LSHSS

Research Article

Speech-Language Pathologist Perspectives of the Implementation of Telepractice-Delivered Stuttering Treatment for School-Age Children

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Purpose: The impact of stuttering can be significant, and effective treatment is critical. Despite evidence supporting direct treatment approaches for school-age children who stutter, a complex set of barriers can prevent access at school. One potential solution is telepractice. To date, however, there is no published evidence regarding the use of telepractice to deliver the Lidcombe Program within a school setting.
Method: In this pilot study, a telepractice service was established and the perspectives of the five treating speech-language pathologists (SLPs) were evaluated before, during, and after the trial through focus groups and recorded telesupervision sessions.
Results: An inductive and reflexive thematic analysis identified four main themes: (a) Understanding and managing technology is critical; (b) logistical considerations can be time-consuming and challenging; (c) preparation and support are essential; and (d) family engagement, acceptance, and independence with telepractice services can be facilitated by external support and coaching. Initially, the SLPs shared feelings of uncertainty, fear, and apprehension. Yet, despite this concern, the SLPs ultimately reported that telepractice can play an important role in their service.
Conclusions: In order to maximize the potential value of telepractice, SLPs require training and support to (a) manage the technology and troubleshoot problems that invariably arise, (b) have the opportunity to watch demonstrations of the technology, and (c) clearly explain the roles, responsibilities, and expectations of the parent engaging in treatment. These findings have particular relevance now, as schools and support services navigate a COVID-safe delivery model for the indefinite future.

Stuttering is a complex, multifaceted speech disorder in which the rhythm or fluency of speech is impaired by interruptions or blockages (Bloodstein, 1995). Typically developing before the age of 4 years, stuttering has been observed in all cultures, races, historical periods, and languages (Ardila et al., 1994). While the exact incidence of stuttering has not been established, the most recent data from a large prospective cohort study estimated a cumulative incidence of approximately 11% by 4 years of age (Reilly et al., 2013). Many children naturally recover from stuttering; however, little is known about which children will recover and the precise recovery rate has not been determined. Collectively, published research estimates recovery to be between two thirds to three quarters of children (e.g., Kefalianos et al., 2017; Yairi & Ambrose, 1999). However, such studies have been impacted by difficulties in measuring the confounding variable of therapeutic actions (both formal and informal) taken by parents, and differences in how recovery is defined and stuttering is measured (Einarsdóttir et al., 2020).

For those who do not recover, it is well-established that chronic stuttering has the potential to impact the quality of life and well-being of the individual in myriad ways. There is good evidence showing the considerable impact on the mental health of adolescents and adults who stutter, and the negative effect on educational and employment attainment and social interactions. Children who stutter are more likely to be teased or bullied than children who do not stutter (Yaruss et al., 2018), and they may start to

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limit their communication to avoid stuttering (Nippold & Packman, 2012).

The current consensus is that, ideally, stuttering should be treated shortly after onset (Jones et al., 2005). This is due to the potential for far-reaching negative impact, and because neural plasticity decreases with age and, as such, with time, stuttering becomes more ingrained and difficult to treat. One well-researched preschool intervention is the Lidcombe Program, with more than 20 publications in peer-reviewed journals investigating this approach including several randomized controlled trials (RCTs; Brignell et al., 2021). Well-designed studies have demonstrated clinically significant reductions in stuttering when compared with a no-treatment control group (Jones et al., 2005), when delivered by community speech-language pathologists (SLPs; O'Brian et al., 2013), and when administered using telepractice (Bridgman et al., 2016).

The Lidcombe Program is a behavioral treatment approach in which parents are trained to implement treatment in the child's natural environment. Parents are taught in weekly clinic sessions to provide verbal contingencies for stutter-free and stuttered speech in both controlled and naturalistic settings. Treatment is delivered in two stages. In Stage 1, the child receives daily parent-administered treatment until there is no stuttering (or almost no stuttering) when they speak, and, in Stage 2, treatment is gradually withdrawn over an extended period (Onslow et al., 2020).

While Lidcombe Program clinical trial evidence is strongest for the preschool-age population, there have been published studies investigating its use with school-age children. Koushik et al. (2009) reported a Phase I trial with 12 participants using a retrospective method. After treatment, the participants reduced their mean percentage of syllables stuttered (%SS) from 9.2%SS to 1.9%SS. This was achieved in a median of eight clinic sessions. This trial followed a preceding Phase II report of the use of verbal response contingent stimulation with school-age children (Lincoln et al., 1996). In this trial, 11 children between the ages of 7 and 12 years needed a median of 12 clinic visits to reduce their pretreatment stuttering to a mean of 1.5%SS. More recently, O'Brian et al. (2013) demonstrated the effectiveness of the Lidcombe Program when administered in community clinics across Australia and included children aged up to 6 years 11 months (i.e., early school age) at the beginning of treatment.

While there are several studies investigating the Lidcombe Program and other treatment approaches for school-age children, many children are unable to access effective treatment. There are several reasons for this. While complex and multifactorial, these can ultimately be broken down into two key ingredients: (a) Schools or clinics need to have appropriately trained SLPs who can deliver treatment in the desired dose and (b) children who stutter need to be able to access these services for the duration of the treatment program.

It is well established that there are not enough SLP services to meet the demand for direct pediatric intervention, resulting in waiting list service management, which may include provision of parent education, materials relating to general management strategies, and family self-management (N. McGill et al., 2020; N. McGill & McLeod, 2020; McLeod et al., 2020; Ruggero et al., 2012). Consequently, early intervention is delayed, which may decrease responsiveness to treatment, leading to less optimal communication skills. This, in turn, can impact a child's social, emotional, and academic development (McCormack et al., 2009; N. McGill & McLeod, 2020; McLeod et al., 2020). Alternatively, parents may not engage in services where there is a long waiting list. This can result in families either not accessing treatment for a child who needs it (McLeod et al., 2020) or seeking private options that are often cost prohibitive for ongoing intervention (N. McGill et al., 2020).

In order to reduce waiting time and increase service offerings, rationing commonly occurs. This is achieved through prioritization schedules, where clients or families may be prioritized based on potential diagnosis, age or socioeconomic demographic information, or utilizing non–evidence-based service delivery models. These may include providing limited treatment sessions, single episodes, or "blocks" of care. Alternatively, treatment may be delivered under the guise of indirect capacity building, where families are provided with home programs, general environmental strategies, or education materials (N. McGill et al., 2020). Such models are particularly detrimental to children who stutter, as stuttering is often identified as a lower priority communication disorder to treat and actually requires ongoing, weekly treatment sessions rather than a specified block of treatment or a parent coaching approach.

Further challenges associated with treatment provision for this age group can be associated with the commencement of school. This brings with it an increase in time demands associated with schoolwork and social activities. Finding time to access and implement treatment in this population can be problematic, as they often have limited time compared with preschool-age children. In addition, school-age children usually have a longer history of stuttering, have often endured previous treatment failures, and may have experienced teasing and bullying about their speech. For these reasons, effective, efficient, and accessible treatment approaches are needed (Nippold, 2012).

Research over several decades has shown that SLPs lack confidence and clinical training in the management of stuttering (e.g., Chmela & Johnson, 2018; Robinson, 2019). Frequently, school-based SLPs are equipped with a broad and general skill set that may not adequately prepare them to treat stuttering, particularly given the unique and complex way in which stuttering often presents (Nippold, 2012). This may result in SLP avoidance, or refusal, of referrals for children who stutter (Robinson, 2019). This is critical with regard to the Lidcombe Program where it has been shown that trained clinicians achieve better outcomes than untrained clinicians (O'Brian et al., 2013).

