The Effects of a Pandemic on Speech Therapy for Children

by
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Abstract

The purpose of this study was to analyze the alterations and protocols the practice of speech-language pathology had to take to cope with the pandemic, specifically looking at the clinicians' viewpoints throughout the transition. The participants included 50 school-based speech-language pathologists (SLPs) mostly from Tennessee. Each participant completed an online survey asking them 15 questions regarding telepractice and demographic information. Results indicated that SLPs specifically faced challenges with communicating with the client's family in ways such getting them to participate, helping them navigate technology, and simply making contact with them. SLPs also reported challenges with holding their clients' attention and effectively executing visual cues via Telepractice. Overall SLPs reported that they believe telepractice is not as effective as in-person sessions and that their clients' progress was affected negatively.

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Introduction

Recently, coronavirus, known as COVID-19, has spread throughout the world and left people to alter their daily lives. COVID-19 has affected education, relationships, daily schedules, and specifically healthcare professions. The virus has resulted in people having to social distance and wear protective gear to prevent the spreading of this virus. This has taken a toll on the healthcare professions since a majority of healthcare professionals require human contact with daily interaction. Specifically, the medical field has been affected tremendously. This is a critical time in which the medical field is at its highest importance and yet, accommodations due to the coronavirus are putting restrictions on the ability to meet the needs of people in their most effective way.

Hospital Staff

The effect of the pandemic among hospitals could be considered the most dramatic when looking at workplaces across the world. The rising number of patients leaves hospitals overflowing and understaffed. Hospitals are implementing new protocols to accommodate for these sudden, dramatic changes. It is useful to compare the protocols and new changes hospitals made during this time. Mascha et al. (2020) describes a concept of pandemic-adjusted staffing, which is focused on the staff and their working hours, how many ICU beds are available, and the health of their staff as they focus on preventing them from infection. During a pandemic, they suggested institutions implement infection prevention measures upon arrival, double their resources, provide more intense care for those admitted, and split the staff in half by rotating them every other week (Mascha et al. 2020). This is an interesting concept compared to other suggestions. Since hospitals are extremely understaffed because of the abundance of

patients, many would assume you need all the professional help you can get during this time. However, Mascha et al. (2020) believes that the medical professionals need the rest every other week in order to recover from the now strenuous work days and that it is important to limit staff from exposure as much as possible. By implementing this concept in their institution in the United Kingdom, they found no negative consequences. Singapore General Hospital had a different approach to the pandemic. Wong et al. (2020) states, "We also separated staff caring for COVID-19 patients and those caring for other patients to reduce the risk of in-hospital transmission. Staff who had cared for COVID-19 patients continued with usual clinical work with a surgical mask on and monitored themselves for fever and respiratory symptoms" (p. 4). In this approach, the hospital is not shortening their staff but still limiting exposure, a requisite implementation as Mascha et al. (2020) stated.

Aside from the staff and patients affected, the patients admitted to hospitals for other various reasons are also faced with repercussions. Nurses and doctors during this time must turn their attention to the coronavirus patients, in turn, leaving fewer staff to treat those not affected by the virus. Propper et al.'s (2020) study found the following, "NHS England announced in March its intention to free up around 30,000 of its 100,000 general and acute hospital beds… in the first three months of 2018, in the midst of a worse-than-usual flu season, 25,502 elective operations were cancelled in England" (p. 3).

Along with significant procedures being dismissed, many hospitals are ensuring that doctors must be fully protected before they can treat patients admitted due to COVID-19 or other various medical reasons. They believe this protocol is essential to

prevent exposure to both those treating and being treated. This highlights what to do with patients in emergency situations who require immediate attention. Mahase et al. (2020) even states that in their facility, in the West Midlands, they have encouraged staff not to do chest compressions or ventilation in diagnosed COVID-19 patients who are in cardiac arrest unless they are completely protected in order to prevent further spread. This can be an extremely frightening situation and could make those admitted feel as if they are not receiving the treatment they are required to have. This implementation applied by hospitals across the world signify that COVID-19 has had a massive effect on patients' safety. This thought can also bring up the point of staff working in an unfamiliar area. Nurses, doctors, and other professionals in the hospital setting encounter challenges when treating trauma and illnesses; however, the outbreak of COVID-19 with no vaccine, initially, leaves these professionals in an unfamiliar area and left to cope. The FDA (2021) stated that in December of 2020 the Pfizer-BioNTech Vaccine was made available to those older than 16. The vaccine became available for individuals 12 through 15 years of age in May of 2021 (p. 3).

In addition to the pressure doctors and nurses are facing either from being understaffed or simply having a harder workday, the exhaustion from their strenuous days of battling COVID-19 on the frontlines adds to these unexpected changes they are experiencing. Haque et al. (2020) stated, "To reduce the impact of shortages, extraordinary measures are being imposed: annual leaves are being cancelled for doctors, junior doctors are managing specialist duties and even medical students are being considered to support response efforts against COVID-19" (p. 4). These changes that healthcare staff and now some medical students are facing are dramatic and, some might

argue, even dangerous. Junior doctors taking on specialist duties can be frightening just as medical students stepping in to help with relief as well. Although risky, these are measures that some hospitals find compulsory in order to maintain the effectiveness of their institution.

