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Emergent Shift to Telepractice during the COVID-19 Pandemic by School-based

Speech-Language Pathologists

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Abstract

Purpose: Schools across America closed abruptly and indefinitely starting March 2020 due to the COVID-19 pandemic. As a result, speech-language pathologists (SLPs) working in these schools turned to telepractice to meet the needs of their clients. Telepractice is a relatively new service delivery model in the field of speech-language pathology. Challenges related to telepractice include clinicians' limited hours of training for telepractice, clients' lack of access to telehelpers during therapy, and both clinician and client beginning to work from home, and issues with working from home. The aim of the current study was to assess how these issues affect telepractice in school SLPs compared to teletherapists who had already been using telepractice as a delivery model prior to the pandemic.

Method: An online survey was sent out to school SLPs who began telepractice in March 2020 and teletherapists who used telepractice as a delivery model before and through school closures. Survey questions related to *structure, process,* and *outcome* of teletherapy. Twenty-nine school-based SLPs providing services for grades K-5 who had experience using telepractice before March 2020, and 180 SLPs who began using this mode of service delivery emergently completed the survey.

Results: School SLPs new to teletherapy reported difficulty 16% more on average than SLPs already using teletherapy in quality of service. In the area of *process*, school SLPs struggled most with accessing resources. For *structure*, both groups struggled with clients being unable to access reliable technology. Finally, issues with *outcome* for both groups included loss of clients and clients progressing to long-term goals as expected.

Conclusion: Problems in *structure* continue to persist with mismanagement of laptop technology in elementary schools. Problems in *process* will likely alleviate soon; inexperience with telepractice and insufficient time for preparation seem to be the main cause of problems in *process*, and as SLPs work with telepractice more, they will have better understanding of this mode of therapy. Problems in *outcome* will likely be exacerbated by lost learning days, and effects will likely be seen in student performance beyond the 2019-2020 school year. Reflecting on this data, it is important for schools to provide support for school SLPs as they continue to adapt to coronavirus-related changes. Additionally, it is important to recognize that these short-term changes in *structure*, *process*, and *outcome* across for teletherapists and school therapists may affect the long-term progress of their clients.

Emergent shift to Telepractice during the COVID-19 Pandemic by School-based

Speech-Language Pathologists

Speech-language pathologists (SLPs) who work with school-age children (kindergarten through

fifth grade) are legally and ethically bound to provide high-quality services to all children who

qualify as contracted under the Individuals with Disabilities Act, Section 504, and Individual

Education Plans (Department of Education, 2020). In March 2020, schools all around America

closed their doors because of health concerns due to the COVID-19 pandemic. By the end of

March, 91,000 schools had closed across 46 states, affecting more than 50 million school-aged

students (Bailey, 2020). After the school closures, SLPs were still obligated to assess, diagnose,

and treat children who qualify for services (Department of Education, 2020). To continue to

provide students what they need despite school closures, many SLPs turned to telepractice to

provide speech-language therapy using video conferencing software.

Telepractice is a relatively new service delivery model in the field of speech-language

pathology. Telepractice for SLPs was first pioneered in the 1970s and development continued

through the late 20th century. In 2002, only 4% of SLPs surveyed by ASHA used telepractice for

direct patient care and of that direct patient care, only 37% was used for treatment. The

Department of Veteran Affairs established telerehabilitation in 2003 to reach the 39% of veterans

who lived in rural areas and had trouble getting access to health care; this contributed greatly to

the popularity of telepractice that has been growing ever since. Studies have shown the efficacy

of telepractice in childhood fluency (Sicotte, Lehoux, Fortier-Blanc, & Leblanc, 2003) and

childhood articulation and language production (Grogan-Johnson, Allvaret, Rowan, &

Creaghead, 2010; Jessiman, 2003; and McCullough, 2001). Telepractice is now a trusted and

effective way to diagnose and treat children and adults in the fields of medicine, psychology, speech-language pathology, audiology, and early intervention (Houston, 2014).