Policy barriers can impact access to stuttering treatment at primary school. There is currently no legislation in Australia that mandates services and support for children with communication disorders, including stuttering (McCormack & Verdon, 2015). This lack of legislation has contributed to an unmet need for speech-language pathology services. Access to services is largely determined by government policies and

funding models based on severity of need, meaning that funds are often allocated to children considered to have more urgent needs (Daniel & McLeod, 2017; N. McGill et al., 2020). Access to treatment is also impacted by local level factors including families being made aware of where to access public and private treatment options (Bridgman et al., 2019) and the staffing, service types, and model utilized by speech-language pathology services (N. McGill & McLeod, 2019, 2020). Economic factors, including clinic fees and other direct and indirect expenses such as funding availability, transportation, and time off work, can also impact access to treatment (Erickson & Block, 2013; N. McGill et al., 2020; N. McGill & McLeod, 2019).

One potential solution to these challenges is telepractice. Telepractice, also commonly referred to as telehealth, involves the application of telecommunications technology to the delivery of professional health services at a distance (American Speech & Hearing Association, 2005) and has been reportedly used to address speech-language pathology access issues for almost 2 decades (Mashima & Doarn, 2008), with varying uptake due to clinician and service ability, resistance, acceptance, and the resourcing and logistics required for implementation (Regina Molini-Avejonas et al., 2015).

SLPs globally have recently been forced to embrace telepractice in response to the COVID-19 global pandemic. The requirement to isolate from others, particularly during periods of government-enforced lockdowns, has meant that SLPs have been dependent upon technology to maintain clinical services. In the most recent stuttering literature (e.g., M. McGill et al., 2019), this has involved the use of the Internet and webcam to deliver timely, regular, and appropriate stuttering treatment. However, stuttering researchers have been investigating the use of telepractice to deliver pediatric services for more than 15 years. This has included low-tech trials of delivering the Lidcombe Program using the telephone (Lewis et al., 2008; Wilson et al., 2004) and more recently using a webcam (Bridgman et al., 2016; O'Brian et al., 2014).

Prior to the impact of COVID-19, telepractice was increasingly being used in American schools to increase the provision of indirect and direct SLP services. Benefits have been reported for more than a decade and include maximizing SLP availability and service offerings through the reduction or elimination of travel, providing a vehicle for collaborating and supporting staff and students in remote locations, and responding to significant fiscal and economic limitations that can result in inequitable access to services in some schools (Boisvert & Hall, 2019; Juenger, 2009). Despite the increasing use of telepractice within an education setting, published research has tended to focus on implementation and user experience and satisfaction, rather than intervention outcomes.

Research has shown that the Lidcombe Program can be successfully delivered to children using Internet-based videoconferencing platforms. In a recent large-scale RCT, there were no differences in the number of sessions, the reduction in stuttering, or the parent and child's ability to develop rapport with the SLP when compared with face-to-face delivery (Bridgman et al., 2016). Findings from this research substantiated earlier promising research that also showed the Lidcombe Program was suitable for telepractice delivery (e.g., Lewis et al., 2008). To date, however, there is no published evidence regarding the use of telepractice-delivered Lidcombe Program within a primary school setting. In the absence of research to support the efficacy of telepractice-delivered Lidcombe Program for primary school-age children, the purpose of this preliminary study was to investigate the perceptions and experiences of SLPs involved in the implementation of a small-scale trial of this service.

Method

Prior to commencement of the study, ethics approval was received by the La Trobe University Human Research Ethics Committees (HEC19328).

Participants

The participants were five SLPs employed by Catholic Education Melbourne in the state of Victoria, Australia. Catholic Education Melbourne provides support and services to teachers and students who attend 331 primary and secondary schools across the Archdiocese of Melbourne. The SLPs primarily worked with families and teachers to support the inclusion and participation of students with a range of communication disorders in education, providing universal, targeted, and specialized clinical support.

The five female participants were recruited from a larger workforce of 24 SLPs. This small sample reflected the preliminary nature of the research and the desire to treat a small number of children who stutter to establish the viability of the service delivery method. The SLPs volunteered to participate and were required to be (a) permanent employees of Catholic Education Melbourne, (b) experienced in delivering the Lidcombe Program, and (c) not have substantial blocks of leave planned during the trial period. The participants were university qualified and members of Speech Pathology Australia, the professional association for SLPs in Australia. Four participants completed their undergraduate training at an Australian university, and the fifth participant studied and commenced her career in Canada.

The participants had been an SLP for between 7.5 and 12 years (M = 10.1) and had been employed by Catholic Education Melbourne for between 4 and 12 years (M = 8.3). All participants had previously completed the Lidcombe Program and were experienced delivering it face-to-face. The participants worked across three regional offices and routinely conducted face-to-face sessions with students, their teachers, and families in schools, but had not previously used telepractice. All participants gave informed consent to participate in this study.

Procedure

The participants first engaged in a 1-day school-age stuttering management professional development workshop and an additional 4-hr telepractice professional development

workshop. These workshops were presented by the first two authors who are experienced SLPs with expertise in both school-age stuttering management and telepractice. Topics covered in the 1-day workshop included the assessment, measurement, and impact of stuttering, treatment, and management options for school children who stutter, and strategies and resources for working in schools and with teachers. The telepractice training included a research review on telepractice treatment use in schools, outcomes in stuttering intervention, and how to deliver the Lidcombe Program using telepractice.

A detailed protocol, including procedural documentation for the SLPs, schools, and parents, was designed for the purposes of the trial. Families were informed of the need to commit to the requirements of the Lidcombe Program including attending their school weekly for a 45- to 60-min telepractice treatment session, completing daily 15-min treatment sessions, and measuring the child's stuttering each day. Schools with eligible families needed to provide a quiet and private treatment space (typically a separate room or office) with a device (e.g., laptop or tablet) with Internet connection and webcam. An appropriately skilled support person was also in place at each school for the initial sessions to help the family use the device and connect to the SLP remotely using the WeBex videoconferencing platform.

Twelve school-age children who stuttered and a parent were recruited across the Catholic Education Melbourne regional offices. Each child received 12 weekly telepractice-delivered session of the Lidcombe Program. However, while data were collected from the SLP participants based only on their involvement in this 12-week block of treatment, the children continued to receive telepractice-delivered Lidcombe Program until the treatment was completed. Throughout the treatment block, the SLP participants engaged in telesupervision delivered by the second author (see Figure 1). This was initially provided weekly before reverting to fortnightly after the first 4 weeks. Supervision sessions were 75 min in duration and held at the same time each week or fortnight. Sessions were held on the videoconferencing platform Zoom, with the SLPs in their regional office and the second author at a Melbourne-based university. The telesupervision sessions provided the SLP participants with expert support throughout the treatment block related to clinical decision making, administration, and troubleshooting technology-related difficulties.

Data Collection

There were two sources of data in this study. All telesupervision sessions were audio-recorded and sent to a third-party transcription service. Additionally, data were collected from two focus groups facilitated by the first author. The use of focus groups allowed for the exploration of the participants' expectations, experiences, and perspectives of delivering telepractice treatment to school-age children who stutter. The first focus group was conducted prior to the treatment block and was 52 min in duration. The second focus group was conducted at the conclusion of the pilot and was 1 hr 34 min in duration. A topic guide for each focus group (see Appendix A) was used to steer the focus group discussions while also allowing for spontaneity. Transcripts from both the telesupervision sessions and the focus groups were anonymized.

