during speech.

Materials and Methods

Participants

The Institutional Review Board of the anonymous University approved the study. After approval, flyers were distributed in the clinic, resulting in three parents agreeing to allow their children's voluntary participation. United States standards for ethics were followed to compose the consent form. The children were all African American males diagnosed with developmental stuttering based on prior testing and case histories. Participants demonstrated confounding communication problems, including articulation and language problems. See [Table 1](#) for a summary of participant ages, test results, and time in therapy. Participant 1, age 7 years, 2 months, exhibited moderate to severe stuttering and had received services for 3 years, 7 months. Participant 2, age 6 years, 5 months, exhibited moderate stuttering, and began receiving speech therapy at age 3. Participant 3, age 10 years, 11 months, showed severe stuttering and had received services for 4 years, although he was initially diagnosed at 2 years by public school clinicians.

Pre/post-treatment Measures

Stuttering diagnosis and severity were determined by examining case histories, before testing but after recruitment and enrolment in the study. The *Stuttering Severity Instrument-3* (SSI-3)

Table 1. Profiles for study participants.

Measure	Test Results	
	Pre-Test (Participant 1,2, 3)	Post-Test (Participants 1, 2, 3)
SS I		
Frequency Score	P1 = 16; P2 = 10; P3 = 15	P1 = 8; P2 = 0; P3 Absent
Duration	P1 = 8; P2 = 4; P3 = 14	P1 = 4; P2 = 2; P3 Absent
Physical Concomitants	P1 = 4; P2 = 0; P3 = 7	P1 = 6; P2 = 5; P3 Absent
Overall Score	P1 = 28; P2 = 14; P3 = 36	P1 = 18; P2 = 7; P3 Absent
Severity Levels	Severe (P1), Moderate (P2), Very Severe (P3)	Mild (P1), Very Mild (P2), P3 Absent
Participant Profiles		
Participants	Years in Therapy	Confounding Variables
P1 (J.B.)	3 years	Articulation and Language Problems
P2 (J.P.)	3 years	Articulation and Language Problems
P3 (K.M.)	3 years	Articulation and Language Problems

(Riley, 1994) was used to measure pre-post performance. The SSI is widely used by SLPs in the United States and provides an estimate of stuttering severity following analysis of stutters calculated from two, 150 to 200-syllable speech samples (Todd, Mirawdeli, Costellow, Davis, & Howell, 2014). Scores derived from the speech samples include the percentage of syllables stuttered (%SS), durations of the three longest stutters, and severity of physical concomitants. Scores are combined across these three categories and converted to an overall percentage using the appropriate conversion table provided on the test form. There are two separate forms of the measure for readers and non-readers.

The author intended to administer “What’s True For You” (WTFY) as a pre- and post-measure of attitudes about talking, whether positive or negative (Chmela & Reardon, 2001). The WTFY is an 11-item, descriptive, informal measure to determine children’s experience of anxiety or negative attitude about talking. For each item, a rating of “no way,” “sometimes,” and “totally agree” are possible. “No way” is equivalent to no anxiety nor negative attitudes about talking, whereas “sometimes” to “totally agree” are indicative of experiences of stress and negative attitudes about stuttering. “No way” is equivalent to a score of 1. “Sometimes” is equal to 4. “Totally Agree” is similar to 7. The lower the score, the more positive the attitude, whereas the higher the score, the more negative the attitude towards speaking. The minimal and maximum raw score possible is 33 if all items are rated 1, or 77 if all items are rated 7. The calculated mean score, with 45 data points between 33 and 77, would be 55, and considered a neutral score, with the participant demonstrating neither a highly negative nor positive attitude regarding talking.

Treatment Materials

Colour, non-commercial photographs with rich context were used for treatment to provide a topic for talk. For example, one image portrayed a young boy who had attempted to wash a dog in the bathroom with a bubble bath spilled on the floor, the bathtub running over and several objects on the floor.