Teletherapy companies, who specialize in this alternative mode of intervention, have been providing an effective substitute to face-to-face interaction prior to the pandemic. For example, schools without access to speech-language pathology services can use teletherapy for students in need, and language services and clients looking for specialty services may use telepractice to connect with the right professional (e.g., a bilingual SLP) not available in their immediate area (Houston, 2014). To ensure best practice, the qualifications and preparation required by telepractice companies can be time consuming. Many telepractice companies, including VocoVision and Global Therapy, mandate 2 or more years of experience as a school-based SLP before initiating telepractice (Vocovision). Companies also require that potential teletherapists have good technical skills to use the computer and software for therapy. However, because of the quick transition from in-person services to telepractice in March 2020, clinicians were not necessarily prepared for the new web-based technology.

ASHA defines the roles and responsibilities of a teletherapist as utilizing appropriate technology, following regulations for technology use, selecting clients who are appropriate for assessment and intervention via telepractice, maintaining appropriate documentation, and respecting established regulations regarding telepractice. Because telepractice is a mode of therapy rather than certain strategy for a particular population, defining best practice for telepractice can be difficult. Clinicians need to be conscious to fulfill their roles and responsibilities as they would when encountering a client face-to-face, while also managing technology, utilizing effective activities and exercises for online platforms, and following telepractice-specific rules and regulations.

Telepractice companies also typically provide resources and support for their employed SLPs. Because they can exclusively focus on how to provide the best therapy services online, they can financially commit to continuing education which focuses on information technology (IT) help, ample online resources for clinicians, and other support. Since teletherapists could continue working somewhat seamlessly through the onset of emergent school closures, they likely did not face the same challenges of school therapists. School SLPs suddenly had to work from home, learn to use new technology, and cope with electronic records, while the majority of their clients simultaneously adjusted to e-learning for the first time. These transitional challenges will be explored going forward.

Working from home is a new concept for many Americans and can present a variety of challenges. Prior to the COVID-19 outbreak, only 7% of civilian workers in the US worked from home (Desilver, 2020). However, 25% of US workers claimed to work from home at least occasionally (Woods, 2020). A survey of 1,000 UK workers for an employee experience company found that more than half felt more stress and anxiety when working at home, while only 18% felt less stress (Smith, 2020). Additionally, women in a separate study reported more stress around working from home. They also reported more social costs, which included reduced mutual learning, loss of visibility and career development (DeSilver, 2020). Women make up 96% of SLPs in America (American Speech-Language Hearing Association), so these difficulties would likely be felt by the vast majority of SLPs who transitioned to working from home.

Privacy is one of the largest professional issues in telepractice because this mode of therapy is increasingly vulnerable to hacking. For example, consistent third party protection is not guaranteed when using technology that allows voice messages to be carried over the Internet, such as Skype, which leaves users vulnerable to hackers and viruses. Additionally, software

companies like Skype may be based in countries where US federal privacy laws around data do not apply, putting users' privacy at risk Concerns arise when SLPs and their clients have transitioned from school or office to home, certain virtual private networks (VPNs) or firewall system may not be present to protect consumer privacy. They may lack necessary tools such as an Ethernet connection, antivirus software, and telepractice software with proper privacy protection. (Houston, 2014).

SLPs are not the only party adjusting to this new mode of communication. SLPs' young clients must adjust to learning at home, in front of a screen. Not all clients are suited to this type of learning; SLPs must "consider the client's culture, education level, age, other relevant characteristics, and the benefits and challenges of other service delivery models before initiating telepractice services" (ASHA, 2020). Although telepractice may be the only option, it may not always be ideal. Additionally, not all clients have reliable access to the technology to participate in therapy. This problem is most pronounced in lower income, minority households. "Roughly one-third (35%) of households with children ages 6 to 17 and an annual income below $30,000 a year do not have a high-speed internet connection at home, compared with just 6% of such households earning $75,000 or more a year. These broadband gaps are particularly pronounced in black and Hispanic households with school-age children – especially those with low incomes" (Auixer, et al. 2020). SLPs must face the transition from school to home, as well as their clients' struggle to technology access. This issue may also affect teletherapists whose clients, before March 2020, connected with them using school computers or school Internet connection.

Other issues may arise that affect all teletherapists, including those who provided teletherapy before school closures. For example, teletherapists who work with children during the school day typically have "telehelpers" to aid in engaging the child and helping them be

attentive to the computer. A transition to home learning may present an issue for all teletherapists as they will not have these helpers during their therapy session. Parents may be able to step in for telehelping duties, but parents who work from home cannot necessarily give telehelp their undivided attention, especially if they have multiple children e-learning at home. In general, poorly prepared or inadequately trained telehelpers can present issues to teletherapists (Bryant, 2017); this problem may be exacerbated with school closures, as parents become responsible for telehelping duties rather than an individual who is specially trained.

