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Factors influencing the success of telepractice during the COVID-19 pandemic and preferences for post-pandemic services: An interview study with clinicians and parents

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Abstract

Background: There has been a significant uptake in the use of telepractice during the coronavirus SARS-CoV-2 (COVID-19) pandemic. This study explored the experiences of speech and language therapists, assistants and parents with telepractice during the COVID-19 pandemic.

Aims: The aims of the study were to (a) identify factors that influenced success of telepractice, and (b) describe clinicians' and parents' preferences for the future mode of service delivery for preschoolers with communication disorders.

Methods & Procedures: The study was conducted in partnership with one publicly funded program in Ontario, Canada that offered services to preschoolers with speech, language, and communication needs at no cost. Speech and language therapists (N = 13), assistants (N = 3) and parents (N = 13) shared their experiences and perspectives during semi-structured videoconference interviews.

Outcomes & Results: Factors that influenced the success of telepractice were reported in three categories: the setting (i.e., where and how telepractice was being delivered); the nature of telepractice (i.e., the services that were provided via telepractice); and the individuals (i.e., who was involved in telepractice). These factors were reported to interact with each other. As needs for each child and family are unique, parents and clinicians reported a preference for a hybrid and flexible service delivery model in the future.

Conclusions & Implications: The themes identified in this study can be used by clinicians and managers to consider factors that influence the success of telepractice for children and families.

Keywords:
Telehealth; communication; qualitative; early intervention.

What this paper adds

What is already known on the subject

- Studies conducted before the COVID-19 pandemic showed that telepractice was an effective and acceptable service approach. However, some clinicians and parents reported wanting to resume in-person visits. The provision of telepractice services to families with children with communication disorders increased significantly during COVID-19.

What this paper adds to existing knowledge

- Parents and clinicians shared factors that influenced the success of telepractice during semi-structured interviews. Factors were identified in three categories: the setting (i.e., where and how telepractice was being delivered); the nature of telepractice (i.e., the services that were provided via telepractice); and the individuals (i.e., who were involved in telepractice). As each child's and family's needs are unique, parents and clinicians reported a preference for a hybrid and flexible service delivery model in the future.

What are the potential or actual clinical implications of this work?

- SLTs and SLT managers can use the factors identified to discuss with parents and decide whether telepractice may be well suited to the needs of each child and family.

Introduction

The coronavirus SARS-CoV-2 (COVID-19) pandemic has resulted in global changes in healthcare and professional service delivery. Specifically, telepractice is now being offered for many health services because of its compliance with the physical distancing measures and stay-at-home orders many governments enacted to curb the spread of infection. Within speech-language pathology, professional colleges, including the Royal College of Speech & Language Therapists (RCSLT), American Speech-Language-Hearing Association (ASHA) and Speech-Language & Audiology Canada (SAC) provided resources and recommendations to facilitate the adoption and delivery of telepractice by communication professionals (American Speech-Language-Hearing Association 2021, Royal College of Speech & Language Therapists (RCSLT) 2020, Speech-Language & Audiology Canada 2020). Survey studies found a drastic increase in the proportion of speech and language therapists (SLTs) and therapy assistants (SLTAs) offering telepractice worldwide during the COVID-19 pandemic (Aggarwal *et al.* 2020, Fong *et al.* 2021). While telepractice was the safest model of service delivery during the pandemic, to what extend telepractice would remain the service delivery model of choice after the pandemic remains unclear.

For children with communication difficulties or disorders, existing evidence suggests that telepractice is feasible (Gibson *et al.* 2010, Samadi *et al.* 2020, Sicotte *et al.* 2003), and may be as effective as in-person services for improving both child (Behl *et al.* 2017, Grogan-Johnson *et al.* 2010, Hao *et al.* 2021, Mcgill *et al.* 2019, Reynolds *et al.* 2009, Sicotte *et al.* 2003) and parent outcomes (Akemoglu *et al.* 2020, Behl *et al.* 2017, McCarthy *et al.* 2020). To fully ascertain the effectiveness of telepractice compared to in-person services, however, larger and better

controlled studies are still needed (Akemoglu *et al.* 2020, Mashima and Doarn 2008, Mcgill *et al.* 2019).

With regards to clinicians' experiences with telepractice, SLTs rated their therapeutic relationship with children to be equivalent between telepractice and in-person services (Freckmann *et al.* 2017). Prior to the pandemic, clinicians reported a lack of knowledge and skills (e.g., not knowing how to provide virtual services) and technological difficulties (e.g., lack of technology support in the workplace) as major barriers to the adoption of telepractice (Kwok *et al.* 2022, Tucker 2012). In some cases, it seemed that these barriers were overcome during the pandemic due to the significant rise in telepractice reported by SLTs worldwide (Aggarwal *et al.* 2020, Fong *et al.* 2021, Kwok *et al.* 2022). While the majority of SLTs reported being satisfied with telepractice, only 50% of SLTs planned to continue offering telepractice post-pandemic (Kollia & Tsiamtsiouris 2021). Furthermore, in a survey study, 42% of SLTs felt that telepractice services were not as good as those delivered in-person and cited factors including equipment and materials, preparation and training, distractions and privacy, complex cases, safety and access to have influenced their perspectives (Kollia & Tsiamtsiouris 2021). Taken together, these findings suggest there may be a range of factors influencing clinicians' decisions regarding whether to offer telepractice post-pandemic which can be further characterized through in-depth interviews.

