



Feasibility, Acceptability, and Health Outcomes Associated With Telehealth for Children in Families With Limited English Proficiency

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ABSTRACT

BACKGROUND: Telehealth use in pediatrics increased during the COVID-19 pandemic and may improve health care access. It may also exacerbate health care disparities among families with limited English proficiency (LEP).

OBJECTIVE: To systematically review the feasibility, acceptability, and/or associations between telehealth delivery and health outcomes for interventions delivered synchronously in the United States.

DATA SOURCES: PubMed, Embase, and Scopus.

STUDY ELIGIBILITY CRITERIA: Original research exploring pediatric health outcomes after telehealth delivery and studies that explored the feasibility and acceptability including surveys and qualitative studies.

PARTICIPANTS: Patients 0 to 18 years with LEP and/or pediatric caregivers with LEP.

STUDY APPRAISAL AND SYNTHESIS METHODS: Two authors independently screened abstracts, conducted full-text review, extracted information using a standardized form, and assessed study quality. A third author resolved disagreements.

RESULTS: Of 1831 articles identified, 9 were included in the review. Half of the studies explored videoconferencing and the

other half studied health care delivered by telephone. Feasibility studies explored telehealth for children with anxiety disorders and mobile phone support for substance abuse treatment among adolescents. Acceptability studies assessed parental medical advice-seeking behaviors and caregivers' general interest in telehealth. Health outcomes studied included follow-up of home parenteral nutrition, developmental screening, and cognitive behavioral therapy.

LIMITATIONS: The articles were heterogeneous in approach and quality.

CONCLUSIONS AND IMPLICATIONS OF KEY FINDINGS: Telehealth appears acceptable and feasible among children in families with LEP, with a limited evidence base for specific health outcomes. We provide recommendations both for the implementation of pediatric telehealth and future research.

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KEYWORDS: child; disparities; immigrant; limited English proficient; telemedicine

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What This Systematic Review Adds

- This review synthesizes available evidence for telehealth delivery in the United States among children in families with limited English proficiency (LEP).
- Telehealth is feasible and acceptable for children in families with LEP but requires a tailored approach.
- Interventional studies in this review showed positive health outcomes in the mental/behavioral health realm.

How to Use This Systematic Review

- To aid feasibility, pediatric clinical teams implementing telehealth among families with LEP could consider patient educational initiatives and staff who provide technological support.
- Telehealth may be used to provide mental/behavioral health care among children in families with LEP.
- Future scholarship on telehealth among families with LEP should better explore the use of telehealth for common pediatric medical conditions.

The Coronavirus disease pandemic (COVID-19) quickly and radically changed how clinical care is delivered, including pediatric care. Many clinical practices quickly transitioned to providing telehealth-based care in the early stages of the pandemic.^{1,2} Telehealth in pediatric care is likely to persist to some degree beyond the pandemic as clinicians and patients alike report the desire to continue telehealth options and recognize potential benefits to expand access to care.³ There is some early evidence that telehealth use during the pandemic increased access for groups that have historically faced increased barriers to health care, including low-income patients with limited English proficiency (LEP).⁴ However, while telehealth may potentially increase access to care for some patients, it also has the potential to compromise high-quality care, especially among communities that historically and contemporaneously experience inequities in care. Thoughtful consideration is thus needed to ensure equity in the ongoing use of telehealth and mitigate rather than deepen existing health disparities in the United States.

LEP is defined by the US Census Bureau as a limited ability to read, speak, write, or understand English and/or the ability to speak English less than “very well.”⁵ Families with LEP represent a growing proportion of the US population, with more than 10% of families identifying in this way based on the latest American Community Survey from 2019.⁶ Caring for families with LEP requires extra considerations for clinicians in all settings, whether in person or virtually, and national standards exist for providing culturally and linguistically appropriate health care.⁷ Nevertheless, families with LEP in the United States continue to face significantly more challenges with access to care, disease management, and even pain management

compared to native English speakers.^{8–10} In addition, children of parents with LEP are three times more likely to have poor health status and have higher odds of not being brought to the hospital for medical care.¹¹ Thus, while the use of telehealth can increase access to medical services, it is critical to ensure that this technology is implemented in ways that do not deepen health care access and health outcome disparities for families with LEP.¹²

