

Pediatric Physical Therapy Telehealth and COVID-19: Factors, Facilitators, and Barriers Influencing Effectiveness—a Survey Study

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Purpose: The purpose of this study was to identify the important factors, facilitators, and barriers for telehealth effectiveness as described by pediatric physical therapists, transitioning from in-person to telehealth during the COVID-19 pandemic.

Methods: Pediatric physical therapists' responses to 3 open-ended questions and 1 multipart Likert Scale question from an anonymous survey were collected and analyzed using thematic analysis and descriptive statistics.

Results: Three overarching themes (*Caregiver Engagement, Technology, and Resilience*) were identified and accompanied by 3 subthemes (*Personal Attributes, Equity, and COVID-Specific Considerations*). Themes were supported by the Likert Scale question with *Child/Caregiver Interaction, Internet Connection, and Family Factors* identified as the most important factors related to telehealth effectiveness.

Conclusions: High caregiver engagement and access to stable technology were most important for telehealth effectiveness. The telehealth service model met a need during the pandemic; however, emerging evidence suggests that it could be considered as an effective service delivery mode postpandemic. (*Pediatr Phys Ther* 2021;33:112–118)

Key words: COVID-19, pediatric physical therapy, telehealth

BACKGROUND

The US COVID-19 shutdown in March 2020 left many physical therapists (PTs) struggling to safely provide services during a global pandemic. Many turned to telehealth for service.¹ Prior to the pandemic, 2% of more than 5400 physical therapy providers in the United States reported providing telehealth services; by July 2020, this percentage increased to 47%.¹ The COVID-19 pandemic required PTs to reconsider their traditional service models and adapt.

Telehealth became an important strategy for providing health care while limiting risk of exposure to the virus. The Joint Digital Physical Therapy Task Force of the World Confederation for Physical Therapy and the International Network of Physiotherapy Regulatory Authorities (JDPTTF) defines digital physical therapy practice as “health care services, support, and information provided remotely via digital communication and devices” with the purpose to “facilitate effective delivery of physical therapy services by improving access to care and information and managing health care resources.”²

Prior to the COVID-19 pandemic, telehealth research was slowly expanding as technology advanced. Telehealth has been used in medicine since the 1950s and has shown positive outcomes.^{3,4} In pediatric medicine, telehealth benefits are especially apparent for families in rural locations, reducing travel and caregiver time away from work, while increasing accessibility to emergency care.⁵ However, barriers to pediatric telehealth also exist, including initial costs to begin programs, family and provider willingness to participate, inconsistent reimbursement, and legal issues related to state borders.⁵

The research to support telehealth in physical therapy is limited.² A 2017 systematic review and meta-analysis of telehealth for the treatment of musculoskeletal conditions reported that a hybrid model of face-to-face and telehealth services was superior to in-person services alone.⁶ In addition, telehealth services alone were equivalent to outcomes for in-person services.⁶ More recent studies continue to support these findings, such as in the treatment of knee osteoarthritis and following

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thoracic, upper abdominal, or orthopedic surgical procedures.^{7,8} The adoption of telehealth in pediatric physical therapy has been slow, but examples such as its use in early intervention programs suggests that it is effective.^{9,10} Emerging evidence for telehealth services during COVID-19 reported that patients of all ages rated physical, occupational, and speech therapy services positively, and 86.8% would pursue telehealth services in the future.¹¹

While emerging evidence for telehealth in physical therapy is positive, the necessity for pediatric PTs to adopt telehealth during COVID-19 is additionally supported by the alarming statistics that 74% of individuals with intellectual and developmental disabilities reported losing access to at least 1 therapy or education service and 36% reported losing access to a health care provider during the pandemic.¹² The emerging evidence prior to and during the COVID-19 pandemic supports a role for telehealth in pediatric physical therapy.