Similar to clinicians' perspectives, the literature on clients' perspectives towards telepractice has also reported mixed results. For example, parents' ratings of their own self-efficacy and involvement in their child's development did not differ between services provided in person and those provided via telepractice (McCarthy *et al.* 2020), yet parents still reported a preference for in-person services (Lam *et al.* 2021). In one interview study, parents of young

children with communication disorders reported an overall positive experience with telepractice, noting convenience and flexibility as benefits, but also identifying difficulties with technology (e.g., reliable internet connection) and responsibility to serve as the child's interventionist as limitations (Anderson *et al.* 2014). Notably, the telepractice literature is in a phase of "*relative infancy*", and there is a specific knowledge gap regarding the attitudes of children and parents towards this mode of service delivery (Law *et al.* 2021).

The recent COVID-19 pandemic created a surge in the use of telepractice, which offers not only a unique opportunity to understand clinicians' and families' experiences with telepractice during a public health emergency, but also opportunities to consider the potential for multiple service delivery models moving forward beyond the pandemic. To inform service delivery planning, this qualitative interview study explored the perspectives of preschool SLTs, SLTAs and parents of children with communication impairments who were the providers and users of telepractice services. This study first asked service providers and users what factors they felt influenced the success of telepractice during the COVID-19 pandemic. We next explored clinicians' and parents' preferences regarding speech-language pathology services for preschoolers after the pandemic.

Methods

Study Setting & Participant Recruitment

This study was conducted in partnership with one publicly funded community program in Ontario Canada. This program is one of 29 that receive government funding to provide services to preschoolers with speech, language and communication needs. Together, these programs serve over 60,000 families of preschoolers with communication impairments per year. Within the

partner organization, there were 13 SLTs and 3 SLTAs who provided services to over 5,600 families annually at the time this study was conducted. During project conception, the authors and two clinical managers co-developed the study purpose, which was to generate knowledge to inform service delivery planning post-pandemic (i.e., whether to continue offering telepractice or resume in-person visits). Managers shared that, due to the COVID-19 pandemic, their program had transitioned all clinical services from in-person visits to telepractice visits. At the time of the interviews, all clinicians had one year of experience providing services exclusively via telepractice (i.e., through synchronous, interactive videoconferencing meetings on Zoom), and thus met inclusion criteria.

Managers forwarded a recruitment email inviting clinicians at the organization to participate. All clinicians provided written consent and participated in a teleconference interview. To recruit parents who had experience with telepractice, we invited clinicians to forward a recruitment email to families on their caseload and parents were asked to contact the research team. To maximize recruitment success no additional inclusion/exclusion criteria were set for parent participants. Clinicians were reminded three times to invite parents to participate. Ethics approval was obtained from McMaster University's research ethics board (13069).

Data collection

This study was guided by interpretive description, an inductive methodological approach to understanding people's experiences in order to apply what is learned in practice (Thompson Burdine *et al.* 2021, Thorne 2016). This approach was well suited for our project as it recognizes that health research is informed by pre-existing theoretical and clinical knowledge. Therefore, in developing the interview guide, we drew on (i) relevant literature on other professionals' (e.g., physiotherapists) experiences offering online programs during COVID-19 (Camden and Silva

2021, Reich *et al.* 2020), as well as (ii) the clinical experiences of managers and the authors. A semi-structured interview guide was developed collaboratively by the first and third authors (EK, BJC), who are speech and language therapists and researchers, and the two managers at the partner organization.

To start each interview, the study and research questions were reviewed, and participants provided verbal consent to record the interview. Interviews were roughly one hour long (range: 60-90 minutes). The interview began with "grand-tour" type questions (e.g., For parents: Tell me how you got connected with this organization/ about your child? For clinicians: Tell me how you transitioned to telepractice?) Then an open-ended question was asked to elicit participants' experiences with telepractice and the factors they thought influenced it's success. Specific questions/probes were added to explore whether child (e.g., age, diagnosis), family (e.g., language spoken, cultural background), clinician (e.g., comfort/ experience with telepractice or technology) or service-related (e.g., organization policy, team environment, intervention type/goals) factors may have influenced the success of teletherapy. Finally, participants were asked to contrast in-person versus telepractice services and discuss their preferences for post-pandemic service delivery (see Appendix 1 for the interview guide).

All interviews were conducted using Zoom videoconferencing software and involved one study author (EK or KP as the interviewer) and one participant (a clinician or a parent). Participants chose a time and location for the interview, which typically took place at the participant's home. The first author was a postdoctoral fellow and speech-language pathologist. The second author was a postdoctoral fellow and socio-cultural anthropologist whose research focuses on parents' experiences with healthcare. The second author is also a parent with some experience receiving speech-language therapy services for their own child. Both had qualitative

research experience related to pediatric rehabilitation services. Throughout data collection, the two interviewers maintained reflective practices by keeping fieldnotes (i.e., noting key observations and reflections after each interview). They also met regularly to discuss interview findings, reflect on fieldnotes and interview transcripts (e.g., to discuss recurring themes to be explored in future interviews, reflect on personal biases, and discuss ways to formulate questions to elicit richer descriptions), and complete memoing (i.e., keeping notes of these discussions) (Henderson & Rheault 2004, Jootun *et al.* 2009). Conducting ongoing reflection also provided opportunities to prompt participants to provide more in-depth reflection in subsequent interviews, thereby providing a richer description of clinicians' and parents' experiences (Connelly & Clandinin 1990).