The American Academy of Pediatrics provided guidance to implement telehealth programs even before the COVID-19 pandemic. In their 2017 report on pediatric telehealth, the authors highlighted that teleservices should align with the Patient-Centered Medical Home model and ensure that “the family and child’s culture, language, beliefs, and traditions are recognized, valued, and respected.”¹³ In 2021, an updated American Academy of Pediatrics policy statement encouraged the use of interpreters in telehealth visits for families with LEP, but did not cite evidence about the feasibility or acceptability of this modality among families with LEP,¹⁴ nor health outcomes associated with telehealth in this specific population. In short, there is a need to summarize available evidence around the use of telehealth for pediatric patients in families with LEP.¹⁵ We therefore sought to conduct a systematic review to synthesize available evidence regarding the feasibility, acceptability, and health outcomes associated with the use of telehealth for pediatric patients living in families with LEP in the United States.

METHODS

This systematic review was designed according to a protocol registered with the International Prospective Register of Systematic Reviews (CRD42020204541). This protocol specifies we would study the association between telehealth and access to care, health outcomes, patient satisfaction, or other outcomes defined by the literature. Given the studies we discovered, the research team focused our analysis on a summation of literature surrounding the feasibility, acceptability, and health outcomes associated with telehealth in our target population. The scarcity and heterogeneity of the literature prohibited a meta-analysis. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 checklist for systematic reviews to report our findings ([Online Appendix A](#)).¹⁶

ELIGIBILITY CRITERIA

This review defines telehealth as the synchronous interactions that occur when a patient and health care provider are online at the same time and can communicate in real time.¹⁷ We included papers where research teams studied either pediatric physical and/or mental health care that was delivered virtually and synchronously. Eligible studies assessed one of the following with respect to telehealth for the care of children living in families with LEP: 1) feasibility; 2) acceptability; or 3) associated health

outcomes after a specific type of health care was delivered virtually to a cohort that included families with LEP.

Eligible studies could be interventional trials or observational cohort studies reporting on pediatric health outcomes after clinical care was delivered virtually. We also included survey and qualitative pediatric studies where the stated objectives were to assess the acceptability and feasibility of telehealth in this population. Other inclusion criteria were 1) study conducted in the United States; 2) participants were pediatric patients (0–18 years of age) with LEP and/or caregivers of pediatric patients with LEP; and 3) studies published from January 1, 2010, to October 31, 2021. This time period was chosen in order to allow for technology used during telehealth interventions to be potentially comparable to the telehealth technology currently used and thus useful to modern clinicians and future researchers. All peer-reviewed empirical research was included. We excluded commentaries, editorials, or other pieces lacking peer review such as conference abstracts to limit bias. We excluded papers that reported on asynchronous virtual health care provision such as through mobile health devices or electronic diaries, and papers focused on describing only proposed trials. We also excluded studies that did not report on health outcomes specifically among children in families with LEP after delivery of telehealth. We did not include review papers. We also planned to exclude papers not published in English due to study team limitations; however, no papers were excluded for this reason. Primary study teams for the included papers were not contacted for additional information.

LITERATURE SEARCH STRATEGY

A search strategy was developed in consultation with an expert reference librarian (S.M.). We searched three databases: PubMed, Embase, and Scopus. Concepts extracted from the research aim were used to find Controlled Vocabulary (MeSH for PubMed and Emtree Terms for Embase) to represent the telehealth concept. No MeSH or Emtree Terms were found for “limited English proficiency” at the time the original search strategy was created; instead, keywords were used to represent that concept ([Online Appendix B](#)). A second search strategy was used in all databases to find citations that focused on Spanish-speaking patients given that is the second most commonly spoken language in the U.S. ([Appendix 3](#)).⁶ Several telehealth-specific journals were also searched for potential additional citations in PubMed and Embase ([Online Appendix D](#)). Finally, we reviewed citations of the included studies for completion. References were uploaded to the Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia; www.covidence.org).

DATA EXTRACTION

Two investigators (E.O. and K.E.W.) independently screened titles and abstracts to identify eligible studies. Any disagreement was resolved by a third investigator

(D.M.-W.). Full texts of all included abstracts were reviewed by one investigator (E.O.). Data were extracted using a standardized form that included study setting, study design, aim of study, objective/outcome, telehealth tool used (ie, phone, virtual platform, etc.), medical intervention (if any), method used to interpret/translate, and measure of parental language proficiency. The data extraction form also elucidated any barriers to care or implementation of telehealth identified by study teams in their papers. Data extraction templates are available upon request.