With little to no experience or training, many PTs were unexpectedly thrust into a telehealth model during the COVID-19 pandemic. The overall aim of this survey study was to explore the experience of pediatric PTs providing telehealth services during this unusual time. The research question addressed in this article is as follows: What do pediatric PTs who transitioned from in-person to telehealth services during the COVID-19 pandemic perceive as important factors, facilitators, and barriers related to the effectiveness of their telehealth practice?

METHODS

Recruitment

The Institutional Review Board approved this cross-sectional survey study. We recruited pediatric PTs providing telehealth services during the COVID-19 pandemic to complete an anonymous online survey via snowball sampling. Recruitment began with researchers' personal contacts, American Physical Therapy Association (APTA) Academy of Pediatrics emails, and social media postings. Inclusion criteria included the following: (1) PTs providing pediatric telehealth in the United States for at least 2 weeks during the COVID-19 pandemic; (2) services provided were synchronous or in real time; (3) PTs' practice was not primarily telehealth before the pandemic; and (4) PTs were English speaking. Respondents accessed the survey online through an anonymous link or QR code. An introduction to the survey assured the respondents that their participation was voluntary and outlined the study purpose, inclusion criteria, and our working telehealth definition.

Instrumentation

We developed the survey using the Qualtrics online survey platform (Qualtrics, Provo, Utah) based on results from a literature review, researchers' expertise in pediatric PT, and 2 researchers' experiences providing telehealth services during COVID-19. The survey was piloted by 3 pediatric PTs practicing in different settings, different states, and providing telehealth and was revised on the basis of their feedback. The survey consisted of 41 questions and was available from May 20, 2020, to June 30, 2020. Because of the volume of data generated

by the survey, we grouped the questions into 3 categories for analysis: (1) questions related to describing the pediatric PTs telehealth practice, (2) questions related to PT perceptions of factors, facilitators, and barriers influencing effectiveness of telehealth services, and (3) questions related to PTs' willingness to continue telehealth after the pandemic ends (see Supplemental Digital Content, available at: <http://links.lww.com/PPT/A320>). This article reports on the results of the second category of questions that includes 1 multipart Likert scale question and 3 open-ended questions from the survey. These questions were as follows: (1) *Please rank the importance of the following factors on the effectiveness of telehealth treatment from very important to not important: Child's age, child/caregiver interaction, child's diagnosis, home environment, child's behavior, quality of the internet connection, therapist's skill, and family factors.* (2) *Please explain your experiences with the factors above and how they may or may not affect the effectiveness of telehealth services.* (3) *From your experience, what are the greatest barriers to effectively delivering telehealth services?* (4) *From your experience, what are the greatest facilitators to effectively delivering telehealth services?*

Data Analysis

We analyzed open-ended questions via qualitative methods and the multipart Likert question via quantitative methods. The research team consisted of 2 pediatric PTs and a physical therapist student with an interest in pediatrics.

Qualitative Data Analysis

We used Braun and Clarke's¹³ thematic analysis method to analyze the 3 open-ended questions. All 3 researchers performed initial coding using descriptive codes.^{14,15} Researchers met and compared initial codes, reconciling any differences and establishing a codebook of codes and code descriptions. Each researcher performed secondary coding for an individual question, beginning to develop categories. As categories were developed, researchers wrote analytic memos as part of their iterative process, allowing categories to be further collapsed and themes developed.¹⁵ Categories and analytic memos were shared and verified by the 3 members of the research team. The research team then collaborated to identify themes consistent among the 3 open-ended questions of interest. Refining of themes continued through the development of figures and the writing of this article.

Trustworthiness was established by using a well-accepted analysis method. In addition, we allowed respondents to skip questions if desired; included a large, nationwide sample of PTs practicing in multiple practice settings; communicated frequently as a research team; maintained a codebook; used analytic memos; and triangulated our data through the multipart Likert scale question.¹⁶

Quantitative Data Analysis

We analyzed the multipart Likert scale question by grouping "very important" and "important" responses together for each factor and calculating percentages and confidence limits using

SAS (SAS, Cary, North Carolina). After individual qualitative and quantitative data analysis, the research team considered the relationship between these 2 data sources and how they may inform each other in an effort to triangulate the data.