Data Analysis

Inductive and reflexive thematic analysis was used to examine and interpret the data. Thematic analysis is a theoretically flexible method for identifying, analyzing, and reporting patterns within data (Braun & Clarke, 2019). It involves reflective and thoughtful engagement with the data and the analytic process (Braun & Clarke, 2019). A six-step approach to thematic analysis was used. The process of thematic analysis began with the third author conducting multiple active readings of the transcripts to familiarize herself with the depth and breadth of the data. During these readings, notes and reflections were recorded. Phase 2 involved systematic data coding. Initial codes were generated and assigned to extracts of text in the telesupervision and focus group transcripts using NVivo (Version 12). These initial codes were then sorted into potential themes in Phase 3. To do this, the third author printed the initial codes from NVivo and physically sorted these into theme piles. During this phase, consideration was given to the relationship between codes and between themes. This phase ended with a collection of potential themes and subthemes. In Phase 4, themes were developed, reviewed, and refined. Internal homogeneity (i.e., meaningful coherence within a theme) and external heterogeneity (i.e., identifiable distinctions between themes) were considered by reviewing the coded text extracts for each theme and determining whether the candidate themes accurately reflected the overall meaning evident in the data corpus. Phase 5 involved naming and defining the themes to communicate the essence of each theme. Phase 6 involved the final analysis and write-up of the report.

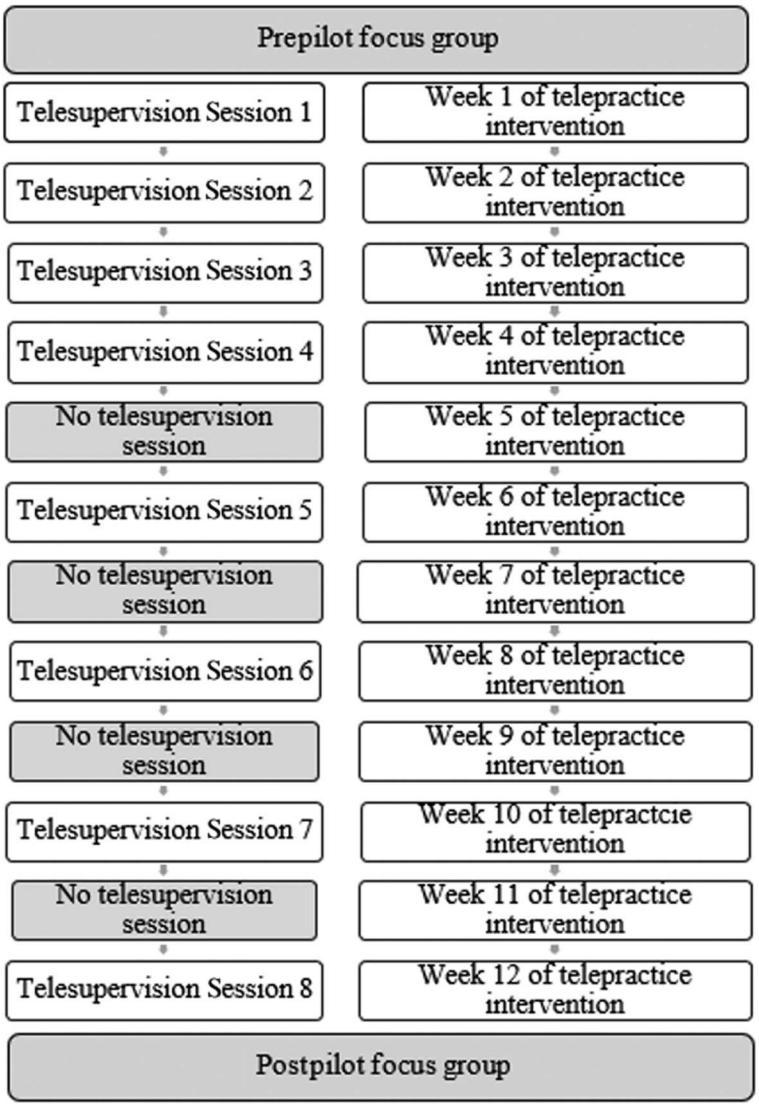
Thoroughness and rigor were achieved using an audit trail for transparency of methods and data analysis decisions. Verbatim quotes from the interview and focus group transcripts were used to support the researchers' interpretations of the data. The data analysis process was collaborative, involving regular discussions between members of the research team. Methodological triangulation occurred whereby data from both interviews and focus groups were collected. A process of reflexivity was maintained throughout the data analysis process through a reflexive journal kept by the third author and regular meetings with coauthors to discuss emerging themes and perspectives.

Results

Central Thread: Learning Something New; Telepractice Delivery of the Lidcombe Program

A central thread connected four main themes identified from the thematic analysis: *learning something new.* The four main themes were organized around this shared meaning. Participants described a clear journey relating to learning and implementing a new skill: that being telepractice

Figure 1. Data collection schedule.



delivery of the Lidcombe Program. Participants identified many concerns throughout this learning journey and raised questions that implied risk and feelings of uncertainty, fear, and apprehension:

> *I have so many questions that we just don't know so much about, I have no idea what it's going to look like. We don't know how to do telehealth…there's so much at the moment that we don't know.*

Alongside these feelings, were those of excitement about learning how to deliver the Lidcombe Program via telepractice and the possibilities this mode of service delivery could offer:

> *I'm nervous about the telehealth…. But excited that we're seeing the students more often and doing it more evidence based.*
>
> *Yeah and also really excited about it. So, I think yes, it's going to be hard, and yes, it's going to be scary, but I'm excited, I believe that by the end of this we will have learnt a lot.*

Many participants reported increased cognitive load as the result of learning something new and the "mental exhaustion" they experienced posttelepractice sessions. The logistical requirements were time-consuming and "stressful at times," and participants acknowledged that they often felt "on edge" during the sessions, not knowing whether the technology would work.

> *I just felt like the cognitive load of doing sessions I was so tired. I was supposed to do admin after my sessions, like write reports and things and I just didn't have the brain capacity. I ended up just doing brainless filing and things like that or replying to emails.*

Participants' feelings at the end of the learning journey demonstrated a shift in their initial perceptions of delivering the Lidcombe Program via telepractice. Many participants were grateful for the opportunity, enjoyed the learning, and felt that telepractice delivery became easier with practice. At the conclusion of the project, most participants agreed that telepractice had a "place in their service."

> *To be honest I know cognitively it was quite draining at the beginning, what everyone was talking about. New skills, all these other issues to think about and what not. But I felt like towards the end it got way easier because I knew what I was doing.*

Participants liked the flexibility of telepractice for rescheduling, the reduction in travel, the capacity to provide more frequent sessions, and that clients could join their session from any location. By the end of the project, all participants recognized and appreciated the benefits of telepractice delivery within, and beyond, the Lidcombe Program. They identified wider application of telepractice, for example, parent meetings, Program Support Group meetings, peer supervision, collaboration on team projects between regions, and for provision of assessment feedback to teachers and parents.

This central thread of learning something new connects the four themes identified in the data. These four themes can be viewed as four essential components for mastery of the skill being learned: telepractice delivery of the Lidcombe Program. Throughout the learning journey, participants identified key contributing factors relating to these four themes that were necessary for their learning to be successful and for them to feel confident in implementing the Lidcombe Program via telepractice. These four themes, with illustrative data extracts, are discussed below.