Speech-Language Pathologists

Just as the pandemic has had on effect on the professions of doctors and nurses, the impact it has on the practice of speech language therapy is just as significant. Speech-language pathologists, too, were forced to alter daily schedules, resources, hours, and implement new strategies in order to provide their services in the most effective and efficient way possible. Looking further into the outcomes of the pandemic, the altered treatment clients received could be seen as one of the largest negative effects that the practice as a whole faced.

A speech-language pathologist's (SLP) practice is extremely hands-on and personal. In a normal setting without COVID-19 present, an SLP and their client are in proximity, sharing tools, and possibly have physical contact. When focusing on children specifically, oftentimes they need this in-person experience in order to stay focused and be engaged. Speech-language pathologists do this with direct eye contact, interactive activities, toys, etc. These are things that simply cannot not be done in a setting separate from one another. Another key factor in having in-person sessions is the SLP being able to see the client's mouth in order to observe the oral motor skills effectively. A common treatment technique is modeling; whereas the SLP will physically demonstrate to the client how to produce or do something. For example, the SLP may hold their tongue to

the front and roof of their mouth in order to allow them to feel the correct way to pronounce the /t/ sound. This physical action clearly cannot be done virtually.

Just as doctors and nurses experienced the pressure of putting a halt to the transmission of germs in every way possible, there have been extreme precautions put in place to avoid the spread of COVID-19 during sessions with clients. Looking specifically at those with augmentative or alternative communicative devices, there have been several recommendations and implementations by facilities to prevent the spread of infection through these devices. Namaisivayam-Macdonald et al. (2020)'s article encourages staff to use low-tech devices that are only used for that patient; that way the nurses can utilize them rather than having that patient encounter another, new person. A few examples they stated that could be considered for these low-tech devices were white boards, ICU Talk Communication Book, AEIOU Alphabet Book, and a translated communication board if English if their second language. Considering these clients rely heavily on this technology to communicate, it can be challenging. Although these are not ideal, they provide safety for both the SLP and other patients while still allowing communication.

Speech language pathologists faced new implementations that changed their day-to-day, normal schedule as well. Just as many hospitals instituted new staff hours for their doctors and nurses to accommodate to these sudden changes, many SLPs experienced this as well with similar protocols. Namaisivayam-Macdonald et al. (2020)'s article provides an immense amount of recommendations for those SLPs during a pandemic and what they should consider as far as staffing, case load management, service delivery, etc. They suggest considering the staffing coordination and have those working with COVID-19 patients to work only with those infected and staff working with non-infectious

patients not to come into contact with COVID-19 patients in order to minimize infection. This was an exact precaution many hospitals used on their doctors and nurses during the pandemic. It is important to be cautious about the number of patients one has who are COVID-19 positive or not infectious. As many patients no longer wanted to receive treatment in person due to the fear of exposure, those patients with COVID-19 could possibly be at a much higher number than those who are not infected. This could lead to imbalance and an overload of cases for those treating clients who have the virus.

Telepractice was widely used by SLPs as a new form of providing treatment safely but still in an effective way. This alternate form of treatment is clearly not as personable and, therefore is missing out on normal strategies for a basic, in-person session; however, it still gives SLPs the opportunity to work with a client and continue their treatment. As mentioned earlier, keeping children's attention during a session is an extremely important aspect of treatment Pamplona et al.'s (2020) findings brought up the idea of using storybooks and songs when using telepractice in order to keep the client engaged during the session and willing to participate. These techniques keep the children engaged because they are entertaining enough to make the children feel as if they are not just going through the motions and being treated, but rather having fun while doing so. Cultural sensitivity is taken very seriously during in-person sessions and it is just as crucial to keep this in mind virtually. ASHA (2020) states, "ASHA's Practice Portal on Telepractice" identifies that audiologists and SLPs should be sensitive to cultural and linguistic influences that affect the identification and assessment of communication disorders and differences in the individuals receiving services via telepractice, which may include collaborating with an interpreter" (p. 2). Speech-language pathologists would use

this information to educate themselves thoroughly before each session to ensure they are choosing content/activities and saying things that respect their culture. For example, Kleeck (2006) mentioned that many Latinos believe that book sharing with young children is inappropriate, they do not think children are ready for books until they are three to five-years-old. The SLP should approach this situation by making the parents comfortable and thoroughly explain the rich output book reading has on kids of their age. It is important to provide examples of ways the parents could incorporate book reading in their daily routines to signify it can be implemented easily. This is still respecting their culture by taking the time thoroughly to explain how book reading could greatly influence their kid.

Treating swallowing during the pandemic can be extremely difficult due to the need for the SLP to be in close contact with patients to observe their client. Miles et al (2020) describes how to go about treating a client with dysphagia and what precautions should be implemented to prevent the transmission of infection. Miles et al. (2020) states, "For patients receiving oxygen therapy or pressure based respiratory support (e.g., BiPaP, high flow nasal cannula), efforts should be made to assure that any device covering the mouth or nasal passages can be safely adjusted or removed to allow for oral access during the swallowing assessment" (p. 5). Due to the circumstances, dysphagia screening has become immensely more difficult, and this has left the SLP to heavily rely on the primary care physician. Since nurses are already in the room with the patient, to avoid more contact with the patient, it has become their job to take over many parts of the assessment. Especially in the hospital setting, nurses, doctors, other health care staff, and

SLPs must work very closely to ensure that the care for their patients is still as effective while being as safe as possible.