RESULTS

Participants

Two hundred fifty-nine respondents completed all parts of the Likert scale factors question, 158 completed the open-ended question about factors, 223 completed the question about facilitators, and 234 completed the question about barriers. Respondent demographics are shown in the Table.

Themes

Codes, categories, themes, and subthemes developed during qualitative data analysis are graphed in Figure 1. Three themes emerged as essential to the overall effectiveness of telehealth services based on the open-ended questions: *Caregiver Engagement*, *Technology*, and *Resilience*. Three related subthemes included *Personal Attributes*, *Equity*, and *COVID-Specific Considerations*. Themes, subthemes, and their relationship to telehealth effectiveness are graphed in Figure 2.

TABLE
Respondent Demographics (n = 259)

Demographic	Number of Respondents (%)
Regions of the United States	Northeast: 82 (31.7)
	Southeast: 51 (19.7)
	Midwest: 64 (24.7)
	West: 44 (17.0)
	Southwest: 18 (6.9)
Practice area	Urban: 53 (20.5)
	Suburban: 127 (49)
	Rural: 33 (12.7)
	Multiple areas: 46 (17.8)
Highest education	Bachelor's degree: 44 (17.0)
	Master's degree: 45 (17.4)
	DPT: 165 (63.7)
	Academic doctorate: 5 (1.9)
Years as a PT	0-5 y: 69 (26.6)
	5-10 y: 40 (15.4)
	10-15 y: 30 (11.6)
	15-20 y: 31 (12.0)
	20+ y: 89 (34.4)
Years as a pediatric PT	0-5 y: 81 (31.3)
	5-10 y: 51 (19.7)
	10-15 y: 29 (11.2)
	15-20 y 33 (12.7)
	20+ y: 65 (25.1)
Employment status	Full time: 191 (73.7)
	Part time: 61 (23.6)
	As needed: 7 (2.7)
Practice setting	Outpatient hospital-based pediatrics: 39 (15.1)
	Outpatient private clinic pediatrics: 42 (16.2)
	Early intervention: 46 (17.8)
	School-based: 44 (17.0)
	Other: 8 (3.1)
	Multiple settings: 80 (30.9)

Abbreviations: DPT, doctor of physical therapy; PT, physical therapist.

Caregiver Engagement. Respondents reported the level of caregiver engagement as the most important feature necessary for effective telehealth.

Factor: "The most important factor is the caregivers' willingness to participate and learn. Age, diagnosis, behavior, etc. can all make it easier or more difficult on the caregiver, but the caregiver's ability to be an active participant is what makes the biggest difference."

Facilitator: "Parent engagement must be much higher as the therapist cannot be interactive with the child hands-on."

Barrier: "At the beginning, many parents wanted to put the screen in front of the child and have therapy services delivered directly to the child without parent coaching."

Technology. A stable Internet connection and access to appropriate devices were considered the minimum requirement for a telehealth session.

Factor: "Access to reliable technology is critical."

Facilitator: "Good internet and savvy tech parents."

Barrier: "Families have only landlines, others don't want to use their data minutes on phone for the visits because they don't have enough money to pay overage fees."

Resilience. For telehealth to be effective, therapists and caregivers needed resilience. This included a change in mindset while adopting an unknown service delivery model and embracing new roles during physical therapy sessions. Some results were rich, with therapists perceiving families as feeling more empowered to care for their child.

Factor: "I feel like effective teletherapy empowers the parent to carry over activities and problem solve with me so they truly feel that they can be the "expert" in the care of their child."

Facilitator: "Just being open to knowing that any little morsel of help is something and allowing patience and knowing that we will learn more and become more effective as we continue in these ways."

Barrier: "Honestly if the parent and therapist expect the therapist to "treat" the kiddo it's a short visit. Lots of parent coaching needed."

Subthemes

In addition to the themes, 3 related subthemes were identified: *Personal Attributes*, *Equity*, and *COVID-Specific Considerations*.