Data analysis and rigor

Interviews were audio-recorded and transcribed using Zoom , then analyzed by the first and second authors using thematic analysis (Braun & Clarke 2006). First, the coders familiarized themselves with the data by reviewing all transcripts multiple times. At this point, the two authors determined one codebook could be used for all interviews as parents and clinicians raised similar factors. To answer our research question, a codebook was developed to capture the conceptual factors (or determinants) that influenced success of telepractice without specifying whether a factor was a facilitator or a barrier. The codebook was developed through an iterative process. Initial categories were informed by the interview questions and existing literature which broadly included factors related to child, parent, clinician and services (Camden & Silva 2021). New categories were then generated inductively throughout analyses of the interview transcripts and review of memos and fieldnotes (DeCuir-Gunby *et al.* 2011). For example, coders' inductive analysis found themes about the *setting* of telepractice and thus created that category in the

187 codebook. Together, the two authors developed, discussed, revised, and tested multiple iterations
188 of the codebook, until a minimum criterion of 85% agreement when applying the codebook to
189 one parent and one clinician transcript was reached. Reliability was calculated using percent
190 agreement at two levels: (i) whether the coders identified the same meaningful "chunk" of text to
191 apply a code, and (ii) whether the same code was applied to tha chunk of text. The reliability
192 calculation was intended to foster and focus dialogue between the coders and improve reflexivity
193 in the data analysis, as any disagreements were discussed until a consensus was reached
194 (O'Connor & Joffe 2020). This reliability analysis was not intended to diminish the interpretative
195 nature of qualitative research (Sandelowski 1993).
196 The codebook was next discussed by all authors to maximize rigor of analyses. The third
197 and last authors, clinician-scientists with extensive experience in family-centered practice and
198 health services research, were encouraged to bring forward program-level considerations. Based
199 feedback, the codebook was further revised with some of the codes merged. Once the final
200 codebook was established, the first author coded all clinician interviews, and the second author
201 coded all parent interviews. No new codes were identified during the application of the final
202 codebook. After all interview transcripts were coded, the first and second authors reviewed the
203 similarities and differences between parents' and clinicians' data with respect to each code.
204 Initial themes and interactions between themes were developed and written descriptions of
205 findings were circulated to all authors for feedback until group consensus was reached (e.g.,
206 modifications were made to clarify theme descriptions, overlapping themes were consolidated).
207 The first author then shared a written summary of findings with the research participants, all of
208 whom were invited to provide feedback.

A member-checking videoconference call was held with two parents, two clinicians, and one manager from the partner organization. Parents and clinicians included those who expressed interest in a follow-up focus group to discuss study results following their interview. The manager was one of the two who were engaged from study conceptualization. During this call, the authors presented a summary of the findings and solicited feedback. Focus group participants agreed with the identified themes. No new themes were suggested but participants provided feedback on the themes' descriptions which was incorporated.

Results

Sixteen clinicians (13 SLTs, 3 SLTAs) participated in a semi-structured interview. Clinicians had a range of practice experience within this program (N = 3 had 1–5 years; N = 6 had 6–10 years, N = 7 had over 10 years). Two clinicians reported having some, but limited, experience with telepractice prior to the pandemic, and all remaining clinicians reported none. Clinicians also reported varying comfort-levels with technology. Five identified themselves as comfortable with technology and one reported having used teleconference applications prior to the pandemic. Five clinicians identified themselves as not comfortable with technology. At the time of data collection, all clinicians were offering telepractice exclusively over Zoom to children with a variety of speech, language and communication needs and their parents.

Thirteen parents (eleven mothers, two fathers) with children between 2 and 5 years of age participated. Parents described children's communication difficulties as: speech delay (i.e., delay in articulation or phonology, N = 3), speech and language delay (N = 5), articulation problems (N = 3), suspected childhood apraxia of speech (N = 2) and unilateral hearing impairment impacting language development (N = 1). Eight parents had experience with receiving services in both

telepractice and in-person formats, and five only had experience with telepractice. One parent reported English was not the family's primary language.

Factors that influenced the success of telepractice

Three categories of factors that influenced the success of telepractice were identified including: the setting (i.e., *where* and *how* telepractice was delivered); the nature of telepractice (i.e., what services were provided); and the participants (i.e., *who* was involved in telepractice) (see summary in Table 1).

Category 1. The ***setting*** of telepractice

Three themes were identified within this category: (i) availability of reliable equipment/resources for teletherapy; (ii) accessibility, and (iii) physical environment.

1a. Availability of reliable equipment/resources for telepractice

This factor related to the equipment and infrastructure necessary for telepractice, which includes an electronic device (e.g., computer or iPad), high-quality audio and visual display, reliable internet connection, and IT support for troubleshooting technical issues. Parents and clinicians emphasized that a lack of access to equipment was "*one of the biggest drawbacks of teletherapy* (clinician11)". For example, this clinician described how unreliable equipment could influence telepractice:

> "Internet and device quality is the second leading factor on success… If it's consistently freezing, if the video's lagging, the audio is cutting out, it really doesn't make for the most successful session because it's those constant interruptions. (clinician03)"

Additionally, clinicians reported many parents used their smart phones for teletherapy, which both clinicians and parents agreed that was not an optimal device because of screen-

size and audio quality. As this parent described "*the audio isn't great, sometimes you mis-heard something. Or he [child] has a hard time seeing what her face [the clinicians' face] is doing because she's just a small window in the corner* (parent03, father)."