To analyze how these aspects of the COVID-19 transition affected the quality of service being provided by school SLPs, a study was developed examining its effect across several areas. ASHA defines indicators therapy of quality for SLPs in the following areas:

Structure: facilities, equipment, qualifications of practitioners, staffing ratios, record keeping

Process: steps taken to perform evaluation and treatment

Outcomes: the results of evaluation and treatment

This study investigated the effects of telepractice exposure on school SLPs transitioning to telepractice and school SLPs who were employed by a telepractice company before, during, and after March 2020. More specifically, we examined whether public school speech-language pathologists who provide services for grades K-5 show differences in *structure, process*, and *outcome* if they had experience using telepractice before March of 2020 compared to those who began using telepractice emergently. The survey included questions about SLP experience, SLP resources, technology access and skills for clients and SLPs, and the impact of telehelpers on quality of service.

Method

<u>Participants</u>

Participants were recruited through SLP-related Facebook groups (SW Washington SLPs, Telepractice for SLPs), state-wide speech and hearing associations (e.g., Indiana Speech-Language Hearing Association), and word of mouth. Two hundred nine participants (180 school therapists and 29 teletherapists) completed a survey. The SLPs were employed in 38 US states and ranged from less than 1 year to 11 or more years of experience as CCC-SLPs in both groups. This study was approved by the local Institutional Review Board (IRB) and all participants gave their informed consent prior to the start of the survey.

<u>The Survey</u>

Two surveys were designed to reflect ASHA's indicators of quality for SLPs. Table 1 outlines the survey questions as they relate to each criterion and its details.

Table 1

ASHA Criteria	ASHA Details of Criteria	Survey Questions
Structure	Facilities	1. As a result of the COVID-19 pandemic, I, as a clinician, experienced trouble finding a quiet space to work.* 2. As a result of the COVID-19 pandemic, my client experienced trouble finding a quiet space to work.*

	Equipment	3. What platform do you use to provide teletherapy?
		4. As a result of the COVID-19 pandemic, I, as a clinician, experienced trouble accessing reliable technology (ie: Internet, computer programs, etc.).*
		5. As a result of the COVID-19 pandemic, my client experienced trouble accessing reliable technology (ie: Internet, computer programs, etc.).*
	Qualifications of practitioners	6. How many hours of telepractice training did you have prior to seeing clients via teletherapy? †
		7. How many hours of telepractice training have you gotten since you began clients via teletherapy? †
	Staffing ratios	8. How many clients did you serve January to February 2020?**
		9. How many clients did you serve April to May 2020?**
	Record keeping	10. As a result of the COVID-19 pandemic, I, as a clinician, experienced trouble keeping my work confidential and HIPAA compliant.*
Process	Steps taken to perform evaluation and treatment	11. As a result of the COVID-19 pandemic, my client experienced trouble working with new telehelper (ie: if parent has stepped in to act as telehelper during session).*
		12. As a result of the COVID-19 pandemic, my client experienced trouble working without a telehelper.*

		13. As a result of the COVID-19 pandemic, I, as a clinician, experienced trouble accessing resources for teletherapy.*		
Outcome	The results of evaluation and treatment	14. As a result of the COVID-19 pandemic, my client experienced trouble improving toward long-term goals as expected.*		
		15. Did you lose any clients because they did not have access to technology for teletherapy? If yes, how many?**		

Note: * indicates questions that where formatted as "Please select all that apply." ** indicates questions that were open ended. † indicates questions that were multiple choice.