Personal Attributes. Personal attributes included respondent perceptions of important caregiver, child, and PT factors contributing to the effectiveness of telehealth. Figure 1 provides more information about specific personal attributes for each group. Excerpts regarding respondents' perceptions of each group's personal attributes are included later to fully illustrate this subtheme.

Factor:

Caregiver: "The families and kids I work with have been overwhelmed with online schooling and only a few have taken me up on teletherapy sessions. A handful have communicated with me via email or phone and accepted home exercise programs. Many parents just needed a listening ear, and only about 5% of the conversation was PT related."

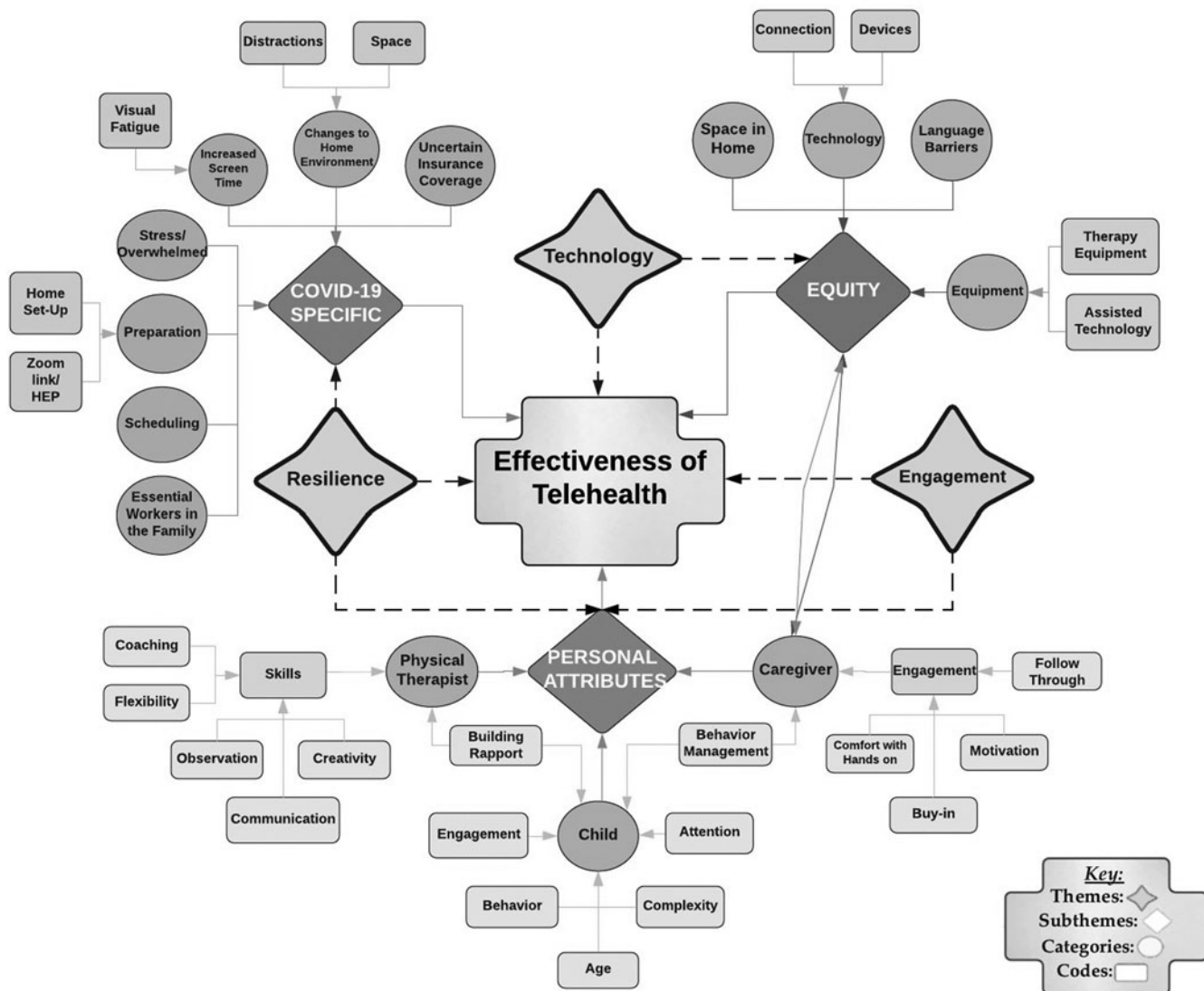


Fig. 1. Codes, categories, subthemes, and themes developed during thematic analysis: relationships to one another and effectiveness of telehealth sessions.