Several parents reported they could not use the worksheets they were sent to carry out additional practice at home because they did not have printers. One parent further indicated they would have appreciated having access to games and activities to use with their child at home (e.g., being offered an option to rent games from the clinic).

1b. Accessibility

Both parent and clinician participants reported that telepractice was more convenient and accessible than in-person appointments. They also noted telepractice had reduced their need to commute to the clinic and coordinate other aspects of their personal lives (e.g., picking up or dropping off their own children from childcare/school). Some parents commented on the ease of scheduling teletherapy sessions around their own work schedules (e.g., during lunch hour), which was previously not possible with in-person visits. Clinicians additionally noted telepractice reduced the time needed to prepare for appointments (e.g., not needing to sanitize materials between visits).

> "It's easier as a parent. You can be home with both children instead of [wondering] "Where am I going to put the one-year-old?" And there's more time for family because scheduling would be tricky and my husband works strange shifts so it is easier to be home and do teletherapy. (parent05, mother)"

> "Flexibility for parents, but also flexibility for clinicians…I think having that flexibility to offer evening programs from home, so that we're not alone in a building in the middle of a creepy, very large, very poorly lit building in the middle of the night. (clinician03)"

1c. Physical environment

Parents' reflections on whether the virtual or in-person clinic environment worked best for their child and family varied greatly, revealing the extent to which each situation was unique. For some, the presence of distractions at home meant that in-person clinic visits were preferable. Reported benefits for in-person clinic visits included: the removal of home distractions (e.g., siblings, pets, or sound from television in the background), and the availability of novel toys to facilitate engagement in therapy. Parents also commented that their home environment was more distracting during the pandemic due to work-from-home and online school arrangements. One parent said "*I think it's just distraction. With my husband in the office and then with …my other older daughter would run into challenges on school online.* (parent01, mother)" Clinicians reported providing parents with suggestions to help create an environment at home for therapy. For example, one clinician said "*it's helpful to have a conversation with the parent beforehand about the setup. When their child is sitting on a chair at a table like that's ideal. That helps it run more smoothly, rather than if they're sitting on the couch*. (clinician05)" A few parents further noted that they needed to devote extra time and care to creating a home environment that was conducive to therapy activities. For example:

> "So, the one thing that I miss about the in-person is that, when we would go to the office, there were all kinds of activities pre-set-up to encourage speech, and encourage communication...Whereas in our household, there's just random stuff. Some of the toys are not conducive to encourage back and forth communication.... I have to put more thought into arranging myself to implement the speech improvement strategies (parent04, mother)."

Drawbacks to in-clinic sessions were also reported by both parents and clinicians as that environment could be overwhelming and intimidating (e.g., different noises/ toys, building/set up

that remind children of the doctor's office). Furthermore, some parents and clinicians noted that some children felt more comfortable in their home environment, and several parents noted that they themselves felt more comfortable at home. However, one parent also reflected that their child was not used to videoconferencing and that children may have known they were "being watched" and felt as though they had to "perform" for the camera.

Category 2. The ***nature*** of the services

The second identified category describes four factors related to the nature of assessment and therapy services that were feasible virtually. Themes within this category included: (i) tactile cues/hands-on support; (ii) considerations for group-type therapies, (iii) assessment difficulties; (iv) naturalistic observations and interventions.

2a. Tactile cues/hands-on support

Clinicians and parents emphasized the lack of ability to provide tactile cues to facilitate child's production of certain speech sounds as a barrier to telepractice. A parent commented "*I wish she [the clinician] would stick his lip in. It would make everybody's life easier. We've given him so many different ways of describing what to do with his mouth, and it is just not happening.* (parent05)" Some parents described being engaged to provide simple tactile cues. This parent said "*the prompts have really changed him, to literally put your hands together*. (parent10, mother)" Clinicians reported varying degrees of success engaging parents to provide tactile cues. A clinician said "*I'm trained in that [providing tactile cues], that's my job. The parents don't always get that. Some get it better than others and some don't.* (clinician12)" As a result of not being able to provide tactile cues, several clinicians reported feeling that children with motor speech difficulties made slower progress in telepractice versus in-person visits. This clinician said that she felt that "[telepractice has] *been a big disservice to families that have really severe*

speech kids. (clinician16)" Clinicians also made similar comments about the lack of opportunity to provide hands-on demonstrations. This clinician felt that telepractice did "*not hav[e] that flexibility of interacting with the same things, and interacting in the same environment…to show parents how to facilitate their child's communication.* (clinician15)"

2b. Considerations for group-type therapies

Clinicians and parents discussed the capacity of telepractice to support group therapy. Many agreed that having parent group sessions online was more convenient than offering them in-person and could encourage parents' attendance, but participants reported mixed experiences that depended largely on the level of parents' engagement in the group. This parent, for example, commented on how she felt being in a group therapy:

> "[T]here was a different level of engagement from the other people [parents]. I often felt like I had to often engage because nobody else would say anything, because I could feel for the clinician. (parent07, mother)"

Regarding group therapy with children, parents and clinicians felt that telepractice could not facilitate the same level of spontaneous interactions between children as would typically be seen during in-person group therapy, but it should be noted that clinicians were not offering group therapy for children at the time of the interview.