General Procedures

The graduate clinician examiner administered the Stuttering Severity Instrument (SSI-3) (Riley, 1994). She was trained according to standard procedures as specified in the manual. An undergraduate student who was a speech pathology major participating in

the Ron McNair Program administered the pre- and post-attitude measure, served as an observer of therapy sessions, and a rater to conduct a gross count of stutters for each therapy session. The Ronald McNair Achievement Program¹ is a federally funded program for students to receive mentoring and work on a collaborative research project with a faculty member. I served as a faculty mentor for the undergraduate student. The graduate clinician who served as a clinician for participants was not enrolled in the McNair Programme. For pre-and post-testing and therapeutic intervention, participants in the study were treated individually at the university clinic. The author supervised all sessions. Samples were audio-recorded and transcribed, with fluency counts conducted jointly by the graduate clinician and author.

The undergraduate observer had to receive training to learn to identify dysfluencies before the study began. The first author reviewed a handout with the undergraduate with follow-up question-answer. The undergraduate completed guided practice to identify behaviours from an audiocassette recording of a conversational sample. The observer's role was to count total disfluencies without subcategorising by type of dysfluency (i.e. part-word repetition, blocks, prolongation, and other stuttering behaviours). The undergraduate student also administered an informal attitudinal survey (WTFY) individually to study participants before therapy. The intern read a series of statements. Participants indicated their agreement with the statement read to them by saying or circling, "No Way," "Sometimes," or "I agree." Each of these statements was equivalent to a number rating ranging from 1 to 7 to identify the child's strength of agreement with the statement. To provide an example, if the message was, "I wish I could talk like other kids." And if the child said "No Way" or circled it on the worksheet, the selected choice would be equivalent to a score of one. The author modified the WTFY to include criteria for judging a total score as positive or negative.

A positive score criterion was a score equivalent to 1 SD below the mean (42 or less). The standard for a negative score was a score at or above 68. See [Table 1](#), which is a summary of the descriptive statistics for the scores participants earned.

Experimental Procedures

After preliminary testing, with the SSI-3 and the "What's True for You?" (WTFY), participants were scheduled for six individual, sixty-minute therapy sessions. Each session began with a five-minute conversational sample with two-story tasks in the five-minute period. The child would tell a story with a picture as a visual aid and then retell the same story a second time without the picture. [Table 2](#) is a summary of all responses from WTFY.

Methods

The objective was for six sessions to obtain a baseline of stuttering without the use of the CD. Children participated in 5 min of conversation at the beginning of each baseline session. During baseline assessment, participants described their day at school or a favourite television show or talked about their weekend activities. For the remaining 50 minutes, children had their choice to participate in storytelling or gameplay, such as Go Fish. After the six baseline sessions, treatment was to include six treatment sessions that included traditional therapy combined with listening to the nine-minute narration provided via CD with earphones.

Table 2. What's true for you ratings for participants 1, 2 & 3.

Statement	Participant Rating			Comment
	P1	P2	P3	
1. I wish I could talk like other kids	7	1	4	Negative Attitudes and Feelings
2. Some people are hard to talk to.	4	1	4	Negative Attitudes and Feelings
3. I talk openly about my speech with my parents.	7	4	7	Positive Attitude and Feelings
4. I am a good talker.	4	7	4	Positive Attitude and Feelings
5. I like to talk.	4	1	4	Positive Attitude and Feelings
6. Sometimes I do things so I won't have trouble talking ...	4	4	7	Negative Attitudes and Feelings
7. I have sounds that are hard to say.	4	4	4	Negative Attitudes and Feelings
8. It's OK to have trouble sometime.	4	4	7	Positive Attitudes and Feelings
9. I have gotten focused on my speech.	4	1	7	Unclear whether positive or negative without context
10. I don't like having trouble talking.	7	4	7	Negative Attitudes and Feelings
11. I want to improve the way I talk.	7	4	7	Negative Attitudes and Feelings

Key:
 1 = No Way
 4 = Sometimes
 7 = Totally true

Questions from Informal rating scale developed by Chmela & Reardon, 2001. In *Working effectively with attitudes and emotions: A workbook*. Memphis, TN; Stuttering Foundation of America.