Child: “Patient behaviors have increased during this time and some of my patients are having a hard time coping, so doing PT over telehealth does not help with cooperation.”

Physical therapist: “Peds is coaching and teaching the caregiver. The caregiver makes the change in the child. There are no magic hands of the therapist.”

Facilitator:

Caregiver: “Caregiver that is comfortable with being uncomfortable (either in learning their own new motor skills—or working through the children doing ‘work’ rather than just playing/caregiving).”

Child: “Good attitude and willingness of the kids.”

Physical therapist: “Parent coaching using a reflective practice model.”

Barrier:

Caregiver: “Overwhelmed families who feel therapy is the last thing they want to deal with.”

Child: “Complex children in EI whose parents struggle with handling skills.”

Physical therapist: “So much of therapy is hands on and cannot be easily explained to a parent via teleconferencing.”

Equity. Respondents described aspects of equity as positively or negatively impacting access to telehealth services. Figure 1 graphs specifics about these aspects of equity.

Factor: “Socioeconomic status impacts telehealth abilities and available equipment/ability to purchase materials.”

Facilitator: “Good connectivity and access to a device.”

Barrier: “In rural settings poor internet speed and computer/technology access is a factor.”

COVID-19 Specific Considerations. Specific considerations arose because of the unique experience of providing telehealth during the COVID-19 pandemic. The experience of providing and receiving services during a pandemic is likely to be different than other times. While access to technology was previously described as a theme, other issues related to the use of technology during the pandemic such as “Zoom fatigue” and the time needed to prepare were additionally mentioned by respondents. Figure 1 graphs information about COVID-19 Specific



Fig. 2. Themes, subthemes, and their relationship to effectiveness of telehealth sessions.

Considerations, which may have impacted the effectiveness of telehealth.

Factor: “A pandemic has created a sense of survival for most of my families—this means that academics and related services has mainly gone to the wayside. Families are appreciative of more face time with the therapists as school does not typically allow for this much interaction with families; however, the carry-over is not necessarily there.”

Facilitator: “Availability of the family during the COVID-19 crisis.”

Barrier: “This pandemic has created added difficulties because many families have multiple children on a virtual platform. Because of that, many families are just overwhelmed due to parents working from home and children’s schedules with virtual learning.”

Quantitative Results

Respondents rated the following factors as “very important” or “important” on a 5-point Likert scale related to their perception of the effect on the effectiveness of the telehealth session (%; upper 95% confidence limit, lower 95% confidence limit): Child/caregiver interaction (99.2; 97.3, 99.9), Internet connection (99.2; 97.3, 99.9), family factors (95.8; 92.6, 97.9), therapist’s skill (93.1; 89.3, 95.9), child’s behavior (90.8; 86.6, 94.0), home environment (82.3; 77.1, 86.8), child’s age (68; 61.9, 73.6), and child’s diagnosis (59.2; 53.0, 65.3) (Figure 3).

The quantitative results of child/caregiver interaction, Internet connection, and family factors being reported as most important, compared with other factors, support the qualitative findings that telehealth effectiveness is highly dependent upon caregiver engagement and access to technology. Child’s age and diagnosis appeared to be perceived as least important in the

Likert scale question and responses related to these factors were mixed in the open-ended questions.