Table 2

Results for Structure

Type	Question	School Therapists	Teletherapists
Facilities	As a result of the COVID-19 pandemic, I, as a clinician, experienced trouble finding a quiet space to work.	46%	31%
	As a result of the COVID-19 pandemic, my client experienced trouble finding a quiet space to work.	71%	55%

Equipment	What platform do you use to provide teletherapy?	Zoom: 51%	Zoom: 60%
		Google: 44%	Google: 17%
	As a result of the COVID-19 pandemic, I, as a clinician, experienced trouble accessing reliable technology (ie: Internet, computer programs, etc.)	47%	31%
	As a result of the COVID-19 pandemic, my client experienced trouble accessing reliable technology (ie: Internet, computer programs, etc.).	85%	76%
Qualifications of Practitioners	How many hours of telepractice training did you have prior to seeing clients via teletherapy?	<5 hours: 86%	<5 hours: 72%
		5-10 hours: 12%	5-10 hours: 14%
		10-20 hours: 2%	10-20 hours: 3%
		20+ hours: 10%	20+ hours: 10%
	How many hours of telepractice training have you gotten since you began clients via teletherapy?	<5 hours: 48%	<5 hours: 52%
		5-10 hours: 35%	5-10 hours: 34%
		10-20 hours: 10%	10-20 hours: 3%
		20+ hours: 7%	20+ hours: 10%

Record keeping	As a result of the COVID-19 pandemic, I, as a clinician, had trouble keeping my work confidential and HIPAA compliant.	34%	31%

Table 3

Results for Process

Type	Question	School Therapists	Teletherapists
Steps taken to perform evaluation and treatment	As a result of the COVID-19 pandemic, my client experienced trouble working with new telehelper (ie: if parent has stepped in to act as telehelper during session).	46%	34%
	As a result of the COVID-19 pandemic, my client experienced trouble working without a telehelper.	63%	34%
	As a result of the COVID-19 pandemic, I, as a clinician, experienced trouble accessing resources for teletherapy.	70%	34%

Table 4

Results for Outcome

Type	Question	School Therapists	Teletherapists
Results of evaluation and treatment	As a result of the COVID-19 pandemic, my client experienced trouble improving toward long-term goals as expected.	61%	41%
	Did you lose any clients because they did not have access to technology for teletherapy? If yes, how many?	58%	54%

After obtaining informed consent, the survey began by having participants indicate demographic information. The demographic questions inquired about how many years participants have been CCC-SLPs, their current school district of employment, and whether teletherapists work for companies or independently. The participants were then asked the questions listed in Table 1.

Results

The results of the survey were broken down by the criterion given by ASHA's indicators of quality.

Structure

Facilities

Thirty-one percent of teletherapists agreed they had trouble finding a quiet space to work

whereas 46% of school therapists agreed. Disparities arose across the groups when asked about

client's access to a quiet workspace. Fifty-five percent of teletherapists reported their clients had

difficulty finding a quiet workspace where 71% of school therapists reported that their clients

had difficulty. Prior to March 2020, these school therapists saw 100% of their clients in school, a

designated space for work that was not available after COVID-19 school closures. By contrast,

teletherapists may have been working with children while the child was home or in a space they

still had access to after school closures. Consequently, school therapists felt this repercussion of

children not having a quiet workspace more often than teletherapists, although the impact was

also significant for teletherapists.

Equipment

Both groups of SLPs mainly used Zoom and Google as platforms for therapy (77% of

teletherapists and 95% of school therapists). Other, more expensive teletherapy platforms, such

as Theraplatform, were only used by 10% of teletherapists and 3% of school therapists.

In regard to accessing reliable technology, both groups' clients struggled. More than three

quarters of the SLPs in each group reported clients' trouble with accessing technology (76% of

teletherapists and 85% of school therapists). The SLPs themselves had less difficulty accessing

technology with 31% of teletherapists and 47% of school therapists experiencing difficulty. Even

with these lower percentages, school therapists still encountered obstacles with accessing

technology more than teletherapists. Presumably, all school therapists transitioned from their

school offices or classrooms to a new workspace. This transition required them to secure new sources of wifi, printing, and possibly new computers. Teletherapists, on the other hand, may have already been working from home, so fewer of these SLPs had to find new technology set-ups.

Qualification of Practitioners

Another aspect of *structure* is qualifications of practitioners. Formal training was used as an indicator of qualification of practitioners. Researchers hypothesized that due to the unexpected transition to teletherapy, school therapists probably received less formal continuing education about teletherapy than teletherapists may have prior to March 2020. After that date, school therapists may have been able to receive additional continuing education.