After the listening activity, direct work on speaking occurred. The first strategy incorporated to decrease stuttering was to reduce syntactic complexity while talking and provide a picture for children to name words. Participants looked at a picture; spontaneously produced 10 words that could describe the image using a slow rate to maintain 100% fluency. The clinician provided each participant with a reminder to speak easily (easy onset) and think about each word before saying it. After participants successfully named 10 words to describe a picture, the student clinician increased task difficulty by requiring the child to describe the same picture using sentences. The graduate clinician restated each word the child had named in the last word naming task, with the child given time to produce a sentence. After naming 10 sentences, participants would use the same picture to tell a 5-min story with no additional prompts. Samples were recorded throughout the entire session and analysed for gross disfluencies. After the controlled teaching task, children participated in games, such as "Go Fish".

Sessions for participants did not overlap, and they participated individually. The undergraduate observer watched each session through a two-way mirror to count total dysfluencies during connected speech and to compare her count to the graduate clinician for each session. The students listened to a tape recorder to confirm any disagreements in the count until there was a 100% agreement, with the graduate clinician's decision supplanting any differences in rating. I did not participate in the count to avoid any biasing of results.

Results

Participants were absent frequently. Although some participants were available for Baseline (Pretreatment) sessions 1, 2, or 3, data for all three participants were available only for the last three Baseline sessions (Baseline Sessions 4, 5, and 6) and two experimental sessions (Sessions 3 and 4) of the six scheduled. However, with complete data for six sessions altogether, it was sufficient to use Mann-Whitney U for data analysis.

For each session, the graduate clinician and student observer made gross counts of all stutters. The two college students completed their counts independently of each other and then compared results afterwards. The graduate clinician and student observer used the same standard methods for coding dysfluencies. Slashes indicated a stutter, and a dot meant a fluent syllable. The two investigators confirmed gross counts following each session and discussed discrepancies between them until they achieved 100% agreement. Table 2 is a summary of the gross counts. Figure 1 depicts gross stutters during baseline and gross stutters during the two treatment sessions following baseline. Across all three participants, nine pretreatment observations were available (three pretreatments per child), ranging from 16 to 64 stutters for the three participants. A total of six observations were analysed during experimental treatment (two treatments per participant), ranging from 3 to 24 stutters. Participants 1 and 3 demonstrated the most change in total stutters observed in pretreatment to experimental therapy with the CD. Participant 2 exhibited fewer stutters during pretreatment and experimental treatment in comparison to the other participants. Table 3 is a summary of all gross counts for dysfluencies across the pretreatment and treatment sessions.