2c. Assessment difficulties

Clinicians and parents felt that virtual assessment relied a lot on parents' participation and was time consuming. Both clinicians and parents reported that telepractice assessments consisted primarily of parents' reporting on children's communication skills and clinicians' observations of children. Clinicians reported engaging parents to help with assessing certain skills (e.g., having parents follow instructions to assess receptive language skills). Some

clinicians felt that their inability to complete in-person assessments limited their ability to make informed clinical decisions (e.g., recommending strategies to families).

Clinicians further highlighted one specific assessment limitation that was not raised by any parent, which was not being able to complete oral mechanism exams or standardized assessments virtually. They described the lack of tools and protocols standardized for telepractice, and felt that norm-referenced data would have provided a more objective measure of children's skills and that been useful for determining eligibility for services. However, it should be noted that during member-checking, clinicians and managers emphasized that standardized testing is only a small part of assessment, and this limitation was outweighed by the benefit of being able to assess children's communication in naturalistic contexts.

2d. Naturalistic observations and interventions

Both clinicians and parents reported that telepractice provided more opportunities to observe children's skills in naturalistic situations. This information was reported to be useful in ensuring SLTs' therapies could effectively support children's functional communication skills. In addition, clinicians observed parents "*in their home environment with their family, with their toys and activities comfortable to them... it's easier [for parents] to just focus on the actual interaction, communication, and strategies* (clinician04)". A parent gave an example of being able to use activities and materials at home for therapy:

> "[the clinician] may say, 'Mom, next time your child is taking a bath, let's make sure we say: scrub, scrub, scrub' and do the scrub motion. I could just run and grab a sponge off the sink, give it to my son to scrub, scrub, scrub during the call. For something like that, if I was going to an in-person session, I wouldn't walk in with the dish sponge. (parent04, mother)"

Category 3. Characteristics of the ***Individuals*** involved in telepractice

Three themes were identified pertaining to factors associated with the individuals involved in telepractice including: (i) child; (ii) parents; (iii) clinicians, and (iv) interpersonal factors.

3.1 **Child factors**

3.1 a. Children's engagement with telepractice

Parents and clinicians commented that a major factor influencing success of telepractice was whether children could "*sit in front of a computer and be focused and engaged* (parent12, mother)", or were "*sitting, looking, listening and staying in one spot…engaging and maintaining an interaction, taking turns, all of those prerequisites* (clinician09)". A child's tolerance for telepractice was reported to vary based on age (generally better for older children), mood and energy level (e.g., children were more likely to be tired at the end of the day, after school/daycare). Parents and clinicians noted that some children were motivated by virtual games (especially games with movement and sound effects) whereas others preferred activities with real objects (e.g., tactile toys).

3.1 b Children's comfort in new environments/with new people

Some children were reported to be overwhelmed or distracted in new environments and felt more comfortable at home, whereas others were motivated by novel settings and might find their own homes distracting. In particular, children with social anxiety were reported by some parents and clinicians to benefit more from being in their home environment where the therapist "hides" behind the camera by turning off their video. For example, this parent described her son's in-person clinic visit and said "*he had really bad stranger anxiety. He was absolutely terrified. He didn't want to play with toys, he didn't want to look at her, he didn't want to talk to her.* (parent05, mother)" Clinicians observed benefits when children were more comfortable at their

own home such that "*they're a little bit more likely to use a little bit more language.* (clinician14)" Other children were reported to be more responsive to in-person interactions with the clinician, and would act more "silly" or "shy" in front of a camera.

3.1 c Children's Goals/Diagnoses

In general clinicians reported that telepractice was more suited for children with certain needs/goals. Most agreed some articulation goals were easier to work with online while other goals such as language (especially receptive language) and motor-speech goals that require tactile cues were more difficult. Children with hearing loss were also reported to be difficult to serve via telepractice. Clinicians were divided on the best mode of delivery for children with social communication difficulties. Some reported these children were easier to treat in person, whereas others felt the opposite. Clinicians also explained that it was difficult to differentiate hearing from language comprehension difficulties. One said: "*I find receptive language...that's been more challenging to assess and work on. I find it harder virtually to tell what the child can or doesn't understand… if they are pointing to things on the screen, you have to rely on the parent to tell you what they pointed to.* (clinician05)" Overall, clinicians acknowledged that it was difficult to predict how well a child would do in teletherapy versus in-person intervention.

3.2 **Parent factors**

3.2 Parents' engagement

Both parents and clinicians reported telepractice required a high level of parent participation, within and outside of therapy sessions. Clinicians explained that teletherapy limited what they could do, and as a result they had to rely on parents to carry out many tasks (e.g., to prepare toys, to keep children focused). As one clinician noted: "*I've had some where the parents were not as*

engaged. And so it's harder for the child to get the type of treatment they need when I'm not there in person (clinician04)"

Parents' reflections on their involvement in telepractice were more nuanced and showed that they went to great lengths to facilitate teletherapy sessions for their children. Parents described having to arrange their work schedules and childcare responsibilities so they could accompany their child uninterrupted during virtual sessions. During therapy sessions parents reported having to translate and interpret the child's words and actions for the clinician. As this parent related, "*we kind of have to do a lot of assistance* (parent011, mother)". Most parents also reported having received some type of follow-up activities to complete with their child between therapy sessions. Overall, parents reported that they understood the limitations of telepractice (e.g., poor audio) and were eager to support their children. Parents appreciated clinicians' support and guidance, however, some noted that the additional work took a toll on them. One parent reflected: "*It has been a lot. We did at one point, probably like a month and a half ago, we just took a week off* (parent11, mother).