Aside from the pandemic effecting SLPs, the effect it has had on the clients is extreme as well. Tohidast et al. (2020) states the following, "The majority of children receiving SLP services are in the critical period of speech and language development and will probably face several problems including reduced academic performance, reduced job opportunities, social outcomes, and reduced quality of life in the future in case of losing this golden age" (p. 2). Assessing speech disorders during those key developmental years (first 5 years of life) is crucial. With COVID-19 present, some families have become more hesitant to provide their child with therapy given that the risk of exposure. Gordon-Brannan et al.'s article mentions that a toddler's language development is growing at a rapid pace, with the child only being 75% intelligible at 37 months, and 100% intelligible at 47 months. In these months, a typically developing child is adding new consonants and vowels to their lexical system, mastering short, simple words, loosing errors such as reduplication, deletion, and assimilation, and more. A parent will not recognize these aspects therefore will not be able to tell if their child is on track for normal development. That is why treatment during COVID-19 heavily affected patients who were unable to receive therapy in these critical months.

Looking deeper into the pandemic's effects, it is apparent that not only simple tasks, but life duties were also altered. Work schedules were changed, surgeries halted, language development growth at risk, everyday tools no longer being used, speech therapy sessions completely modified, and more. The healthcare field took an extremely hard hit in having quickly to implement new ways to find what works in treating patients

and clients to their best ability. However, this was done to the best of their ability with the implementation of now modifications and protocols.

Purpose

The purpose of this research was to analyze the alterations and protocols the practice of speech-language pathology had to take in order to cope with the coronavirus, specifically looking at the clinicians' viewpoints throughout the transition. The study analyzed the clinician's attitudes via a survey through the pandemic and how it has impacted speech language therapy services provided, specifically looking at clinicians' opinions on the absentees, times met, children's attitudes, etc. Furthermore, looking for specific opinions also on dealing with family and technology together was a target of this study. This research aimed to look at whether the use of telepractice for therapy was equally as effective as in-person sessions. The study looked to uncover what specific strategies used for telepractice were effective and what were not. Additionally, the research sought to uncover what strategies were used to hold children's attention and were successful. The questions posed include:

1. What challenges were there when communicating with the families on how to execute a session virtually?
2. Was the client's progress affected due to the pandemic?
3. What strategies were used to hold the children's attention virtually?

Method

Participants

A total of 50 speech-language pathologists (SLP) participated in the study. Speech language pathologists who work in the school system were contacted and invited to fill out a survey. Specifically, those who work in an elementary-middle school system and were practicing during the time of the pandemic were asked. Only those with the credentials of SLP-CCC were asked to participate. The study was targeted to SLPs across the United States; however, participants were primarily from Tennessee. There was a total of 46 participants from Tennessee, one from South Carolina, one from Ohio, one from New York, and one from Maryland. Participants' years in practice ranged significantly with 32 years being the longest and one year being the shortest amount of time in practice. See Table 1 for demographic information.

Speech language pathologists' years of practice was taken into consideration when comparing it to their difficulties with the transition to telepractice. Data taken of SLPs that had 10+ years of practice versus those that had less than 10 years of experience was compared with no significant differences found, as seen in Tables 2 and 3. Averages of the two group's responses to the survey was evaluated and were found to be extremely similar. There was also a trend between these two groups when looking at their difficulties with technology/holding a child's attention virtually. Both groups collectively expressed their difficulties with getting parents to respond to emails/ calls, technology, access to materials, and managing behavior through a virtual platform. The correlation of these responses accompanied with the quantitative data shows the number of years in practice was not a significant factor when making a smooth transition to telepractice.

Table 1

Demographics

	Years in practice	Years in school	Caseload (number of students)
Average	12.7	10.5	53.7
STDV	9.6	8.3	13.5
Range	1-35	1-30	25-100

Table 2

SLPs with >10 Years' Experience Survey Responses for Questions 5-8, 12, 13

Question	Average Response	STDV	Range
Select the most appropriate response: Many clients slowed down in their progress through the pandemic.	3.68	1.1	2-5
Select the most appropriate response: Visual cues cannot be executed as effectively as compared to an in-person session.	3.76	1.13	1-5
Select the most appropriate response: telepractice was just as effective as in-person sessions.	2.36	1.13	1-4
Select the most appropriate response: Holding a child's attention through telepractice was more difficult than an in-person session.	4.16	.99	2-5
On a scale of 1-5 rate the difficulty you experienced communicating with the child's family about the technology aspect on virtual therapy, 5 being the most difficult and 1 being not difficult at all.	3.12	1.13	1-5
On a scale of 1-5 rate the difficulty of using visual cues during a virtual therapy session, 5 being the most difficult and 1 being not difficult at all.	3.25	1.3	1-5

*Note***:** This table shows SLP's responses for survey questions 5-8, 12, and 13. Questions are rated on a 5-point scale.