Data Analysis

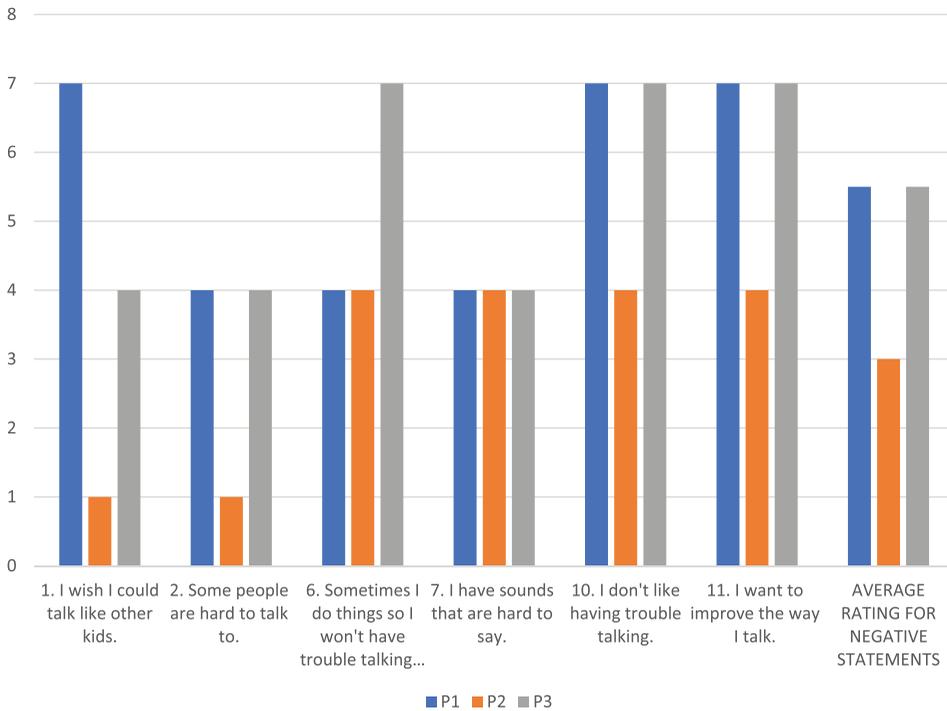
Regarding single-subject designs, Janosky, Leininger, Hoerger, and Libkum (2009) explain that the Mann-Whitney U test is useful to analyse single-subject data when each subject receives two or more treatments (i.e. a randomisation test). This test is considered appropriate in applied settings to examine the effectiveness of a particular medicine. Another advantage, as the authors explain, is that the approach does not require immediate treatment termination.

The Mann-Whitney-*U* test is an appropriate nonparametric statistical test for this study with a small data set. The measure is available to determine the differential effects of treatments for a given population – in this instance, the differential influence of a traditional therapy combined with positive messaging for children who stutter and who exhibited negative attitudes about talking.

The study used a one-tailed Mann Whitney-*U* test to examine differences in stuttering across three pretreatment sessions to treatment results from two experimental sessions. The analysis indicated that participants who completed the two treatment sessions stuttered significantly less during treatment sessions that included traditional therapy and the CD, with a moderate clinical effect size as indicated by $r_{\underline{L}}$ (Mdn = 9), $U = 12$, $p \leq 0.05$, $r = .53$. For 2 of 3 participants who completed post-testing with the Stuttering Severity Instrument-3 (SSI-3), testing indicated a reduction in overall scores and stuttering severity (Riley, 1994). See Table 2.

The second question was whether a positive message influenced change in negative attitudes about talking. The post-test data are missing because participants missed post-testing with the WFTY and missed 4 of 6 planned treatment sessions. Only pre-test scores were obtained using the WFTY. Participants 1 and 3 exhibited more severe stuttering; both earned scores associated with a negative rating before treatment began. Participant 1, with a moderate to severe stuttering diagnosis, had a rating of 63, indicative of a negative attitude about speaking, with a “totally true rating” (7), for example, to describe his desire to talk like other children. Participant 2 had a rating of 35, which is slightly less

WTFY Negative Ratings Pre-Therapy



Key:

P1: 7;2-year-old

P2: 6;5-year-old

P3: 10;11-year-old

Figure 1. A Graph of participant responses to WTFY negative statements. Key:P1: 7;2-year-oldP2: 6;5-year-oldP3: 10;11-year-old.

Table 3. Summary of gross count of stutters during pre and post conversational samples.

Participant	PreTrt4	PreTrt 5	PreTrt 6	PostTrt 7	PostTrt 8
1	42	51	64	7	24
2	17	10	16	11	19
3	35	21	20	3	5

than half of the rating calculated for Participant 1, indicating a positive attitude about talking despite a moderate degree of stuttering. Participant 3, a 10-year-old who exhibited severe stuttering, completed the WTFY in pretreatment, with a rating of 62, indicative of negative feelings about talking. The WTFY measures for each participant are summarised in Table 3 as previously discussed. Figures 1 and 2 show graphs of participants' negative and positive ratings for the WTFY. Figure 3 illustrates pretreatment and treatment stuttering frequency by gross count of stutters.