3.3. **Clinicians factors**

3.3. a. Capacity to maintain children's engagement in therapy

Both clinicians and parents described the importance of the clinician's ability to maintain children's engagement. Clinicians reported using various techniques and strategies, such as selecting activities based on the child's interests, and having "back-up" activities in case a child lost interest. Parents further commented that clinicians' demeanor and affect (e.g., being "*warm and fuzzy*", "*animated*", and not having a "*flat affect*") encouraged child engagement.

"Getting prepared in advance is very important. Selecting the right activities for your client, knowing your client, knowing what they're interested in, knowing how to keep their

attention because it's a very different scenario when you're not sitting in front of a kiddo manipulating objects, and you have no access to that person. They're over there on another side of the screen, so you have to make sure that you have all of your activities lined up in a way that they're going to be successful. (clinician09)"

3.3. b. Capacity to collaborate with parents

Clinicians' ability to collaborate effectively with families influenced the success of telepractice. Clinicians' commented on the fact that during in-person visits, they "*can get away with clinician-centered care* (clinician01)" where the clinicians "*would be running through [their] exercises with the child, and the parent seems to be observing... but it's not sinking in* (clinician01)". In contrast, telepractice "*pushed me [clinician] to become a better parent coach.* (clinician04)" Within this theme, many clinicians reported that telepractice improved their own capacity to engage and coach parents to facilitate their child's communication. For example, this clinician described developing her own communication skills with parents: "*how I'm explaining it to parents is different because now I'm relying so much more on the parents.* (clinician02)". Parents described their clinician as engaging them by providing "easy" tasks and home practice that "ties into…[their] life (parent012)". Another parent also stated that "*she [the clinician] gives us really basic stuff, which I appreciate. Because I'll be honest, if it was complex I wouldn't probably do it.* (parent10, mother)"

3.3. c. Capacity to adapt

Overall, clinicians reported the importance of being flexible. This theme was identified across both assessment and intervention. For example, clinicians reported adjusting therapy goals and expectations according to individual families' situations when delivering virtual services during the COVID-19 pandemic. Clinicians stressed the importance of being able to troubleshoot

and modify activities on the spot based on the child's interests. Clinicians also reported continuing to improve the services they can offer via telepractice, especially learning to organize parent group-based therapy. Clinicians also reported having to be flexible when providing home practice activities.

"And then the therapy goals I'm finding I've really been adjusting them when it's virtual. I've been making them, so I take into account the fact that it's virtual, but I also take into account that some kids' blocks [of therapy] aren't as long as they were before." (Clinician)

3.4 Interpersonal Considerations

3.4 a Child-Parent-Clinician Rapport

Many parents and clinicians commented on children's rapport with the clinician being crucial for teletherapy. This parent said "*He [child] likes her [clinician]. That's a big one. He's so excited to talk to her.* (parent013, mother)" Most parents and clinicians agreed that the connection developed during in-person interactions was "key" to virtual relationship-building. For example, this clinician said "*I find [it's] more difficult building a rapport with new kids. Sometimes isn't as easy as what it is in person.* (clinician10)" Parents whose children had in-person therapy prior to pandemic felt that the pre-established rapport facilitated the transition to telepractice. Parents whose children only had the virtual experience noted that the clinician was still able to build rapport with their child virtually, although they wished their child could have had an opportunity to work with the clinician in person. Parents commented that parent-clinician relationships were not as impacted by telepractice. One parent, however, noted that in-person visits gave them a sense of connectedness and community with other parents, which was difficult to cultivate online.

"There is something about seeing another family coming into those [clinic] doors…makes you kind of feel like 'Okay I'm not alone' … there's that sense of community. I do think it's important, especially if you're new to this…It didn't for us. (parent14, mother)

3.4 b Communication

Telepractice both facilitated and limited communication between the parent and the therapist/organisation. Many parents reported appreciating the opportunity to debrief with their child's therapist after therapy sessions. Some found this easier via telepractice since they could send their child to another room and speak with the therapist one-on-one. Furthermore, with the shift to telepractice, clinicians and parents indicated that their email communication had been more reliable and efficient (e.g., parents would email the clinician if running late, clinicians could send reminders about sessions). A noteworthy drawback to virtual therapy was the lack of spontaneous in-person interactions that happened in the clinic that can facilitate information and resource-sharing. One parent, for example, reported lacking information about their child's therapy plan and the programs available to them.