Table 3

SLPs with >10 Years' Experience Survey Responses for Questions 5-8, 12, 13

Question	Average Response	STDV	Range
Select the most appropriate response: Many clients slowed down in their progress through the pandemic.	3.88	.98	2-5
Select the most appropriate response: Visual cues cannot be executed as effectively as compared to an in-person session.	3.96	1.02	2-5
Select the most appropriate response: telepractice was just as effective as in-person sessions.	2.32	.96	1-4
Select the most appropriate response: Holding a child's attention through telepractice was more difficult than an in-person session.	4.16	1.11	1-5
On a scale of 1-5 rate the difficulty you experienced communicating with the child's family about the technology aspect on virtual therapy, 5 being the most difficult and 1 being not difficult at all.	3.44	.92	2-5
On a scale of 1-5 rate the difficulty of using visual cues during a virtual therapy session, 5 being the most difficult and 1 being not difficult at all.	3.16	.69	2-4

*Note***:** This table shows SLP's responses for survey questions 5-8, 12, and 13. Questions are rated on a 5-point scale.

Recruitment

Speech-language pathologists were recruited through social media promotion, specifically Facebook groups of strictly SLPs. The link to the survey was uploaded to the group pages with a summary of the study in order to attract participants. Colleagues of known SLPs were also asked to be contacted through posting the survey on their personal Facebook accounts. Additionally, SLPs were recruited through reaching out to Directors of Schools of surrounding counties. Superintendents were provided with the survey link and script and were encouraged to copy and paste the email to all SLPs in their school system. Through every step, SLPs were encouraged to pass the survey link and script along to co-workers, former colleagues, and friends. The survey aimed to collect data on different SLPs experiences when proving speech language therapy during a pandemic, analyzing its difficulties and different strategies used (see Appendix A for survey questions).

Data and Analysis

The data collected for this study is a self-report through the application of a survey via the internet. To limit the perceptual variance, we included quantifying phrases (e.g., it was difficult to communicate with my family's client during COVID) and avoided relative terms of judgements (e.g., few, many good, poor) in the survey questions and response choices. There was a total of 15 questions in the survey to cover a variety of factors related to the challenges of providing therapy during COVID and respondent demographics. The survey contains open-ended questions, rating scale, yes/no questions, and Likert scale questions. The data presented by this survey is qualitative in nature. Therefore, discussing

trends in responses will be evaluated to answer the purposed research questions. A fidelity check was conducted to ensure the data was accurately imported. A total of 10% of the data was inspected by a fellow undergraduate student in the speech-language pathology program and 100% of agreement was achieved.

Results

Research Question #1: What challenges were there when communicating with the families on how to execute a session virtually?

Results indicated that challenges with communicating with the parents of clients included difficulty accessing materials, poor/no technology in clients' households, and getting parents to respond to emails/calls. Additionally, SLPs reported they had difficulties with the child being at home surrounded by toys, siblings, and pets, becoming extremely distracted. Several SLPs stated they struggled to overcome language barriers virtually, as well. These results also yielded us to the finding that SLPs struggled with the parents' participation in a couple ways. Speech language pathologists noted that some parents were overly participatory and giving the child the answers, while other parents were not present at all, leaving their child alone in the room. Language barriers was also a common trend. Approximately 92% of SLPs claimed that they noticed more absentees when making the transition to telepractice. Approximately 78% of SLPs reported that they had to adjust their meeting times with their clients (see Table 5).

Research Question #2: Was the client's progress affected due to the pandemic?

Table 4 highlights the SLPs' overall attitudes about the use of telepractice as a whole. It was discovered that on a scale of 1-5 (1 being *strongly disagree* and 5 being *strongly*

agree) that majority of SLPs agreed that their clients slowed down in their progress through the pandemic, with an average response of 3.78. When looking at the overall effectiveness of telepractice compared to in-person sessions, around half, approximately 62%, of SLPs somewhat disagreed or strongly disagreed to the statement. Nine percent of the participants somewhat agreed with the statement.

Research Question #3: What strategies were used to hold the children's attention virtually?

Speech language pathologists reported a variety of strategies to hold their clients' attention via telepractice. Participants disclosed several strategies including online activities such as storybooks, games, animated lessons, and YouTube videos. Speech language pathologists also revealed using tangible objects kept their clients focused such as having a show and tell with toys or allowing clients to show off their pets. The use of Boom cards was a common trend. Boom cards is an online platform that provides interactive, digital task cards for targeted learning. The activities are visually stimulating and allow the client to participate directly by typing answers, dragging pictures, listening to videos, etc. The incorporation of free time, fun breaks, physical movement, and songs were approaches that SLPs reported utilizing during virtual therapy. Allowing the clients to choose their own virtual background was a common response as well. Participants emphasized the importance of keeping high energy throughout the sessions. Verbal cues and turn-taking strategies proved to be successful as many SLPs employed these into virtual sessions. The significance of their struggles can be found in Table 4- when asked to rate the difficulties they faced holding a child's attention virtually on the same 1-5 scale. Speech language pathologists had an average answer of 4.16, which suggests that

majority of SLPs faced challenges holding their clients' attention. The accommodation of hands-on activities presented to be an adjustment for almost all SLPs, as 98% of the participants reported having to modify those (see Table 5). The use of visual cues was considered and revealed to also be a difficulty SLPs experienced. When asked to rate the effectiveness of their execution during telepractice as compared to in-person sessions on the same 1-5 scale, the average answer was 3.86. When rating the overall difficulty of the use of visual cues during telepractice SLPs reported an average response of 3.2 on the 1-5 scale (see Table 4).