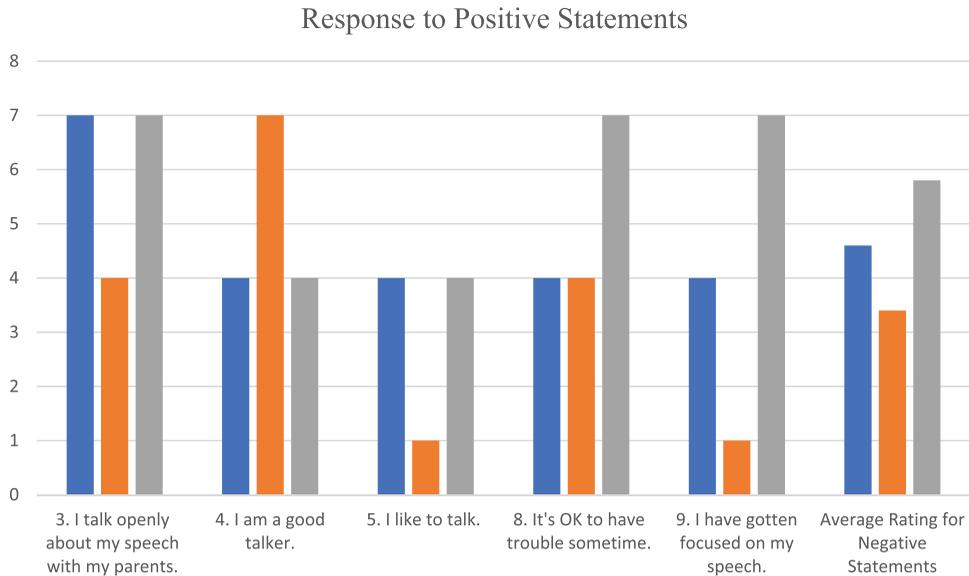


Figure 2. A graph of participant responses to positive statements from WTFY.

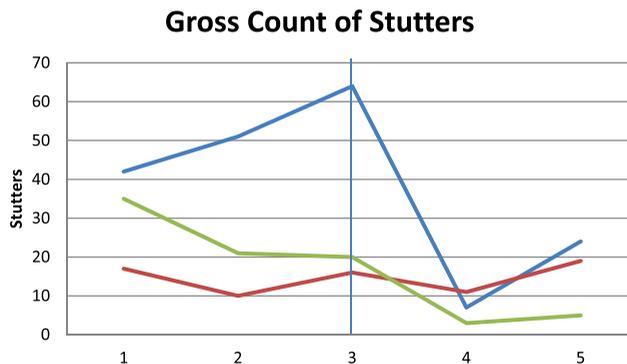


Figure 3. Gross count of stutters for participants 1(blue), 2 (red) and 3(green).

Two of the three children showed negative attitudes about talking. One child with moderate stuttering showed a positive attitude about stuttering.

Conclusions and Discussion

The purpose of the current exploratory case study was to determine whether positive messaging and traditional speech therapy resulted in reduced stuttering and improved attitudes about talking for three African American male children with moderate to severe stuttering. The SSI-3 was used to measure pre- and post-treatment results for stuttering. The WTFY was used as a pre-test measure of attitude and was modified to include score interpretation criteria as negative, neutral, or positive Chmela & Reardon (2001).

Pre-testing confirmed that all three children, with persistent stuttering and histories of lengthy therapy for stuttering and other communication problems exhibited moderate to

severe stuttering. The author did find that two of the children had negative attitudes about stuttering at pre-testing and one child had a positive attitude. This result is consistent with the literature that indicates children who stutter are likely to have negative attitudes. However, children who stutter vary considerably in the nature of their stuttering, personality, and attitude. So, the relationship between stuttering and attitudes is complex. Because of high absenteeism, the WTFY could not be administered post-therapy to determine if positive messaging was associated with any change in attitude about talking.