Before starting in telepractice, 72% of teletherapists reported having less than five hours of training, 14% of teletherapists reported having five to ten hours, 3% reported having ten to twenty hours, and 10% reported having more than 20 hours. School therapists showed similar trends. Before March 2020, 86% of school therapists reported having less than five hours, 12% reported having five to ten hours, and 2% reported having ten to twenty hours, although no school therapists reported having more than 20 hours of telepractice training. Trends also follow similarly between the groups with the amount of training hours they have received since they began seeing clients via teletherapy. Percentages for the groups are included in Table 2.

Staffing Ratios

Staff ratios can inform us about quality of *structure* as well. Staff ratios were defined in this survey by caseloads of participants. Caseload limits vary by state, some states having no

caseload caps. As of 2018, 19 states had state regulated caseload limits (ASHA, 2018). State regulated limits range from 45 to 80 with an average of 59. In the current study, participants reported their caseload amounts for January to February 2020 and April to May 2020. In this study, caseloads equal to or greater than 60 were designated as high caseloads, caseloads under 60 were designated as reasonable caseloads. Three percent of teletherapists (1 participant) had high caseloads from January to February 2020, whereas 22% of school therapists (40 participants) had high caseloads during that period. High caseloads of school therapists ranged from 60-120 cases.

To determine whether caseloads affected teletherapy, a Pearson's correlation analysis was completed on SLPs' caseloads and experiencing trouble accessing resources or reporting no problems in any area. SLPs who reported no problems in any area were SLPs who selected "As a result of the COVID-19 pandemic, I, as a clinician, experienced no issues." Caseload was not significantly correlated with accessing resources or with reporting no problems. This means that SLPs' caseloads were not related to accessing resources or problems due to coronavirus closures.

Record Keeping

Factors that are important to keeping records confidential include protective VPNs, strong firewall systems, effective antivirus software, and access to an Ethernet connection. Less than half of either group agreed that this was an issue they faced. Thirty-one percent of teletherapists and 34% of school therapists reported this being an issue for them.

Process

Steps taken to perform evaluation and treatment

School closures affected the environment in which students were working with their SLPs. Some children, such as those with special needs, need a telehelper, an adult to supervise and assist with teletherapy activities. Thirty-four percent of teletherapists experienced trouble working with a new telehelper, and 46% of school therapists experienced trouble with this. Thirty-four percent of teletherapists encountered obstacles working without a telehelper as a result of the pandemic, whereas 63% of school therapists encountered obstacles working without a telehelper.

Another consideration for this criterion was the SLP's ability to access materials for therapy. This question illuminated glaring discrepancies between groups. Thirty-four percent of teletherapists had trouble accessing materials as a result of the pandemic, but 70% of school therapists had trouble accessing materials. This is the largest difference between the two groups of any question assessed. A two-tailed independent samples t-test revealed that this was a significant difference between the two groups, $t(286) = 3.27$, $p = .001$. That is, school therapists reported trouble accessing resources significantly more than teletherapists.

Outcomes

The results of evaluation and treatment

Fifty-four percent of teletherapists and 58% of school therapists lost clients after March 2020. School therapists who lost clients lost two more clients than teletherapists on average, teletherapists losing 11.7 clients on average and school therapists losing 14.2 on average. The range in number of clients lost among school therapists was also wider than teletherapists, with teletherapists who confirmed losing clients reporting losses between 3 and 25 clients and school therapists reporting between 1 and 85 clients. Additionally, no teletherapists reported having lost

all their clients, whereas one school therapist reported losing all their clients because the school did not offer teletherapy.

Another indicator of *outcome* is clients' progression to long term goals. Forty-one percent of teletherapists agreed that they had clients who struggled to improve toward long-term goals, and 61% of school therapists agreed with this. A two-tailed independent samples t-test revealed that this was a significant difference between the two groups, t (206) = 2.05, p = 0.042.

Additionally, teletherapists were significantly more likely to report they experienced no issues due to coronavirus closures, as was revealed by a two-tailed independent samples t-test, t(286) = 3.38, p = .001 where 1 represents clinicians reporting no issues and 0 represents clinicians reporting at least one issue.

Demographic Variables

Levels of Experience

The groups were asked to report their level of experience as an SLP by indicating how many years they have been a certified practicing SLP. The participants could answer in four categories; these were 0-1, 2-5, 6-10, and 11+ years. Forty-three percent of school therapists had less than 11 years of experience, and 57% had more than 11 years. Fifty percent of teletherapists surveyed had less than 11 years of experience, and 50% had more than 11 years.