Table 4

Participants' Survey Responses for Questions 5-8, 12, 13

Question	Average Response	STDV	Range
Select the most appropriate response: Many clients slowed down in their progress through the pandemic.	3.78	.99	2-5
Select the most appropriate response: Visual cues cannot be executed as effectively as compared to an in-person session.	3.86	1.07	1-5
Select the most appropriate response: telepractice was just as effective as in-person sessions.	2.35	1.03	1-4
Select the most appropriate response: Holding a child's attention through telepractice was more difficult than an in-person session.	4.16	1.04	1-5
On a scale of 1-5 rate the difficulty you experienced communicating with the child's family about the technology aspect on virtual therapy, 5 being the most difficult and 1 being not difficult at all.	3.28	1.03	1-5
On a scale of 1-5 rate the difficulty of using visual cues during a virtual therapy session, 5 being the most difficult and 1 being not difficult at all.	3.2	1.02	1-5

*Note***:** This table shows SLP's responses for survey questions 5-8, 12, and 13. Questions are rated on a 5-point scale.

Table 5

Participants' Survey Responses for Questions 9-11

Question	Yes	No
Did you have to adjust your meeting times with your clients?	78%	22%
Did you notice more absentees when making the transition to telepractice?	92%	8%
Did you have to adjust your hands-on activities to accommodate social distancing?	98%	2%

*Note***:** This table shows SLP's responses for survey questions 9-11.

Discussion

The purpose of the current study was to investigate speech-language pathologists' attitudes and difficulties regarding the transition of in-person sessions to telepractice. This study utilized a survey to gather responses to analyze these viewpoints. The study looked specifically at challenges that arose communicating with parents, adjustment of meeting times, and absentees. Strategies that were used by SLPs during telepractice were also examined such as the use of visual cues, holding clients' attention, and the adjustment of their hands-on activities during the transition. The progress/ lack thereof of clients who received virtual therapy was also considered. Overall, this research aimed to look at whether the use of telepractice for therapy was equally as effective as in-person sessions and what challenges/ strategies played into this transition.

The spike in absentees when making the transition to telepractice is not surprising. Children being at home resulted in the responsibility falling on parents to ensure that their child is logged on at the correct time and participating. Results indicated that 78% of SLPs had to adjust their meeting times with their clients when making the transition to telepractice. This now entails working with the parents to ensure that the therapy time given is one that works for them as well. Many SLPs reported that making contact with parents was one of the hardest challenges they faced during the transition. Lee et al. (2020) stated that lack of time to prepare, mental health concerns, worries, and parenting stress, may have impeded parents' ability to support their children's educational needs. When taking all these factors into consideration, it is not shocking that getting into contact with clients' parents arose as such a challenge.

Difficulties communicating with the clients' family about the technological aspect of virtual therapy was another finding, with while the majority of SLPs struggled. Speech language pathologists reported challenges such as little/no internet connection, parents lack of knowledge navigating the internet, and distractions at home. Seeing that 92% of the participants were from Tennessee, internet connection statistics of the residents of Tennessee was examined to make sense of the little/no technology issue. "492,000 people are left without a broadband connection that can deliver the same speeds (of 25 Mbps speeds or faster). Additionally, even with 193 internet providers operational within Tennessee, 548,000 people only have access to one provider and 274,000 people have no providers offering internet services at their place of residence" (*Internet Access in Tennessee,* 2021). Comparing these statistics to the number of SLPs that said they experienced technology issues (34%) makes sense and clearly had a negative effective on conducting therapy from home. Additionally, staff in the school system are trained on the use of educational technological aspects. When transitioning to telepractice, parents were left with figuring out how to navigate technology themselves to provide assistance to their child. The common responses of parents not knowing how to use Zoom, access school materials, and overall limited computer literacy is supported by the fact that parents have not undergone the training that is provided to the schools' staff.

Another interesting finding was the strategies SLPs used to hold children's attention when conducting a virtual session. When asked of the difficulty faced holding a child's attention virtually as compared to in-person sessions on a scale of 1-5, SLPs averaged a response of 4.16. Challenges were expected; however, the significance of their difficulties was alarming. Behavior management already plays a huge role to the practice in speech

language pathology; however, techniques taught to clinicians are largely centered around in-person therapy. In our survey used for data collection, when asked how they held their client's attention via telepractice, one SLP wrote: "By using every ounce of my being, then being completely exhausted the rest of the day." Speech language pathologists having to make this transition were most likely done so with little guidance and therefore the use of behavior management techniques for virtual therapy was an experience many were tackling alone. As stated in Panda et al. (2020), anxiety, stress, sadness, boredom, depressive symptoms, sleep disturbance and fear for the situation are the predominant behavioral/emotional problems (during the pandemic), with at least 70-90% of children found to have worsened in at least some aspects of their behavior. This study supports the argument that COVID-19 had a negative effect of children's behavior, and therefore is an explanation to why SLPs struggled so much to hold a child's attention during therapy.