Theme 1: Understanding and Managing Technology Is Key for a Successful Telepractice Service

This theme communicated participants' experiences identifying and managing technological challenges for telepractice delivery of the Lidcombe Program, their reactions to these challenges, and the impact of these challenges on the quality of the session and session outcomes.

At the beginning of the learning journey, the main concerns for this theme related to Internet access, the quality of the Internet connection, and telepractice etiquette.

> *I'm a little bit concerned about quality of the video and you know how sometimes those glitches can sound like stutters.*
> *What am I looking at initially? Am I meant to look at the parent and the child and not worry about – am I meant to be writing? That's hard too, trying to look and see what they're doing, but then at the same time I need to remember exactly what they're doing and take notes subtly in a way where my head's not completely down all the time.*

Most participants were keen to get the first session "out of the way" to "cure" their nerves relating to technology; however, many commented that their initial sessions were easier than they thought. Utilizing usual Lidcombe Program resources and developing rapport with parents were regarded by most participants as no different to face-to-face sessions:

> *I was relieved, but it was just like normal Lidcombe once we got started. Like, it didn't seem like such a big deal.*
> *When we first started I talked about building rapport with parents through WebEx and I was kind of unsure of how that would go…. But I've really loved meeting the students and the parents on a weekly basis and I feel like I've developed a really strong rapport with them, even though I haven't actually seen them.*

For these participants, the technological aspect of telepractice delivery of the Lidcombe Program was often a source of panic, stress, uncertainty, and frustration.

> *The whole thing is dependent on the tech, so obviously it's stressful when it doesn't….*

These feelings were mostly associated with the technological aspect of delivery being perceived as unpredictable. Previous success with technology at a school was no guarantee of success the following week. Problems encountered by participants differed between schools and sessions.

> *We couldn't really…anticipate what the problem was going to be, or if it was going to be the same problem or a different problem. It was a bit unpredictable.*

Participants acknowledged the importance of quality devices and access to a reliable Internet connection for successful telepractice delivery of the Lidcombe Program, particularly for accurate identification of stutters.

> *And even if at the end of the session mum is like, "Actually he was doing some breaths out of his nose and squeezing his fists." Like I couldn't see that or hear that.*
> *I missed a lot of stutters because of tech.*

Understanding, managing, and mastering the technological aspect of telepractice delivery of the Lidcombe Program was associated with the highest number of coded text extracts in the data corpus. Participants' learning for this theme related to developing their skills at identifying and managing technological challenges and, to developing resilience, persistence and confidence in managing technology.

The participants reported that the quality, utility, and access to the technology were unpredictable. The most prominent technological challenges related to the Internet connection. This included poor audio and video quality and the platform sporadically freezing during a session. Participants identified the Internet connection as the primary source of problems, rather than the WebEx platform. In most instances, the Internet connection was a problem at the school's end due to competing demands on the network, with multiple users and low bandwidth. As a result of the frequency and unpredictability of these problems, many participants allowed extra time to prepare for telepractice sessions, in anticipation of problems.

I don't know if it was learning a new skill, or just – it was a lot of stress. You never know if it's going to work and then you have to get there early.
I still found if I had a 9am Tele session, even towards the end of term I felt like I needed to be in the office by quarter past 8 just in case there were any tech issues.

Despite the challenges participants encountered with technology, they were able to troubleshoot these problems with the support of the wider telepractice team. Troubleshooting included trials of alternative platforms including Zoom. Some participants preferred the screen size in Zoom, which could be made equal between the host and participants. Participants felt that with a larger and more conveniently placed screen, they were able to see themselves more easily when holding up resources or modeling activities. Participants described less instances of freezing with Zoom and a stronger, more reliable audio signal.

Theme 2: Logistical Considerations for Telepractice Can Be Time-Consuming and Challenging

Theme 2 explored logistical considerations relating to telepractice delivery of the Lidcombe Program and participants' management of logistical challenges. At the beginning of the learning journey, the concerns relevant to this theme related to room access, equipment access, parent and client availability, scheduling, and wider caseload management.

Even the pressure of trying to reschedule if they miss one. We don't usually have space so.
My school's concerned about the logistics of having a room available every week.
And we've all got a lot of high caseloads. So, there'll obviously be reduction in service to the other students prioritizing. So that will be hard to do.

Participants described logistical considerations as "hard" and "stressful." Initially, it was sometimes difficult for participants to contact schools and parents to organize sessions.

That sort of took up an enormous amount of time at the start of the term and caused probably the most stress.

In most instances, participants were able to arrange a quiet space for telepractice sessions at school. For some participants, school staff members would leave their own offices to make space available for sessions. While all participants were able to access rooms for the telepractice sessions, some of these were not appropriate. For example, a client of one participant had been set up in the school staffroom, which meant staff were frequently entering and leaving the space during the session. For another participant, their client had been set up in a workroom, where staff were entering to use equipment such as paper cutters.

So, you do things like, "It's a bit noisy in here isn't it?" Hoping the teacher would leave. Because the schools weren't thinking, I know where I'm going to put them, in the noisy room.

While device availability was an initial concern for participants, all parents were able to access a device for their sessions. Commonly used devices included laptops, Surface Pros, tablets, and desktop computers. Scheduling the sessions with consideration of parent availability, school events, and child commitments was a significant concern expressed by the participants prior to starting the project, as was rescheduling missed sessions. Many participants identified scheduling as one of the most challenging and time-consuming logistical requirements.

At the start of the project there was a phenomenal amount of admin – so much more than I could have ever imagined because of technology and scheduling of parents, of schools of meeting rooms.
I was given three parents and then I had to call them multiple times to try and figure out how they could all be on one day or that sort of thing. And then figuring out, well then that school has specialists and the child won't want to miss out on sport.

As a result of the extra time invested by participants to organize scheduling, room access, and equipment access, many struggled to manage the expectations and responsibilities of their wider caseload.

We don't usually have to do a day a week on Lidcombe so it's not the telehealth aspect necessarily but it's the project plus our general caseload demands.

Theme 3: Preparation and Support Are Essential Components for Successful Delivery of Telepractice Services

Theme 3 identified preparation and support as two essential components for successful engagement with this service delivery model. Participants needed to be prepared for telepractice delivery and feel supported by the wider team.

External support from the clinical supervisor, peers, schools, and school information and communication technology (ICT) teams was critical to participants' learning, knowledge development, and skill mastery. Most participants acknowledged the benefits of working within a team of peers. They enjoyed being able to "bounce ideas off one another" and felt a sense of shared understanding.

It was just good to debrief with people that know what you're going through. We made up a new word, Televenting.

Participants identified the need for clear expectations, roles, and responsibilities to be provided to schools, in writing, prior to engaging in this mode of service delivery. Participants acknowledged the importance of the schools' cooperation in telepractice delivery and their willingness to be involved. It was the perception of most participants that their schools were "on board," embraced the opportunity, and worked hard to ensure that the logistical requirements for the sessions were met. These logistical requirements included room and equipment access. Schools were also responsible for supporting parents to connect to the telepractice

sessions by providing an adequate Internet connection, logging parents into the WebEx platform and providing a liaison for parents.

> *The school stayed with her for the first ten minutes, and then I could tell because she would look up and smile that somebody would come and check in like every ten minutes during the session, and she said that she felt really comfortable.*

Some participants felt that schools became "stressed" when they could not get the technology to work. They received feedback that it took additional time for schools to prepare parents for the sessions. Initial concerns expressed by some schools related to room availability and the parents' capacity to be involved; however, most were excited to trial a new mode of service delivery that would allow for more frequent SLP services.