DATA SYNTHESIS

It was not possible to conduct a meta-analysis because of the large variation in study designs and outcomes captured by our review. Instead, we conducted a broad qualitative overview of the data, including a critical review of the strength of the findings for papers that studied the provision of telehealth. For each study, we summarized the type of health care studied, the provider delivering the care, the languages included, the percentage of participants completing the study in a non-English language, the interpretation methods (if any), and the study’s outcomes (ie, telehealth acceptability, feasibility, or pediatric health outcomes associated with the use of telehealth). We also evaluated each study’s strengths and limitations, including the reliability and validity of the data by the methodologies used in each study, and assessed the data’s generalizability from the study context. Finally, we describe the multilingual research methods insofar as they were reported by study teams to summarize the strategies that may be employed by future research teams and/or which future researchers may consider reporting to advance the field of multilingual medical research.

QUALITY OF STUDIES

To assess the quality of studies, we used the National Institutes of Health (NIH) studies quality assessment tool,¹⁸ depending on the design of the study being evaluated. Studies were evaluated as good, fair, and poor by evaluating the internal validity, and the risk of bias as guided by the NIH tool. Two investigators (E.O. and R.O.) graded each study independently, then met to come to consensus for any score discrepancies.

RESULTS

SELECTION OF SOURCES OF EVIDENCE

Our search yielded 1831 potentially eligible studies. After titles and abstracts were screened by two independent reviewers, 1188 did not meet inclusion criteria and 82 studies had abstracts that appeared to meet the inclusion criteria for full-text review. Reasons for being excluded at this stage included papers that were not original research, studies conducted on adults or outside the United States, or those describing an intervention that did not meet our definition of synchronous telehealth. Nine studies were ultimately deemed to meet the full inclusion criteria for this study. [Figure 1](#) shows the PRISMA flow diagram.¹⁹