A Pearson's correlation analysis was completed on the number of years respondents had been SLPs and experience of confidentiality or reporting no problems. Again, SLPs who reported no problems in any area were SLPs who selected "As a result of the COVID-19 pandemic, I, as a clinician, experienced no issues." This analysis revealed experience level was significantly correlated with experience of confidentiality issues, r(210) = -.237, p = .001. That

is, as experience level increased, confidentiality issues decreased. Experience level was not correlated with reporting no issues.

Discussion

The survey responses offered insight into the struggles of school-based SLPs new to telepractice and SLPs who have been using teletherapy as their main platform since before March 2020. Data have shown that on average school-based SLPs struggled with the assessed areas 16% more on average than the teletherapist group. Solutions can and should be sought for the identified areas where the majority of the SLPs experienced trouble and/or the school SLPs experienced trouble at significantly higher rates than the teletherapists.

There were clearly issues that proved to be significant in each of the assessed areas (*structure*, *process*, and *outcome*). In the area of *structure*, specifically equipment, the majority SLPs in both groups experienced difficulty with their clients accessing reliable technology. In the area of *process*, 36% more school therapists than teletherapists surveyed experienced difficulty accessing resources for teletherapy. In terms of *outcome*, findings showed that loss of clients was a major problem across both groups. SLPs lost approximately 13 clients on average due to COVID-19 closures. However, significantly more school therapists experienced clients who had trouble progressing toward their long-term goals than teletherapists, indicating *outcome* as a more severe trouble area for school SLPs.

Problems in *structure* persist as the pandemic continues to prevent student from attending school in person. In Fall 2020, only 25% of US students attended school in-person full time, and 52% of students attended school in an exclusively virtual classroom (Liesman, 2020). As school

districts still currently rush to fundraise and provide students with the devices needed, it is unclear how many students across the US are without school-district-loaned devices. Solutions in the area of *structure* may be solved with better funding from school districts. If students have access to computers, Wi-Fi hotspots, and accessories such as headphones and software, reliable technology access may become less of a barrier for SLPs' clients. However, access to technology goes beyond device rental. Students, especially young students in kindergarten through 5th grade, may lose or break their devices, or their devices may be stolen. For example, 4,192 laptops, worth $1.19 million, went missing when Greenville County School District in South Carolina rented Chromebooks out to its 77,000 students (Associated Press, 2020). Therefore, the question remains, did students struggle to access reliable technology or did students struggle to reliably access the available technology? Funding cannot ensure that these issues in the area of *structure* will not persist. With the future of the pandemic still unclear, solutions to these problems also remain undetermined.

   In the area of *process*, 36% more school therapists than teletherapists surveyed experienced difficulty accessing resources for teletherapy. There are several possible reasons for this issue. First, as school SLPs transitioned to online settings, they were not able to use many of the resources they had had access to for many years. These SLPs were suddenly expected to change their lesson plans, activities, and strategies for their average number of clients, 59, which likely had many professionals rushing to find all different kinds of online materials for their clients with various needs. Additionally, teletherapists, having more time for preparation, may have had more knowledge of which websites or activity databases to use for finding resources. The study's hypothesis was that teletherapists may have had more expensive resources to draw upon, such as teletherapy platforms with built-in games and activities. However, the vast

majority of both groups used Zoom and Google as platforms, so a lack of expensive platforms did not contribute to the issue. The probable cause of the lack of access to resources was inexperience with telepractice and insufficient time for preparation. Now that these professionals have some months of telepractice under their belts, they will likely find more resources and the concerns will likely alleviate. Additionally, many companies for SLP resources, such as Lesson Pix, have begun to provide more telepractice resources along with their non-telepractice resources in response to the pandemic-related rise in telepractice.