DISCUSSION

Qualitative and quantitative data from a national survey of pediatric PTs in the United States suggest that respondents perceived caregiver engagement, access to technology, and resilience along with personal attributes of caregivers, children, and PTs, and equity and COVID-specific considerations as determinants of the effectiveness of telehealth sessions in the midst of the COVID-19 pandemic. Pediatric PTs throughout the United States described the necessity of caregiver engagement for a successful telehealth session. This involvement went beyond the caregiver’s presence in the room; caregivers were required to be active participants in all aspects of the therapy session. The caregiver and PT personal attributes as well as communication and relationships contributed to this level of engagement.

Some respondents described PT comfort and experience with a coaching model as key to fostering caregiver success during telehealth sessions. The definition of coaching related to therapeutic intervention is often disputed and can range from “parent coaching” to “parent training.”¹⁷ “Parent coaching” is viewed as a collaboration during which the PT supports caregiver decision making to increase empowerment.¹⁷ Alternatively, in “parent teaching,” the PT instructs the caregiver in carrying out specific interventions during daily routines to support the child’s development.¹⁷ The partnership between the caregiver and the PT during telehealth sessions likely encompasses both definitions. A coaching model has been shown to be effective in pediatric physical therapy, particularly early intervention.^{17,18} In the present study, PTs were forced by the new telehealth platform to rely more on the coaching model and in some cases, PTs perceived that families came away feeling more empowered to care for their child than in traditional physical therapy models.

The respondents in this study were not just exploring telehealth as an alternative to in-person practice; they quickly adopted this model out of necessity during a pandemic with little planning or training. In addition, caregivers and children receiving these services did so within the context of a pandemic. Stakeholders’ experiences were likely influenced by this reality. Respondents described “Zoom fatigue,” parents working from home, multiple children in the home engaged in online learning, and the stresses of parents ill with COVID-19 or considered “essential workers.” Given these family stresses and the perception of respondents regarding the need for caregiver engagement for an effective telehealth service, it is not surprising that some respondents reported that families declined to participate in telehealth services or had difficulty engaging. Parental burnout is a reality of the pandemic with 44% of adults reporting major life changes since the pandemic, including loss of employment and income, difficulty managing child care responsibilities, and working in environments that may put them at risk of infection.¹⁹ The increased effect of the COVID-19 pandemic on children with disabilities including loss of educational and health care services may magnify this burnout for families.^{12,20} Resilience amidst this crisis on the part of caregivers, children,

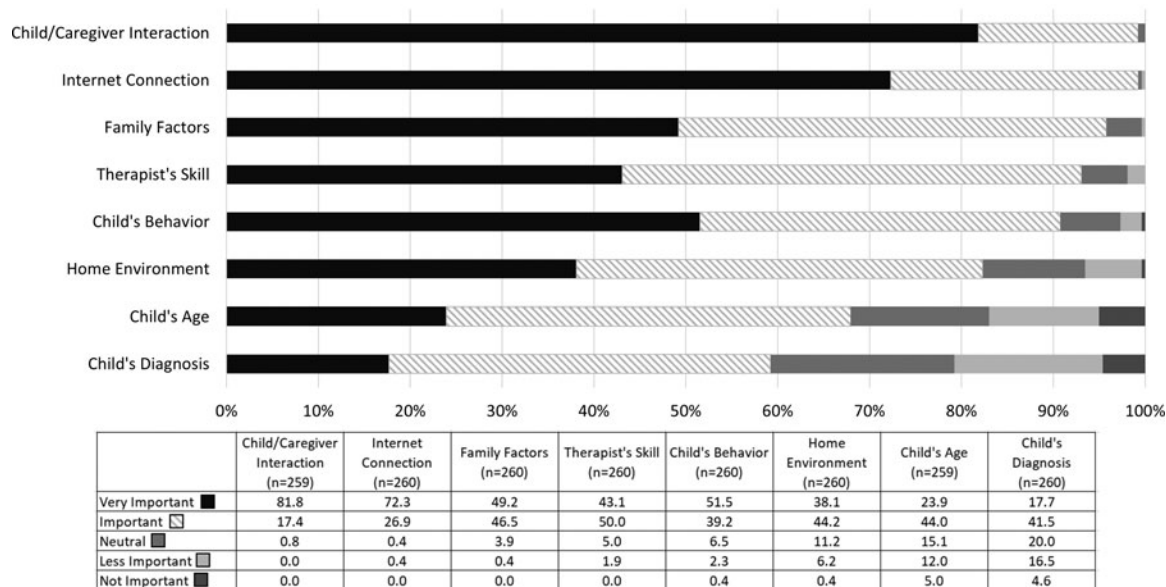


Fig. 3. Rating of factors related to telehealth effectiveness.