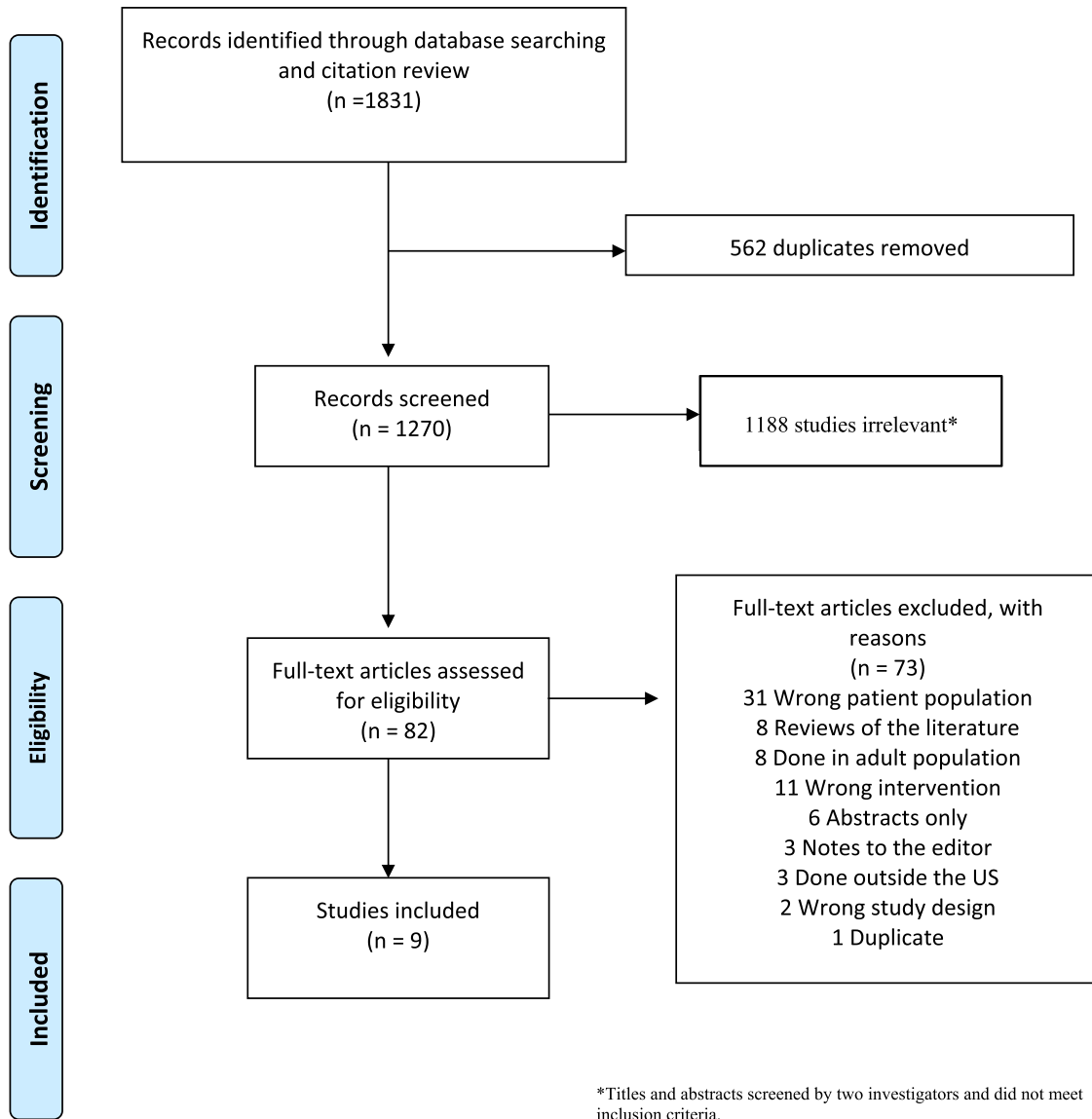


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram for included studies.

CHARACTERISTICS OF SOURCES OF EVIDENCE

Table 1 summarizes the characteristics of each of the 9 included studies. One was a randomized controlled trial²⁰; the remaining studies included 2 quasi-experimental,^{21,22} 4 cross-sectional,^{23–26} 1 qualitative,²⁷ and 1 case series.²⁸ Also, 5 studies explored videoconferencing and the other 4 focused on health care delivered by telephone. Of 9 studies, 5 specifically targeted the Hispanic/Latinx/Latine community (hereafter referred to as Hispanic for consistency with reviewed studies).^{22–24,27,28}

CRITICAL APPRAISAL WITHIN SOURCES OF EVIDENCE

Using the appropriate NIH quality assessment tool to screen the 9 included studies, 1 was deemed good quality, 6 were rated as fair, and 2 was rated as poor.¹⁸ The designation of good was for the paper where the study design and population included were appropriate to answer the research question.²³ The studies deemed as fair were limited by study participants not representing the clinical

population of interest and low response rates, limiting generalizability. Two studies evinced selection bias, leading to a designation of poor.^{25,26} Both had low rates of participants speaking a non-English language and/or most families reporting the preferred language as English despite a stated aim to study LEP. The response rate for 2 out of the 3 survey studies included was > 90%, and the third study reported a response rate of only 35%.²⁴

SYNTHESIS OF RESULTS

A total of 5 studies analyzed the feasibility of telehealth,^{22,23,25,26,28} 2 studies assessed its acceptability,^{24,27} and 4 reported on health outcomes.^{20–22,28} Feasibility studies included surveys to assess cognitive behavioral therapy (CBT) via telehealth for children with anxiety disorders,^{22,28} mobile phone support for substance abuse treatment among adolescents,²⁶ and parental medical advice-seeking behaviors via telephone.²⁵ Acceptability studies assessed caregivers' interest in receiving CBT via

Table 1. Summary of Studies Assessing the Use of Telemedicine Among Children in Families With Limited English Proficiency