> *I found myself constantly apologizing for taking up their time to try and test out the technology, and the schools that I contacted were so keen and it didn't bother them.*
> [What's gone well?] *I think the school's cooperation in terms of trying to set up. We try to do a dry run in the morning. That worked, so that was positive.*

In addition to support provided by the school, ICT support was provided for the client/parent (at school) and the participants (by Catholic Education Melbourne). Within the school setting, ICT staff tested the Internet connection, trialed the platform with parents, supported parents during the session, and assisted with troubleshooting. For the participants, ICT were able to identify whose Internet connection was at fault in the session, reorganize Internet distribution in the school's network to prioritize telepractice sessions, provide postsession reports on the quality of the Internet connection, and, provide online troubleshooting within the sessions.

Training, practice, and planning were essential for the participants' learning and success with this service delivery model. All participants completed WebEx training prior to beginning telepractice Lidcombe Program sessions; however, most felt that they needed more WebEx training and that this needed to occur closer to beginning telepractice delivery of the Lidcombe Program. WebEx training was delivered 3 months prior to starting, which meant that many participants could not remember what they had been taught.

> *I personally don't think we had enough support in knowing how to use WebEx, doing the right steps of, you know, scheduling a meeting through this avenue, and then if that doesn't work, you know, this and that. I just felt like there wasn't enough, I suppose, solid support.*

Some participants commented that handouts or information for schools would have been helpful as well as WebEx training for schools.

Participants invested a considerable amount of time preparing for telepractice sessions. Preparation included practicing with peers (role-playing, practicing camera angles, trialing resources and activities), practicing connecting to WebEx with parents, practicing booking and entering a WebEx meeting, and testing the Internet connection with schools. Other presession preparations included confirming room availability, sourcing LAN cables, sourcing necessary adaptors, preparing resources, setting up the computer, connecting to WebEx, and ensuring a liaison was available to support parents when connecting to the session.

> *[Participant name] and I have practiced. We did a pretend Lidcombe session.*
> *I attempted a trial session with my schools, so that was good because I attempted to do that and it connected.*

Theme 4: Family Engagement, Acceptance, and Independence With Telepractice Services Can Be Facilitated by External Support and Coaching

Theme 4 explored participants' experiences working with parents and school-age children in telepractice delivery of the Lidcombe Program. This included participants' concerns about the therapeutic relationship prior to starting the project, challenges throughout the project, and key learnings. Prior to commencing telepractice delivery of the Lidcombe Program, participants' concerns for this theme related to their worry and apprehension around parents' capacity to engage in this service delivery model, parents' willingness to participate, and the child's engagement with telepractice delivery.

Not being physically present with parents meant that participants needed to adjust to a shift in roles and responsibilities with telepractice delivery of the Lidcombe Program. Participants coached parents to understand their role as the primary therapy agent. Parental roles as the primary therapy agent included taking responsibility for session resources, committing to weekly sessions, providing weekly severity ratings, and engaging their child in play and conversation during clinic and home sessions.

> *…Then putting a lot of pressure into I suppose – responsibility to parents and the students to bring their activities, because they struggle. The ones that I deal with struggle to bring their materials for me in general.*
> *And parents sometimes struggle to come every two weeks. So, every week I imagine would be harder for the parents that aren't a hundred percent committed. When you ask them to show you something, it's like why do I have to do that? You're there, why don't you do it.*

Relying on parents meant that participants sensed a loss of control over the sessions. Some viewed this positively, in that parents would be given the opportunity to play a larger part in the Lidcombe Program. For others, relying on parents was a source of anxiety.

> *It might encourage us to take that step back because I feel that, I know my sessions I'm always saving parents*

and taking control of the session. So, I think it will be really hard to take a step back. I'm scared about that. I think it's good that it's forcing us to not join in. And actually getting them to do it, because it's really hard to get them to do it, because we always do it for them.

Participants frequently discussed their role in managing parental noncompliance and coaching parents about expectations, roles, and responsibilities. Mostly, issues of noncompliance were no different to those encountered in face-to-face delivery of the Lidcombe Program, for example, parents not completing practice sessions with their child at home and not collecting daily severity ratings.

Obviously she hasn't practiced for the last two to three weeks anyway. She said she was too sick to do any practice…over the last session that I had with mum and her understanding and her ability to control how much talk and also how to structure the activities, I felt like it really wasn't up to scratch.
When I check in, mum says, "Oh, I didn't get time to do what we'd planned, so I just had a conversation with my son instead each day," which isn't what we'd agreed on.

As with face-to-face delivery, parents required ongoing coaching in identifying stutters, choosing appropriate therapy resources, providing severity ratings, and scaffolding their child's language in the session to facilitate stutter-free speech.

So, the dad is just not – I don't know if it's their personalities or interpersonal styles, but he was – like the conversation will be, "Tell me the rules of the game," and then the kid will just talk, talk, talk and stutter, stutter, stutter.

Parental noncompliance exclusive to telepractice delivery included parents leaving their child with the computer to attend to other children or phone calls, and parents forgetting to bring resources to the sessions.

And then mum said, I'm just going to go and take her to the toilet, and I'm like, no, there's something about – don't. I'm like, just take him with you. No, I'll be right back and then she just walked away.

Coaching specific to telepractice delivery included behavior management strategies for parents to keep their child at the computer and engaging their child in the session tasks.

I'm just talking to the parent about what it is, etcetera, the child managed, but he was just like not having it. I mean, she was trying to manage him. He wanted to leave.
Just around behavior management, same student, just around – I don't know what else I can do if he wants to hop up – he's very lively. In the last session, he hopped up and walked away from the computer a number of times.

Participants identified that some parents initially felt nervous and apprehensive about using technology; however, their confidence improved over time.

The parents, one of them…she's excited about the project. The other two parents, one of them is extremely nervous about the technology.

At the end of the project, participants described parents who had "shifted towards independence" with managing the technological aspect of the sessions. They were able to log into the computers at school and connect to WebEx with minimal or no support.

Considerations for school-age Lidcombe Program clients specific to a telepractice setting included having activities for children to engage with during the SLPs' conversations with parents and managing anxiety around talking about stuttering in front of the child.

I think having them there and they can choose to tune in, or tune out, if they had something to do would probably be better than them having to sit there and have to listen to something that's potentially boring and uninteresting to them.
I feel like the parent was a little bit like we're talking about this in front of them?

Children's reactions to telepractice delivery varied. Participants described reactions including children using unusual voices, children pulling faces, children being distracted by wanting to show their SLP things in the room, children being apprehensive about engaging with their SLP and seeming shy, and children leaving the session.

Then she started talking and I felt like everything I was saying was, "Use your big girl voice," because I didn't know whether to praise fluency when she's using a different voice but she didn't use her normal voice enough for me to praise it."
They're in the staffroom so he can walk wherever he wants but that's the best connection for the session too and I'm finding that I have to keep asking Mum, "Can you just get him to come back?"
I think he was shy obviously, he's never met me before, so we're trying to build that rapport. So, getting the sample was tricky because he didn't want to talk.
I had a child say to me, "I don't know if you're fake or real. Are you real? How do I know, I've never seen you before?"

Participants commented that many children enjoyed the activities that were used in the telepractice sessions, for example, books, snap, memory, bingo, go fish, conversation topics (e.g., What would you do if you won a million dollars?) and conversation stimuli (e.g., Google images, family photos). Many participants were surprised by how easily their usual Lidcombe Program resources and activities transferred to a telepractice setting and how much the clients enjoyed these.