and PTs is vital to ensure that children with disabilities continue to receive necessary services.

A family-centered approach during this challenging time may help mitigate some of these stresses and provide much needed support to families and children. It may also help foster the caregiver engagement perceived as being central to an effective telehealth session. Family-centered care incorporates respect for the child and his or her caregivers, an understanding of the family's importance in the child's life, and an approach that seeks to partner with families in their children's care.²¹ While this approach is central to the family-focused early intervention setting, it is considered best practice in pediatric physical therapy settings.²¹ Both families and caregivers in early intervention settings are invested in a family-centered approach.²² In this study, several respondents commented on their use of family-centered and coaching models in their telehealth practice with positive results.

The JDPTF March 2020 report² described benefits and limitations of current PT digital practice. Benefits included increased service accessibility, no travel time, increased scheduling flexibility, end user control of health care services, and decreased costs. Some limitations included Internet and device access, environmental setup, cultural considerations, communication barriers, training, funding, and regulatory factors. When considering which clients may be appropriate for services, client-related factors such as diagnosis and age were mentioned as well as the need for a caregiver to be present and an active participant in sessions. Our findings are consistent with this report. In addition to the JDPTF, recent discussions in peer-reviewed journals related to telehealth and COVID-19 have highlighted concerns regarding technology and equity in a variety of populations.^{23,24} These authors discussed concerns regarding access to equipment and Internet services, communication barriers, and unique barriers related to disability, arguing that inequalities may be magnified during this pandemic. These concerns were echoed by our respondents. In our study, respon-

dents perceived access to technology and a stable Internet connection as the minimum requirements for effective telehealth. As this pandemic continues and the use of telehealth expands, systemic responses to these concerns will be needed, including expansion of broadband and mechanisms for distribution of devices.

Most of our respondents were positive about their experience providing telehealth in the midst of this pandemic. High caregiver engagement and access to stable technology were perceived as most important for telehealth effectiveness. The telehealth service model met a need during the pandemic; subsequently, emerging evidence suggests that it should be considered as a feasible service delivery mode postpandemic. To maximize facilitators and mitigate barriers as described by PT respondents, our recommendations include the following: (1) pediatric PTs receive training in adoption of a family-centered coaching model and strategies for using this model in telehealth. (2) Health care, education, and government entities partner to ensure universal Internet and device access. (3) Health care, education, and government entities partner to ensure insurance coverage for pediatric physical therapy telehealth services. (4) Health care and education systems consider primary as well as hybrid or alternative uses of telehealth services to supplement in-person services. (5) More research be conducted to develop telehealth-specific outcomes measures and best telehealth practices regarding dosing, populations most likely to benefit, and most effective intervention strategies.

Limitations of this study include collection of PT perspectives only and data collection occurred relatively early in the pandemic. An effort was made to survey PTs not belonging to the APTA; however, there may be a bias toward APTA members due to available recruitment methods. The overall response rate was considered positive and a testament to pediatric PT dedication to ensuring service continuity and advancing pediatric PT telehealth practice in the midst of a public health emergency. This article focuses on one aspect of a larger survey designed to

capture multiple facets of the experiences of pediatric PTs transitioning to telehealth during the COVID-19 pandemic. Based on the results of this study, we suggest that the pivot to telehealth for many pediatric PTs may have the benefit of exposing more PTs to this service delivery mode, highlighting both its feasibility and potential benefits for all stakeholders.

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