All three children showed reductions in stuttering following exposure to traditional speech therapy combined with a positive nine-minute message incorporated at the beginning of each session. So, the study conclusions are that:

Positive messaging likely contributed to reduced stuttering for three children with persistent stuttering, as demonstrated by a moderate clinical effect size after two sessions ((Mdn = 9, U = 12, $p \leq 0.05$, $r = .53$).

Studies to examine the influence of positive messaging on children's attitude is worth pursuing as a longitudinal study with more robust sampling.

Conclusions

The current study provides evidence that therapy to address stuttering behaviours, combined with mediations delivered via a CD, effectively decreased children's stuttering behaviours. The influence on attitude is inconclusive because of high absenteeism resulting in missing data. However, therapy with the CD resulted in improved fluency post-treatment, with a moderate clinical effect size as indicated by r , (Mdn = 9), $U = 12$, $p \leq 0.05$, $r = .53$. A more extensive study of the contribution of psychotherapeutic techniques, specifically, relaxation CDs, along with other cognitive mediations, should be conducted. Single-subject research designs are beneficial in examining the unique profiles of children who stutter and devising customised treatment protocols. However, large-scale studies are needed to determine utility for the population of children who stutter, assure sufficient statistical power, and for use of covariate and regression analyses.

Limitations of the current study include high absenteeism, which decreased the sessions available for analysis; the post-attitude measure is missing, resulting in sparse data. In future studies, summer may be a season to avoid due to summer vacation causing high clinic absence. However, two treatments were delivered, sufficient for the statistical test used to examine the data. Although an excellent useful, informative activity for therapy and client interviews, the reliability and validity of the "What's True for You" is not established for attitude assessment. The "What's True for You" was an activity that was useful as an indicator of adverse reaction to talking.

Given the undergraduate student's limited experience with stuttering and time constraints, the study used simplified strategies for analysis that the undergraduate could implement relatively quickly and accurately.

Future studies might include more experienced students and use standardised measures of attitude (i.e. *Overall Assessment of the Speaker's Experience of Stuttering*) (OASES) (Yaruss and Quesal (2016) Future studies will use complete transcripts to describe each subject's unique stutter behaviours. Moreover, thorough descriptions of language abilities

will be included. The advantage of using CDs is one way to control input. Moreover, the imagery of travelling on an elevator, as incorporated in the CD used in the study, is that riding an elevator is a common and neutral experience for many school-age children. Preliminary findings are that the CD was associated with positive outcomes.

Note

1. The Ronald McNair Achievement Programme is a federally funded discretionary/competitive grants programme providing funds to institutions of higher education to prepare students with academic potential for graduate programs. The overall goal is to increase students' attaining Ph.D. degrees.

Acknowledgments

The research was supported by stipends awarded to the undergraduate Ron McNair Scholar to participate in research activity. I served as the McNair Mentor for the student and received compensation for participating in a collaborative research project.

Declarations of Interest Statement

Per Taylor & Francis's policy and my ethical obligation as a researcher, I am reporting that I have a financial interest in the compact disk used in the current study. It is a part of my published programme (Radford, 2010). I have disclosed those interests fully to Taylor & Francis. My published work is based on the tenets of mediated Learning. All pertinent literature is available to any interested scholar who has access to professional journals, as referenced in the paper. The purpose of the paper is to support the continued study of mediated learning and listening materials to aid counseling and education for children who stutter.

Disclosure Statement

I have financial interests in the compact disk used in the study, with potential for the acquisition of royalties from the sale of the compact disk by Plural Publishing. However, the paper developed is theoretical to examine the effectiveness of mediated Learning (ML) to alleviate stuttering. Plural Publishing does not fund my work, and I currently have no funding for the project.

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