My oldest student who is doing memory, the mum emailed me the night before our session to say that he's

enjoying memory games so much and I was surprised at that.

Over time, parents acknowledged the benefits of telepractice delivery of the Lidcombe Program, and both the parent and child adjusted to this service delivery model.

They just said that it's been working well for them and they're enjoying that weekly catch-up and they're surprised at how easy the student has gotten used to this style of therapy.

Discussion

School-age children who stutter seeking treatment present a significant challenge for SLPs. There are several key reasons for this. These include concerns regarding the chronicity of the disorder and the potential for significant wide-ranging negative impact on the child. In addition, access to effective treatment is frequently affected by insufficient services, lifestyle factors (e.g., time demands associated with schoolwork and social activities), and economic factors (e.g., clinic fees and other direct and indirect expenses). Recently, access to treatment has also been impacted by the social distancing requirements imposed throughout the COVID-19 pandemic. The need to isolate from other people has meant that clients have been unable to access treatment in person.

Our research presents findings from a pilot study investigating the delivery of the Lidcombe Program to school-age children using telepractice. This is the first published study of using telepractice-delivered Lidcombe Program with this population. The purpose of this preliminary study was to investigate the perceptions and experiences of the SLPs involved in the implementation of this service. The in-depth data obtained from focus groups conducted before and after the pilot program, and eight telesupervision sessions during the trial, has provided valuable insight into the feasibility of this service delivery model.

During the COVID-19 global pandemic, many SLPs have utilized telepractice to deliver services to their clients. Like the participants in this trial, this is likely to have elicited feelings of uncertainty, fear, and apprehension for many SLPs, particularly given the need to rapidly transition to telepractice. Despite being trained and experienced in delivering the Lidcombe Program, the implementation of this treatment via telepractice presented additional SLP-related and technology-related challenges. Yet, despite this initial trepidation, participants identified a place for telepractice in their service at the end of the trial and described feelings of enjoyment and gratitude for the experience and professional development. Participants described a learning journey that connected four main themes: (a) Understanding and managing technology is key for a successful telepractice service; (b) logistical considerations for telepractice can be time-consuming and challenging; (c) preparation and support are essential components for successful delivery of telepractice services; and (d) family engagement, acceptance, and independence with telepractice services can be facilitated by external support and coaching. Other studies investigating telepractice delivery have also shown that the transition to telepractice is a process. This involves SLPs recognizing their concerns relating to the therapeutic relationship, collaboration with parents and teachers, adequacy of technology and resources, and access to support (Boisvert & Hall, 2019; Hines et al., 2015; Juenger, 2009). As in the current study, learning can ultimately lead to a shift in SLPs' beliefs about the legitimacy of telepractice as a service delivery model (Hines et al., 2015).

Like the participants in Boisvert and Hall's (2019) and Hines et al.'s (2015) research, participants in this study identified several aspects of telepractice delivery that were concerning because of a lack of prior knowledge or experience. Most of these concerns were related to the technological aspects of telepractice, including the practicalities of telepractice, adequacy of the technology and Internet connection, and problem-solving technological difficulties. The technological aspect of telepractice delivery was identified as the most crucial component of the service, requiring the most planning, preparation, support, knowledge, and skill. Boisvert and Hall (2019) and Hines et al. (2015) highlighted that good Internet connectivity is vital to the success of telepractice, yet both also conceded that technological challenges were inevitable (Hines et al., 2015). The SLPs in the current study were generally confident in their ability to deliver the Lidcombe Program and were appropriately trained to do so; however, the technological aspect incited initial feelings of panic, stress, uncertainty, and frustration. One participant was also concerned that technology failings impacted the accuracy of stuttering measurement. This speaks to the importance of SLPs completing Internet connectivity tests prior to commencing treatment. In the Bridgman et al. (2016) RCT comparing webcam and in-clinic delivery of the Lidcombe Program, 81% of participants had adequate connectivity and the remainder reported occasional connection problems. Despite this, given webcam delivery was found to be noninferior to in-clinic delivery, it was concluded that such connectivity issues were unlikely to impact the treatment process or outcomes.

Previous studies investigating telepractice have identified ICT illiteracy as a barrier to the adoption of telepractice (Hines et al., 2015). Other barriers relating to technology include SLPs' lack of access to adequate technology (May & Erickson, 2014; Tucker, 2012) and uncertainty about the use and implementation of technology (e.g., learning how to use it and managing technological challenges; Keck & Doarn, 2014; May & Erickson, 2014).

Being prepared for telepractice and feeling supported were important for participants to feel confident to experience success delivering treatment. Previous studies have identified training and support to be key in clinicians' adoption of telepractice (Edirippulige & Armfield, 2017). Inadequacy of technology and infrastructure, and lack of adequate training can be barriers to the uptake of telepractice (Boisvert & Hall, 2019). The SLPs in the current study acknowledged the importance of formalized training relating to the telepractice platform, the requirements for the Internet connection, devices, and troubleshooting of common technological

issues. In addition to completing formal telepractice training, the SLPs also identified that having opportunities to trial the technology before delivering treatment is important for successful telepractice delivery.

While training prior to engaging in telepractice is important, the participants also benefitted from telesupervision during the trial. This was intended to provide expert technological, administrative, and clinical guidance. The use of fluency consultants has been described since the early 2000s, as a way of educating, upskilling, and supporting school-based SLPs' management of children who stutter (Oyler & Chmela, 2003). As found in this study, these SLPs seek support with content (knowledge and experience), process (application of regulations and service policies), and integration (ability to problem solve fluency cases in routine practice). After engaging in the 12-week telesupervision program, the five SLPs in this study now have the potential to become fluency clinical leaders within their respective teams, which will benefit the broader service. Such a model is presented by Robinson (2019) who identified knowledge and skill capacity building in the area of stuttering as an explicit strategy to increase and improve pediatric stuttering management.

It has been established that some SLPs perceive that telepractice has an adverse effect on the therapeutic relationship and development of rapport (Hines et al., 2015; May & Erickson, 2014). The findings of this study support this as an ongoing concern for SLPs engaging in telepractice. Participants initially expressed concern about their ability to develop rapport with clients and their families via telepractice but after participating were surprised that this was no different to face-to-face interactions. There is the possibility that the SLPs had to work harder and more creatively to engage their clients in telepractice and develop rapport as evidenced by their comments that telepractice was "mentally exhausting" and "draining." In Hines et al.'s (2015) study, SLPs also commented that they needed to be animated in the sessions to keep children engaged, contributing to feelings of exhaustion at the end of the workday.

While the participants were initially concerned about the ability to develop rapport with the families, findings from this research appear to indicate that telepractice may actually enhance the therapeutic relationship, encourage greater collaboration with parents, and facilitate higher parental engagement in therapy. The participants reported that telepractice delivery led to parents embracing their role as the primary intervention agent in the Lidcombe Program. As a parent-delivered program, parents are trained to implement treatment and provide verbal contingencies for stuttered and stutter-free speech in controlled and naturalistic settings. In this study, the participants felt that telepractice provided parents with the opportunity to better understand their role as the primary intervention agent and take greater responsibility in the sessions.

The participants reported that telepractice enabled them to deliver the Lidcombe Program with the prescribed treatment intensity, when this can be otherwise challenging with this population. It is well established that school-age children who stutter often cannot access treatment with the necessary frequency due to a wide range of service, client, and clinician-related variables. The challenges SLPs commonly face when working with school-age children related to timetabling sessions were somewhat mitigated by telepractice. While the participants reported it was frustrating and time-consuming scheduling the sessions, they also acknowledged the flexibility offered in rescheduling sessions when children were unable to attend due to other events at the school, as well as the ease at which sessions could continue throughout the school holidays when services would typically pause.