"[A]gain it's advocacy on our part at the same time to know these things are available. Virtually you're not sitting in the waiting room, or looking at the pamphlets that are around, the things that are on the table, stuff like that you're missing.... so this virtual could just feel like very isolating on its own. But especially it's just not the same, not knowing what other resources are there...[T]hat takes advocacy, going on [the internet] and looking at it. Instead of it just happening to be right in front of you." (parent14, mother)

Interactions between themes

Although the various factors that influenced the success of a teletherapy session were presented as different themes above, clinicians' and parents' experiences indicated the

interrelatedness of these themes. The interactions between themes was nuanced, complex, and specific to each family. To illustrate, we selected three commonly reported interactions, that were confirmed during the member check. First, the lack of reliable equipment was reported to be a barrier by both clinicians and parents. However, this theme interacted with parent engagement and child-level factors. For example, when technology failed (e.g. poor audio or internet connection), the impact on the therapy session was lessened if parents were available to "jump right in" to help repeat clinicians' instructions and on the child's performance. In contrast, poor child engagement could exacerbate the impact of technology issues. As this clinician explained:

> "When we're frozen, it could be so easy that, in that time, to lose the child's attention. We lose their focus…And again, the audio quality, different devices have different qualities of microphones in them so that can really impact my ability to hear the accuracies, especially for speech targets. (clinician03)"

Second, the nature of telepractice services interacted with child factors. For example, clinicians' inability to provide tactile cues disproportionally impacted children with motor-speech disorders). However, a strong collaborative parent-clinicians relationship and willingness for parents to engage and learn sometimes lessened this limitation. As this clinician said: "*you can coach the parents around how to use similar tactile cues, but, depending on how comfortable the parent is with doing that, and how on board the parent is.* (clinician04)"

Third, clinicians described the trade-offs between information available to them over telepractice versus in-person assessment and therapy. Although telepractice provided opportunities for observing children's communicative function in naturalistic environments, it also created challenges with obtaining objective assessment data. Clinicians noted the lack of

ability to collect objective data may be more detrimental for children with certain diagnoses (e.g., those with receptive language or social communication difficulties) or at certain developmental stages (e.g., transitioning to school). Clinicians further noted that parents' abilities to accurately perform assessment tasks (e.g., provide their child with accurate instructions to assess comprehension) and make reliable observations influenced the accuracy of tele-assessment results.

Service delivery after the pandemic: no one-size fits all approach

After sharing their experiences with telepractice, each participant was also asked to describe their recommendations for service delivery following the COVID-19 pandemic. All 16 clinicians proposed a hybrid approach (i.e., offering both in-person and virtual therapy options). Parents reported more diverse perspectives: seven preferred a hybrid approach, three preferred in-person only visits, and three recommended virtual-only visits. Most clinicians and parents reiterated many of the considerations presented above when making their recommendations. Overall, participants emphasized there was no one-size-fits-all service delivery model, and the best approach should be decided collaboratively with each family.

Interestingly, clinicians' and parents' understanding of what constituted a hybrid approach differed. Parents suggested commencing therapy in-person to help children develop rapport, then continuing with telepractice. Some clinicians agreed with beginning in-person, either to conduct an assessment or to teach parents tactile cues to elicit sounds. Others proposed a hybrid approach that was based on families' preferences and/or the goals and needs of the child.

"I don't think it's going to go one way or the other. I think it's definitely going to be a bit of a hybrid approach. There's going to be parents that would rather just stay at home and

do the sessions online rather than come into an office and do it, especially if we're providing a little bit more flexibility around timing" (clinician13)

"I have no complaints with being virtual. And even after the pandemic, if we had to do virtual and sometimes in person, that's fine. I would love to go in person, just so the therapist could meet my son in person. But I'm totally comfortable with how therapy online has been going." (parent12, mother)

Discussion

This study explored clinicians' and parents' perceptions of factors that influenced the success of telepractice, and their recommendations for service delivery following the pandemic. Parents and clinicians reported 11 themes that fell into three broad categories: the setting; the nature of telepractice; and the individuals involved in telepractice.

In a recent study with physical and occupational therapists, Camden and Silva (2021) developed a framework to help clinicians determine the optimal method of service delivery post-pandemic (by presenting a continuum of factors that favor either "in person" therapy or "telehealth"). In some cases, this study identified similar factors and suggest a similar continuum (e.g., families with logistical barriers favored telepractice, and children with motor speech difficulties may benefit more from in-person visits). More often, however, we found that parents' and clinicians' experiences were more complex and nuanced. First, many of the identified factors rarely clearly favored one service model over the other. For example, under the "physical environment" theme, home environment was reported to be a distraction for some children but to be a less stressful than in-person visits for others. Second, different factors were often reported to interact and either counterbalance or exacerbate each other. For example, telepractice was reported to be particularly difficult for families with poor internet connection

and for those whose child could not focus on a screen. However, even with these barriers, telepractice could still be successful in circumstances where there is a strong and collaborative working relationship between clinicians and parents. In reporting factors that influenced telepractice success, we strove to highlight some key interactions between themes to encourage clinicians to apply the findings from this study with more flexibility. Compared to results presented by Camden and Silva (2021), we found that parents and clinicians placed more emphasis on the family's home environment and gave more specific descriptions about the nature of telepractice services.