Aside from behavior management and communication with the parents, SLPs underwent challenges in the adjustment of their overall therapy. Approximately 98% of the participants stated that they had to adjust their hands-on activities to accommodate social distancing. Speech language pathologists had to recognize what activities and strategies could/could not work and what needed to be modified to accommodate for virtual therapy, while still providing effective intervention. Participants had an average answer of 3.86 on a scale of 1-5 when asked to rate the effectiveness of using visual cues during telepractice. SLPs use cues during therapy to prompt their clients to the answer without directly telling them. Using visual cues provides the client with an informational visual that provides them with how to use the behavior or target skill. For example, if a child is working on the production of /s/, the SLP could have a picture of a snake to

encourage the child to produce the long s sound. Virtually doing therapy, it becomes harder for these visual cues to be as effective as they are not presented directly in front of the child. The child may not be able to make out what exactly the SLP is trying to show them, or they could be looking around their room as the SLP cannot physically hold it in front of their face. SLPs had an average answer of 3.2 on a scale of 1-5 when asked to rate the overall difficulty of virtually using visual cues (Table 4). This average response shows that SLPs did have difficulty effectively presenting visual cues; however, their difficulties were not extremely significant which leads us to the notion that they were able to modify and still semi-effectively present visual cues throughout therapy.

Looking at the overall effectiveness of telepractice, 62% of the participants reported that they strongly disagreed or somewhat disagreed that it was just as effective as in-person sessions. Only 9% of the participants somewhat agreed with the statement. This result indicates that participants strongly felt that clients receive better therapy when it is conducted in-person. When responding to the question of whether their clients slowed down in their progress during the pandemic, SLPs had an average answer of 3.78 on a scale of 1-5. This result leads us to the question of why majority of clients slowed down their progress. In a similar study, researchers looked specifically at how SLP's felt about telepractice after only a short time of training. Kralijević et al. (2020) found that 73% of SLPs felt competent enough to conduct Teletherapy while 27% did not. This finding is surprising as 27% is a significant amount when considering that the question was simply asking if they felt confident enough to provide effective therapy. So, our finding that SLPs strongly feel that telepractice is not as effective could be due to the fact that they

themselves do not feel equipped enough rather than the process of telepractice as a whole being ineffective.

In conclusion, the results of this study provided insight into SLPs' attitudes and challenges when transitioning to telepractice. The findings indicated that adjustments to therapy such as behavior strategies, hands-on activities, and the use of visual cues had to be modified in order to transition to this new form of therapy. Holding a child's attention proved to be a challenge as many participants claimed they struggled to do so while coming up with new ways to do so. While our study did provide insight into SLPs' viewpoints on telepractice, further research should be conducted to discover other concepts related to the use of telepractice, such as environmental and socioeconomic factors. Additionally, a larger participant total is also needed on this topic in order to fully understand SLPs' opinions.

Limitations

As with the majority of studies, the design of the current study is subject to limitations. Lack of prior research studies on the topic proved to be a limitation as very few studies were found, and prior research assists in laying the foundation of the study and using it to understand the research problem. Future research should be done to eliminate this limitation for research to come. Additionally, since data was collected via survey, there were no ways for us to prove that what the participants responded was factual. Approximately 92% of the participants reside in the state of Tennessee so it can be contradicting to say that these were the results of how SLPs felt across the United

States, which was our initial research question. Fifty participants were recruited so it can also be biased to say that this research coincides with the thoughts of the thousands of SLPs in the country.

Appendix A: Survey

Demographic Questions

1. How long have you been practicing?
2. How many years have been in the school system?
3. What is the average number of children in your case load?
4. What state do you practice in?

COVID Related Questions

5. Select the most appropriate response: Many clients slowed down in their progress through the pandemic.
6. Select the most appropriate response: Visual cues cannot be executed as effectively as compared to an in-person session.
7. Select the most appropriate response: telepractice was just as effective as in-person sessions.
8. Select the most appropriate response: Holding a child's attention through telepractice was more difficult than an in-person session.
9. Did you have to adjust your meeting times with your clients? yes no
10. Did you notice more absentees when making the transition to telepractice? yes no

11. Did you have to adjust your hands-on activities to accommodate social distancing? yes no
12. On a scale of 1-5 rate the difficulty you experienced communicating with the child's family about the technology aspect on virtual therapy, 5 being the most difficult and 1 being not difficult at all. 1 2 3 4 5
13. On a scale of 1-5 rate the difficulty of using visual cues during a virtual therapy session, 5 being the most difficult and 1 being not difficult at all. 1 2 3 4 5
14. What challenges did you face communicating with the child's family about the technology aspect on virtual therapy?
15. How did you hold your clients' attention via telepractice?