Recommendations

There are several important recommendations for SLPs considering delivery of services via telepractice that have emerged from this research. The first recommendation is that SLPs will benefit from suitable preparation prior to engaging in telepractice. In particular, they should be familiar with the technology, assess the Internet connection speed, recognize the necessary logistical and preparation requirements, and have access to appropriate training and support. The opportunity to observe a demonstration of telepractice delivery as an initial starting point is likely to reduce the number of concerns identified by the participants at the beginning of this project. Novice telepractice clinicians will likely benefit from supervision for both the clinical and technological aspects of treatment.

The second recommendation is that SLPs should be aware that mastering the technology requires the most planning, preparation, support, knowledge, and skill. It is crucial to the success of the session. Having access to telepractice guidelines would be helpful. Such guidelines should address telepractice preparation, technical requirements, telepractice etiquette, and troubleshooting common problems. In addition, telepractice SLPs need to have clear contingencies in place relating to technology failure. Access to ICT support is desirable for both the SLP and the client, at least in the early stages of setting up telepractice.

Finally, providing education about the roles, responsibilities, and expectations of the parent engaging in telepractice treatment is essential. Parents need to be aware of the differences between telepractice and face-to-face delivery including the additional expectations (i.e., related to use of the technology) and the necessary preparation (the setup of the room and reducing distractions, etc.). It may also be important to discuss behavior management strategies for the child with the parent.

Limitations

It should be acknowledged that this article presents findings from a preliminary investigation of the use of telepractice to deliver the Lidcombe Program to school-age children. While in-depth qualitative data were captured, this research only reflects the experiences and perspectives of five SLPs. As such, it is not possible to generalize the results beyond the described context. Additionally, given the preliminary nature of this study, data were not collected

from other key stakeholders, including the parents, children, and schools, regarding their experiences and perspectives. Speech data were not collected, and, as such, the efficacy of using this service delivery approach for this population cannot be estimated. This research provides an important stepping stone toward future investigations of telepractice-delivered Lidcombe Program for school-age children who stutter.

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References

American Speech-Language-Hearing Association. (2005). *Speech-language pathologists providing clinical services via telepractice: Position statement*. https://www.asha.org/policy/

Ardila, A., Bateman, J. R., Niño, C. R., Pulido, E., Rivera, D. B., & Vanegas, C. J. (1994). An epidemiologic study of stuttering. *Journal of Communication Disorders, 27,* 37–48. https://doi.org/10.1016/0021-9924(94)90009-4

Bloodstein, O. (1995). *A handbook on stuttering* (5th ed.). Singular.

Boisvert, M. K., & Hall, N. (2019). Telepractice for school-based speech and language services: A workload management strategy. *Perspectives of the ASHA Special Interest Groups, 4*(1), 211–216. https://doi.org/10.1044/2018_PERS-SIG18-2018-0004

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Bridgman, K., Erickson, S., Unicomb, R., & O'Connor, B. (2019). A five-year file audit of paediatric stuttering management. *Journal of Clinical Speech-Language Pathology, 21*(2), 108–115.

Bridgman, K., Onslow, M., O'Brian, S., Jones, M., & Block, S. (2016). Lidcombe Program webcam treatment for early stuttering: A randomized controlled trial. *Journal of Speech, Language, and Hearing Research, 59*(5), 932–939. https://doi.org/10.1044/2016_JSLHR-S-15-0011

Brignell, A., Krahe, M., Downes, M., Kefalianos, E., Reilly, S., & Morgan, A. (2021). Interventions for children and adolescence who stutter: A systematic review, meta-analysis, and evidence map. *Journal of Fluency Disorders, 70,* 105843. https://doi.org/10.1016/j.jfludis.2021.105843

Chmela, K., & Johnson, L. (2018). How can we overcome the challenges of providing school-based fluency services? *Seminars in Speech and Language, 39*(4), 371–381. https://doi.org/10.1055/s-0038-1667165

Daniel, G. R., & McLeod, S. (2017). Children with speech sound disorders at school: Challenges for children, parents and teachers. *Australian Journal of Teacher Education, 42*(2), 81–101. https://doi.org/10.14221/ajte.2017v42n2.6

Edirippulige, S., & Armfield, N. R. (2017). Education and training to support the use of clinical telehealth: A review of the literature. *Journal of Telemedicine and Telecare, 23*(2), 273–282. https://doi.org/10.1177/1357633X16632968

Einarsdóttir, J. T., Crowe, K., Kristinsson, S. H., & Másdóttir, T. (2020). The recovery rate of early stuttering. *Journal of Fluency Disorders, 64,* 105764. https://doi.org/10.1016/j.jfludis.2020.105764

Erickson, S., & Block, S. (2013). The social and communication impact of stuttering on adolescents and their families. *Journal of Fluency Disorders, 38*(4), 311–324. https://doi.org/10.1016/j.jfludis.2013.09.003

Hines, M., Lincoln, M., Ramsden, R., Martinovich, J., & Fairweather, C. (2015). Speech pathologists' perspectives on transitioning to telepractice: What factors promote acceptance? *Journal of Telemedicine and Telecare, 21*(8), 469–473. https://doi.org/10.1177/1357633X15604555

Jones, M., Onslow, M., Packman, A., Williams, S., Ormond, T., Schwarz, I., & Gebski, V. (2005). Randomised controlled trial of the Lidcombe Programme of early stuttering intervention. *British Medical Journal, 331*(7518), 659. https://doi.org/10.1136/bmj.38520.451840.E0

Juenger, J. M. (2009). Telepractice in the schools: Virtual services help clinicians do more with less. *The ASHA Leader, 14*(12), 20–21. https://doi.org/10.1044/leader.FTR2.14122009.20

Keck, C. S., & Doarn, C. R. (2014). Telehealth technology applications in speech-language pathology. *Telemedicine and e-Health, 20*(7), 653–659. https://doi.org/10.1089/tmj.2013.0295

Kefalianos, E., Onslow, M., Packman, A., Vogel, A., Pezic, A., Mensah, F., Conway, L., Bavin, E., Block, S., & Reilly, S. (2017). The history of stuttering by 7 years of age: Follow-up of a prospective community cohort. *Journal of Speech, Language, and Hearing Research, 60*(10), 2828–2839. https://doi.org/10.1044/2017_JSLHR-S-16-0205

Koushik, S., Shenker, R., & Onslow, M. (2009). Follow-up of 6–10-year-old stuttering children after Lidcombe Program treatment: A phase I trial. *Journal of Fluency Disorders, 34*(4), 279–290. https://doi.org/10.1016/j.jfludis.2009.11.001

Lewis, C., Packman, A., Onslow, M., Simpson, J. M., & Jones, M. (2008). A phase II trial of telehealth delivery of the Lidcombe Program of early stuttering intervention. *American Journal of Speech-Language Pathology, 17*(2), 139–149. https://doi.org/10.1044/1058-0360(2008/014)

Lincoln, M., Onslow, M., Lewis, C., & Wilson, L. (1996). A clinical trial of an operant treatment for school-age children who stutter. *American Journal of Speech-Language Pathology, 5*(2), 73–85. https://doi.org/10.1044/1058-0360.0502.73

Mashima, P. A., & Doarn, C. R. (2008). Overview of telehealth activities in speech-language pathology. *Telemedicine and e-Health, 14*(10), 1101–1117. https://doi.org/10.1089/tmj.2008.0080

May, J., & Erickson, S. (2014). Telehealth: Why not? *Journal of Clinical Practice in Speech-Language Pathology, 16*(3), 147–151.