A new study reviewing the existing telepractice literature used an implementation framework to summarize the factors likely to influence individuals' adoption of telepractice (Law *et al.* 2021). Using the COM-B model (Michie *et al.* 2011), Law et al. categorized determinants of telepractice interventions for children with communication disorders noting factors within the *physical opportunity* (e.g., quality of telepractice technology) and *reflective motivation* (e.g., clinicians' and parents' satisfaction with telepractice) components were most commonly addressed factors in the literature, while the *physical and psychological capacity* (e.g., child's/parents'/clinicians' skills) components were least explored. Themes within the *setting* and the *nature* of telepractice services corroborated the importance of considering the *physical opportunity* component of the COM-B framework, which describes factors outside of an individual that can enable telepractice. The work by Law et al. (2021) applying the COM-B model is helpful for contextualizing our findings, which used a more mixed analysis approach. The themes identified in our study added new specific details for clinicians to consider (e.g., specifying the need to consider tactile cues and group-type therapy limitations as the barriers to consider within the physical opportunity component). Furthermore, our study identified seven

596 *physical and psychological capacity* factors that had not been fully explored in the current
597 literature (Law *et al.* 2021). Importantly, this study found that the capacity of all individuals
598 involved in telepractice, particularly that of parents, interacted with other factors to enable or
599 hinder telepractice success. Therefore, capacity should be considered by clinicians as a key
600 determinant to the success of telepractice when deciding whether it is suitable to offer a family
601 telepractice as a service option.
602 In addition to identifying factors that influenced telepractice success, our study also
603 asked parents and clinicians to describe the ideal approach to service delivery following the
604 COVID-19 pandemic. Overall, there was a preference for a hybrid service delivery model.
605 Parents' recommendations highlighted the importance of considering the needs and preferences
606 of *each* individual child and family when making service recommendations. This finding was
607 not surprising given that many of the identified factors interacted, and therefore must be
608 considered together. Our results also suggest that service delivery approaches may change over
609 the course of the child's development. For example, initial in-person visits may allow some
610 children to establish better rapport with their clinician, but progressing towards telepractice may
611 encourage more naturalistic home practice for both the child and parent. Ultimately, this study
612 generated a list of factors to support ongoing discussions between clinicians and parents in order
613 to determine the most suitable approach to service delivery for each child and family.

Strengths, Limitations and Future Research Directions

A strength of our study is the integration of parents' and clinicians' perspectives from within the same organization. By developing a single codebook for all interviews, we were able to identify and compare considerations that were important to both groups. The composition of our research team was also a strength as we were able to contribute understanding of perspectives from all stakeholders, including from speech and language therapists (first author), parents (second author), family-centered practice and health services research (third and senior authors). The team's diverse background enabled rich discussions during codebook and theme development and ensured themes were not developed and driven by any one perspective.

One possible limitation of this study is the representativeness of our sample. We were able to interview every clinician in our partner's organization, which comprehensively captured clinicians' experiences in this one program. In contrast, the recruitment of parent participants was more difficult. All parents who contacted our team were receiving or had recently received SLT services via telepractice. Therefore, this study has not captured the experiences or opinions of parents who opted out of virtual therapy altogether. We also cannot know whether there were parents who did not respond to the study invitation because of their negative experiences with telepractice. It is likely that families who did not or could not participate in telepractice would have contributed additional insights, and this is an important future research direction.

Conclusion

We explored the experiences of parents and clinicians to identify the factors they believed influenced the success of telepractice, as well as their preferences regarding service delivery models moving forward. Parents and clinicians identified both benefits and limitations to telepractice, with the majority expressing a preference for a hybrid and flexible model of

service delivery moving forward - one that considers each child and family's unique and changing needs. Study findings can be used to support decisions surrounding future remote service delivery.

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Appendix 1: Semi-structured interview guide

Appendix 2: Standards for Reporting Qualitative Research (SRQR) checklist

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760 Table 1. Summary of factors related to telepractice success

Category	Themes		Definition
Setting	Availability of reliable equipment/resources for telepractice		The availability of reliable technology and stable internet to carry out telepractice
	Accessibility		Factors related to accessibility and convenience (e.g., transportation, timing, flexibility, technology) for parents and SLTs to attend sessions.
	Physical environment		Factors related to the physical set up for therapy (e.g., space, distractions, seating/technology arrangements)
Nature	Tactile cues/hands-on support		Factors related to clinicians' capacity to provide physical demonstrations (e.g., tactile cues, manipulating toys)
	Considerations for group-type therapies		Factors specifically related to group-type therapy (e.g., parent-groups, children-groups)
	Assessment difficulties		Factors related to carrying out formal and informal clinical assessment
	Naturalistic observations and interventions		Factors related to observing and providing therapy within or closely mimic the naturally occurring day-to-day activities of child and family
Individuals	Child	Engagement with telepractice	Factors related to child's engagement/mood/tolerance of therapy activities, can be age-related
		Comfort in new environments/with new people	Factors related to the ease of child being in unfamiliar environment
		Goals/Diagnosis	Factors related to the diagnosis or therapy goals of the child
	Parent	Engagement	Factors related to the extent to which parents were involved in therapy
	Clinician	Capacity to maintain child's engagement in therapy	Factors related to clinicians' preparedness, experience, skills, knowledge in engaging children in therapy activities
		Capacity to collaborate with parents	Factors related to clinicians' skills in preparing, coaching and engaging parents for child's therapy
		Capacity to adapt	Factors related to clinicians' capacity to make changes or adjustments based on child and family's needs
		Child-Parent-Clinician Rapport	Factors related to establishing or maintaining interpersonal relationship amongst therapist, child, family for therapy

	Inter-personal	Communication	Factors related to sharing information, coordinating care between parents, therapists, or other people involved in the care of the child

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