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IRB
INSTITUTIONAL REVIEW BOARD
Office of Research Compliance,
010A Sam Ingram Building,
2269 Middle Tennessee Blvd
Murfreesboro, TN 37129
FWA: 00005331/IRB Regn.. 0003571

MIDDLE TENNESSEE STATE UNIVERSITY

IRBN007 – EXEMPTION DETERMINATION NOTICE

Monday, June 14, 2021

Protocol Title	***The Effects of a Pandemic on Speech Therapy for Children***
Protocol ID	**21-1202 2q**
Principal Investigator	**Emma Summers** (Student)
Faculty Advisor	Kathryn Blankenship
Co-Investigators	NONE
Investigator Email(s)	*ebs3k@mtmail.mtsu.edu; kathryn.blankenship@mtsu.edu*
Department/Affiliation	Health and Human Performance
Funding	URECA Scholarship

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the **EXEMPT** review mechanism under 45 CFR 46.101(b)(2) within the research category ***(2) Educational Tests, surveys, interviews or observations of public behavior*** *(Qualtrics Survey)*. A summary of the IRB action and other particulars of this protocol are shown below:

IRB Action	**EXEMPT from further IRB Review** Exempt from further continuing review but other oversight requirements apply
Date of Expiration	**6/30/2022** *Date of Approval:* **6/14/21** *Recent Amendment:* NONE
Sample Size	ONE HUNDRED (100)
Participant Pool	**Healthy adults (18 or older) - Speech Pathologists in the School System**
Exceptions	Online consent followed by internet-based survey using Qualtrics is permitted (Qualtrics links on file).
Type of Interaction	☐ Non-interventional or Data Analysis ☒ Virtual/Remote/Online Interview/survey ☐ In person or physical– Mandatory COVID-19 Management (refer next page)
Mandatory Restrictions	**1. All restrictions for exemption apply.** **2. The participants must be 18 years or older.** **3. Mandatory ACTIVE informed consent. Identifiable information including, names, addresses, voice/video data, must not be obtained.** **4. NOT approved for in-person data collection.**
Approved IRB Templates	*IRB Templates:* NONE *Non-MTSU Templates:* Online Informed Consent Script (attached) and Recruitment
Research Inducement	NONE
Comments	NONE

Summary of the Post-approval Requirements: The PI and FA must read and abide by the post-approval conditions (Refer "*Quick Links*" in the bottom):

- ***Final Report:*** The Faculty Advisor (FA) is responsible for submitting a final report to close-out this protocol before **6/30/2022**; if more time is needed to complete the data collection, the FA must request an extension by email. REMINDERS WILL NOT BE SENT. **Failure to close-out (or request extension) may result in penalties** including cancellation of the data collected using this protocol or withholding student diploma.
- ***Protocol Amendments***: IRB approval must be obtained for all types of amendments, such as:
  - Addition/removal of subject population and sample size.
  - Change in investigators.
  - Changes to the research sites – appropriate permission letter(s) from may be needed.
  - Alternation to funding.
  - Amendments must be clearly described in an addendum request form submitted by the FA.
  - The proposed change must be consistent with the approved protocol and they must comply with exemption requirements.
- ***Reporting Adverse Events:*** Research-related injuries to the participants and other events , such as, deviations & misconduct, must be reported within 48 hours of such events to compliance@mtsu.edu.
- ***Research Participant Compensation:*** Compensation for research participation must be awarded as proposed in Chapter 6 of the Exempt protocol. The documentation of the monetary compensation must Appendix J and MUST NOT include protocol details when reporting to the MTSU Business Office.
- ***COVID-19:*** Regardless whether this study poses a threat to the participants or not, refer to the COVID-19 Management section for important information for the FA.

COVID-19 Management:
The FA must enforce social distancing guidelines and other practices to avoid viral exposure to the participants and other workers when physical contact with the subjects is made during the study.

- The study must be stopped if a participant or an investigator should test positive for COVID-19 within 14 days of the research interaction. This must be reported to the IRB as an "adverse event."
- The FA must enforce the MTSU's "Return-to-work" questionnaire found in Pipeline must be filled and signed by the investigators on the day of the research interaction prior to physical contact.
- PPE must be worn if the participant would be within 6 feet from the each other or with an investigator.
- Physical surfaces that will come in contact with the participants must be sanitized between use
- **FA's Responsibility:** The FA is given the administrative authority to make emergency changes to protect the wellbeing of the participants and student researchers during the COVID-19 pandemic. However, the FA must notify the IRB after such changes have been made. The IRB will audit the changes at a later date and the PI will be instructed to carryout remedial measures if needed.

Post-approval Protocol Amendments:
The current MTSU IRB policies allow the investigators to implement minor and significant amendments that would not result in the cancellation of the protocol's eligibility for exemption. ***Only THREE procedural amendments will be entertained per year*** *(changes like addition/removal of research personnel are not restricted by this rule).*

Date	Amendment(s)	IRB Comments
NONE	NONE.	NONE

Post-approval IRB Actions:
The following actions are done subsequent to the approval of this protocol on request by the PI or on recommendation by the IRB or by both.

Date	IRB Action(s)	IRB Comments
NONE	NONE.	NONE

Mandatory Data Storage Requirement:
All research-related records (signed consent forms, investigator training and etc.) must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data must be stored for at least three (3) years after the study is closed. Additionally, the Tennessee

State data retention requirement may apply (*refer "Quick Links" below for policy 129*). Subsequently, the data may be destroyed in a manner that maintains confidentiality and anonymity of the research subjects. **The IRB reserves the right to modify/update the approval criteria or change/cancel the terms listed in this notice**. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

- Post-approval Responsibilities: http://www.mtsu.edu/irb/FAQ/PostApprovalResponsibilities.php
- Exemption Procedures: https://mtsu.edu/irb/ExemptPaperWork.php
- MTSU Policy 129: Records retention & Disposal: https://www.mtsu.edu/policies/general/129.php

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MIDDLE TENNESSEE STATE UNIVERSITY

Study Title	*The Effects of a Pandemic on Speech Therapy for Children*	
Principal Investigator	**Emma B. Summers**	*IRB ID: 21-1202 2q*
Faculty Advisor	Kathryn G. Blankenship	Approval Date: 06/14/2021
Contact Information	ebs3k@mtmail.mtsu.edu / 931-993-2983	Expiration Date: 06/30/2022

INFORMED CONSENT – RESEARCHERS' DISCLOSURES

(Modified administratively for online administration – please use the following script for online consent)

Dear Participant,

On behalf of the research team, the Middle Tennessee State University (MTSU) would like to thank you for considering to take part in this research study. You have been contacted by the above identified researcher(s) to enroll as a participant in this study because you met its eligibility criteria.