McCormack, J., McLeod, S., McAllister, L., & Harrison, L. J. (2009). A systematic review of the association between childhood speech impairment and participation across the lifespan. *International Journal of Speech-Language Pathology, 11*(2), 155–170. https://doi.org/10.1080/17549500802676859

McCormack, J. M., & Verdon, S. E. (2015). Mapping speech pathology services to developmentally vulnerable and at-risk communities using the Australian Early Development Census. *International Journal of Speech-Language Pathology, 17*(3), 273–286. https://doi.org/10.3109/17549507.2015.1034175

McGill, M., Noureal, N., & Siegel, J. (2019). Telepractice treatment of stuttering: A systematic review. *Telemedicine and e-Health, 25*(5), 359–368. https://doi.org/10.1089/tmj.2017.0319

McGill, N., Crowe, K., & Mcleod, S. (2020). "Many wasted months": Stakeholders' perspectives about waiting for speech-language pathology services. *International Journal of Speech-Language Pathology, 22*(3), 313–326. https://doi.org/10.1080/17549507.2020.1747541

McGill, N., & McLeod, S. (2019). Aspirations for a website to support families' active waiting for speech-language pathology. *International Journal of Speech-Language Pathology, 21*(3), 263–274. https://doi.org/10.1080/17549507.2019.1604802

McGill, N., & McLeod, S. (2020). Waiting list management in speech-language pathology: Translating research to practice.

Speech, Language and Hearing, 23(1), 2–8. https://doi.org/10.1080/2050571X.2020.1716471

McLeod, S., Davis, E., Rohr, K., McGill, N., Miller, K., Roberts, A., Thornton, S., Ahio, N., & Ivory, N. (2020). Waiting for speech-language pathology services: A randomised controlled trial comparing therapy, advice and device. *International Journal of Speech-Language Pathology, 22*(3), 372–386. https://doi.org/10.1080/17549507.2020.1731600

Nippold, M. A. (2012). When a school-age child stutters, let's focus on the primary problem. *Language, Speech, and Hearing Services in Schools, 43*(4), 549–551. https://doi.org/10.1044/0161-1461(2012/12-0054)

Nippold, M. A., & Packman, A. (2012). Managing stuttering beyond the preschool years. *Language, Speech, and Hearing Services in Schools, 43*(3), 338–343. https://doi.org/10.1044/0161-1461(2012/12-0035)

O'Brian, S., Iverach, L., Jones, M., Onslow, M., Packman, A., & Menzies, R. (2013). Effectiveness of the Lidcombe Program for early stuttering in Australian community clinics. *International Journal of Speech-Language Pathology, 15*(6), 593–603. https://doi.org/10.3109/17549507.2013.783112

O'Brian, S., Smith, K., & Onslow, M. (2014). Webcam delivery of the Lidcombe Program for early stuttering: A phase I clinical trial. *Journal of Speech, Language, and Hearing Research, 57*(3), 825–830. https://doi.org/10.1044/2014_JSLHR-S-13-0094

Onslow, M., Webber, M., Harrison, E., Arnott, S., Bridgman, K., Carey, B., Sheedy, S., O'Brian, S., MacMillan, V., Lloyd, W., & Hearne, A. (2020). *The Lidcombe Program treatment guide*. Lidcombe Program. https://www.lidcombeprogram.org/helpful-resources/helpful-downloads/

Oyler, M. E., & Chmela, K. A. (2003). The role of stuttering specialists in the school setting. *Seminars in Speech and Language, 24*(1), 47–52. https://doi.org/10.1055/s-2003-37386

Regina Molini-Avejonas, D., Rondon-Melo, S., de La Higuera Amato, C. A., & Samelli, A. G. (2015). A systematic review of the use of telehealth in speech, language and hearing sciences. *Journal of Telemedicine and Telecare, 21*(7), 367–376. https://doi.org/10.1177/1357633X15583215

Reilly, S., Onslow, M., Packman, A., Cini, E., Conway, L., Ukoumunne, O. C., Bavin, E. L., Prior, M., Eadie, P., Block, S., & Wake, M. (2013). Natural history of stuttering to 4 years of age: A prospective community-based study. *Pediatrics, 132*(3), 460–467. https://doi.org/10.1542/peds.2012-3067

Robinson, T. L., Jr. (2019). Leadership opportunities for clinicians working with stuttering and other fluency disorders. *Perspectives of the ASHA Special Interest Groups, 4*(5), 844–849. https://doi.org/10.1044/2019_PERS-SIG4-2018-0016

Ruggero, L., McCabe, P., Ballard, K. J., & Munro, N. (2012). Paediatric speech-language pathology service delivery: An exploratory survey of Australian parents. *International Journal of Speech-Language Pathology, 14*(4), 338–350. https://doi.org/10.3109/17549507.2011.650213

Tucker, J. K. (2012). Perspectives of speech-language pathologists on the use of telepractice in schools: The qualitative view. *International Journal of Telerehabilitation, 4*(2), 47–60. https://doi.org/10.5195/ijt.2012.6102

Wilson, L., Onslow, M., & Lincoln, M. (2004). Telehealth adaptation of the Lidcombe Program of early stuttering intervention: Five case studies. *American Journal of Speech-Language Pathology, 13*(1), 81–92. https://doi.org/10.1044/1058-0360(2004/009)

Yairi, E., & Ambrose, N. G. (1999). Early childhood stuttering I: Persistency and recovery rates. *Journal of Speech, Language, and Hearing Research, 42*(5), 1097–1112. https://doi.org/10.1044/jslhr.4205.1097

Yaruss, J. S., Reeves, N., & Herring, C. (2018). How speech-language pathologists can minimize bullying of children who stutter. *Seminars in Speech and Language, 39*(4), 342–355. https://doi.org/10.1055/s-0038-1667163

Appendix A

Focus Group Topic Guides

Prestudy Questions

- How are you feeling about your participation in this project?
- What are you unsure about?
- What are you feeling confident about?
- What concerns do you have about participating?
- What do you see as being barriers or facilitators in this pilot treatment program?
- What do you think the benefits of telepractice are?
- What do you think the limitations of telepractice are?
- Can you share any experiences you've had using technology in your role as a speech pathologist?
- Are you aware of other speech pathologists using telepractice to deliver speech pathology services?
- How suitable do you think telepractice is to deliver stuttering treatment to your clients?
  - Compared to face-to-face treatment?
- How do you think your clients and families will feel about participating?
- How do you think the school personnel will feel about the project?

Poststudy Questions

- How do you feel about your participation in this project?
- Thinking about your participation in the project, do you perceive there to have been any benefits to you as a speech pathologist?
- Will your practice change as a result of your participation in this project?
- Can you share your experiences delivering stuttering treatment via telepractice?
- What do you think the benefits of telepractice are?
- What do you think the limitations of telepractice are?
- Do you perceive telepractice as potentially being suitable to deliver stuttering treatment to your clients?
- How do you perceive the effectiveness of face-to-face delivered treatment vs. telepractice-delivered treatment?
- Could you share your experience of some of the barriers and facilitators to delivering telepractice treatment?
- Do you have any suggestions for improvements or changes regarding the training or protocols that you received?
- How do you think your clients and families felt about participating?
- How do you think the school personnel felt about the project?