In the area of *outcome*, findings showed that loss of clients was a major problem across both groups. SLPs lost approximately 13 clients on average due to COVID-19 closures. However, significantly more school therapists experienced clients who had trouble progressing toward their long-term goals than teletherapists, indicating *outcome* as a more severe trouble area for school SLPs. The education lost from these incomplete therapy hours will be exacerbated be education lost in the classroom. After COVID-19 closures, students lost from 57 to 183 days (a complete school year) worth of learning in reading across 18 assessed states, a Stanford study showed through standardized test scores. (The Center for Research on Education Outcomes, 2020). Caseloads will likely grow for three reasons; first, students in some states are a whole years behind in learning; second, SLPs have lost clients; and third, SLPs reported their clients were not progressing toward goals as expected. As a result of this, clients will likely stay on caseloads longer and students who may have been on track may show greater delays for speech and language difficulties. Additionally, more clients may not get services because it will be challenging to identify whether students struggle from speech and language difficulties or general loss of learning due to COVID-19 closures.

In addition to clients leaving speech-language therapy due to school closures, students around the country have been receiving COVID-19-related IEP amendments that may infringe on their rights as disabled Americans. IEP adjustments are a natural consequence of COVID-19 school closures, as IEPs legally must outline how clients will receive services in a social-distanced environment. However, concerns have been raised that in these IEP adjustments, new amendments may reduce services and bypass the necessary IEP team decision-making process, especially in states that have not given explicit guidelines for coronavirus related IEP amendment implementation (Arundel, 2020). Despite advocacy by parents and other groups, students may lose access to the services guaranteed to them by law. This may explain a portion of the students SLPs lost during school closures and will have long-term consequences for those students' educational and developmental progress.

Limitations of Study

Participant recruitment was a large limitation of this study. Participants were recruited through individuals contacts, SLP-related Facebook groups (ie: SW Washington SLPs, Telepractice for SLPs) and state-wide speech and hearing associations (ie: ISHA, MSHA). There was no random sampling which would have strengthened the findings of this study. Additionally, many of the Facebook groups were spaces for SLPs to share resources and ask for assistance from other SLPs. The members of these Facebook groups may have tended to be individuals who, for example, felt they needed more resources and were seeking them out, or who were just struggling more overall and sought out resources because of that. These potential common characteristics of participants may have swayed the data in a way that is not indicative of the

larger population of SLPs in America. Additionally, there were many more school therapists (181) than teletherapists (29) which may have also affected the data.

Approaching a subject with little known data, such as the effects of COVID-19 pandemic, allowed for a wide scope of questions to be studied. We ultimately prioritized a shorter, simpler survey that would provide a higher response rate as opposed to a more complex survey that would have provided more exact data. There was a high response rate, particularly among school-based SLPs, suggesting that the simple survey approach was successful. However, some questions were simplified to the extent that valuable information is missing. For example, one of the enlightening responses was affirming or denying the statement, "As a result of the COVID-19 pandemic, my client experienced trouble accessing reliable technology (ie: Internet, computer programs, etc.)." The responses for both groups were very high (76% of teletherapists and 85% of school therapists); however, the question did not specify if all of, a majority of, or one of their clients faced these issues. That provides a potential range of 208 clients to 7,558 clients that may have faced this problem which is not a specific or strong indicator. Additionally, the question did not specify if this problem must have been faced once or multiple times by the client, and, importantly, the question did not specify whether this was an ongoing problem or if it had been resolved. More research will need to be done to reach conclusive answers on this topic, but this survey was able to provide a cursory view of topics to be studied more closely in the future. Also, other questions in survey provided more definitive answers, such as the question regarding how many clients clinicians lost.

Conclusion

This study has shown that across the assessed areas of *structure*, *process*, and *outcome*, school therapists struggled more to provide high-quality therapy due to COVID-19-related barriers. In the area of *structure*, the majority SLPs in both groups experienced difficulty with their clients accessing reliable technology. In the area of *process*, significantly more school therapists than teletherapists surveyed experienced difficulty accessing resources for teletherapy. In the area of *outcome,* loss of clients was a major problem across both groups and SLPs across both groups lost approximately 13 clients on average after March 2020. However, significantly more school therapists experienced clients who had trouble progressing toward their long-term goals than teletherapists, indicating *outcome* as a more severe trouble area for school SLPs. Reflecting on this data, it is important for schools to provide support for school SLPs as they continue to adapt to coronavirus-related changes. Additionally, it is important to recognize that these short-term changes in *structure, process*, and *outcome* across for teletherapists and school therapists may affect the long-term progress of their clients.

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