This consent document describes the research study for the purpose of helping you to make an informed decision on whether to participate in this study or not. It provides important information related to this study, possible interventions by the researcher(s) and proposed activities by you. This research has been reviewed by MTSU's internal oversight entity - Institutional Review Board (IRB) - for ethical practices in research (visit www.mtsu.edu/irb for more information).

As a participant, you have the following rights:

- You should read and understand the information in this document before agreeing to enroll
- Your participation is absolutely voluntary and the researchers cannot force you to participate
- If you refuse to participate or to withdraw midway during this study, no penalty or loss of benefits will happen
- The investigator MUST NOT collect identifiable information from you, such as, name, SSN, and phone number
- The researcher(s) can only ask you to complete an interview or a survey or similar activities and you must not be asked to perform physical activities or offer medical/psychological intervention
- Any potential risk or discomforts from this study would be lower than what you would face in your daily life

After you read the following disclosures, you can agree to participate in this study by completing "Part B" of this informed consent document. You do not have to do anything further if you decide not to participate.

1. What is the purpose of this study?

The purpose of this study is to analyze the alterations the practice of speech-language pathology had to take in order to cope with the coronavirus, specifically looking at the clinicians' viewpoints throughout the transition. The study will analyze the clinician's attitudes through the pandemic and how it has impacted speech language therapy services provided.

2. What will I be asked to do in this study?

Once an individual has elected to participate in the study, they will click on the link provided on the social media platform. The link will direct them to Qualtrics where they will complete the online survey. After the survey is taken there is no further action is needed by the participants.

3. **How many times should I participate or for how long?**

Participants will take the survey one time. The survey is estimated to approximately 10-minutes to complete

4. **What are the risks and benefits if I participate?**

Given that this study will be conducted virtually and those participating will only be filling out a survey, there will be no risk to the participants. There will be no direct contact with the participants. The questions asked do not present any private or sensitive information; therefore, the data collected will not pose any risk to the participants. Our survey does not ask participants to submit their name or email address; therefore, the identity of the paricipants is kept anonymous. Only myself, thesis advisor, and second reader will have access to the participants' survey answers. The individuals participating in the study will not have any direct benefit; however, by completing the survey some participants might become more aware of their personal attitudes towards COVID and telethreapy, which might change their attitudes.

5. **What will happen to the information I provide in this study?**

The data will be dowloaded and stored on a OneDrive folder where only the PI and faculty advisor have access to it.

6. **What will happen if I refuse to participate and can I withdraw if I change my mind in the middle?**

If a participant starts the survey and changes their mind while taking it, they can exit the survey without any of their answers being saved.

7. **IRB Details:**
    a. **Study Title:** *The Effects of a Pandemic on Speech Therapy for Children*
    b. **Investigators: Emma B. Summers; Faculty Advisor: Dr. Kathryn G. Blankenship**
    c. **Protocol ID: 21-1202 2q Approval: 06/14/2021 Expiration: 06/30/2022**

8. **Whom can I contact to report issues and share my concerns?**

You can contact the researcher(s) by email or telephone (**ebs3k@mtmail.mtsu.edu / 931-993-2983, kathryn.blankenship@mtsu.edu / 615-653-7205**). You can also contact the MTSU's Office of Research Compliance by email – irb_information@mtsu.edu. Report compliance breaches and adverse events by dialing 615 898 2400 or by emailing compliance@mtsu.edu.

9. **Confidentiality Statement:**

All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised, for example, your information may be shared with the MTSU IRB. In the event of questions or difficulties of any kind during or following participation, you may contact the Principal Investigator as indicated above. For additional information about giving consent or your rights as a participant in this study, please feel free to contact our Office of Compliance at (615) 898 2400.

10. **Compensation: There is no compensation for your participation**

Note to the Participant

You do not have to do anything if you decide not to participant in this study. But if wish to enroll as a participant, please complete the following section by clicking the appropriate boxes.

Participant Section

The investigators must give you enough time to ask any questions. Once you have had a chance to read "Part A" (Participant's Copy), indicate your acceptance by checking the appropriate boxes:

	NO	YES
➢ I have read investigator(s)' disclosure (Part A) for the above identified research	☐	☐
➢ The researcher(s) explained the procedures to be conducted verbally	☐	☐
➢ I understand each part of the interventions and all my questions are answered	☐	☐
➢ The researcher(s) gave me a signed copy of the disclosure page (Part A)	☐	☐

By agreeing below, I give my consent to participate in this study. I understand that I can withdraw from the study at any time without facing any consequences.

Yes: ☐
No: ☐