Study	Study Design	Setting	Sample Size	Participants Completing Study in Non-English Language	Interpreter Method	Languages Included	Intervention	Aim of Study
Guiberson et al ²³	Cross-sectional	Wyoming, Colorado, and New Mexico	82 children and their families	100% in Spanish	Bilingual SLPs and Spanish forms	Spanish	Hybrid telehealth*	Assess the accuracy of hybrid telehealth measures to screen language development Examine the social validity of telepractice
Fitton et al ²⁴	Cross-sectional	Northern Florida, Michigan, and Illinois	79 caregivers	67.1% in Spanish	Spanish and English questionnaires	Spanish	Survey	
Stewart et al ²²	Case series	Southeastern US	4 children and caregivers	50% in Spanish†	Bilingual postdoctoral fellow	Spanish	TF-CBT via video conferencing	Assess the feasibility of delivering TF-CBT
Stewart et al ²⁸	Quasi-experimental	Southeastern US	15 children and caregivers	50% in Spanish	Bilingual postdoctoral fellow	Spanish	TF-CBT via videoconferencing	Pilot of TF-CBT to address barriers
Chavira et al ²⁷	Qualitative	California	15 parents and 28 providers	34% of parents in Spanish†	Bilingual providers and focus groups conducted in Spanish	Spanish	Focus group	Examine the feasibility of telephone CBT for anxiety
Raphael et al ²¹	Quasi-experimental	Massachusetts	26 families	Not reported	Certified medical interpreters	All‡	Telemedicine at 48–72 h of discharge	Assess the effectiveness of telemedicine in pediatric HPN
Watts et al ²⁵	Cross-sectional	Rhode Island	277 parents/guardians	8% in Spanish	Survey available in Spanish and English, all other languages a trained professional interpreter was used	Spanish and others†	Survey	Characterize the use of pediatric primary care telephone advice in LEP families
Nelson et al ²⁰	Randomized controlled trial	California	152 children	68% in Spanish	Bilingual providers	Spanish	Telephone application of PEDS+MCHAT-R	Test the efficacy of telephone developmental screening
Ryan-Pettes et al ²⁶	Cross-sectional	Southwest US	103 teenagers and their caregivers	12% in Spanish	Surveys in English and Spanish	Spanish	Survey	Determine the feasibility of mobile phone-based support for substance abuse

LEP indicates limited English proficiency; MCHAT-R, Modified Checklist for Autism in Toddlers – Revised; SLP, speech-language pathologists; TF-CBT, trauma-focused cognitive behavioral therapy.
* Video technology plus traditional pen-paper surveys.

† French, Arabic, Chinese, and 10 other languages were reported by 1 person each (Portuguese, Portuguese-Creole, Cambodian, Creole, Fula, Hmong, Hungarian, Italian, Kirundiand, and Nepali).

‡ Study does not expand further.

telehealth²⁷ and another study assessing general interest in telehealth.²⁴ The studies reporting on outcomes after health care was delivered via videoconferencing included follow-up of home parenteral nutrition,²¹ developmental screening,²⁰ and CBT.^{22,28} (Table 1).

With respect to multilingual research methods, 5 out of 9 studies reported that bilingual research team members were used for translation and/or interpretation, but none reported on whether team member's bilingualism was confirmed (ie, if they were native speakers or had been certified as language-proficient).^{20,22,23,27,28} Among studies using surveys, 3 reported that surveys were available in Spanish^{24–26}; one of these used certified interpreters to help families speaking any languages other than Spanish complete the English survey.²⁵ However, information on the internal reliability of the Spanish version of the instruments was unavailable.^{24–26} Survey studies made no mention of how families with LEP filled out the surveys presumably written in English. Among the studies evaluating the impact of a virtually delivered intervention on a health outcome, one study mentioned the use of certified medical interpretation but did not provide details on the interactions or if any barriers were faced.¹⁹ Only one study reported that 100% of the cohort completed the language-screening assessment aimed at assessing proficiency in Spanish.²¹ Also, 8 out of 9 studies used reported parental preferred language and/or language spoken at home as proxies for language proficiency; only one used a validated language usage measure to assess proficiency.²¹

FEASIBILITY

One paper describing the delivery of CBT conducted a barrier assessment in their population and discovered participants' challenges related to distance to the clinic, lack of transportation, childcare needs, and language preference. This led them to develop a tailored telehealth approach to deliver CBT at a local school close to the participants' residence and loaned tablets to parents with cellular data enabled.^{22,28} The feasibility of telehealth interventions in families with LEP was also supported by a study in which parents of children with substance abuse received mobile phone-based support²⁶ and a study assessing health care providers' ability to accurately screen for language development and impairment via a hybrid telehealth approach.²³ Several papers discussed the strategies teams used to overcome feasibility barriers such as whether patients have access to and know how to use a computer or smartphone, have access to the Internet, and/or have access to a phone line. For instance, one team had families use computers at a specific site and had bilingual research associates or coordinators provide parents with assistance using these computers.²³ Similarly, another study used in-person research assistants to initially connect families with phone care coordinators.²⁰ Subsequently, three-way calls were used to connect the parents with telehealth services. Some teams used both coordinators and asynchronous education via email about how to connect to videoconferencing to address any potential language or issues with connection to the platform.²¹

Most of these papers described the feasibility of delivering telehealth within the context of a research project versus describing clinical practice in a purely observational manner. This may have allowed study teams to address feasibility barriers and thus report improved feasibility more than if telehealth was being delivered without the structure and assistance of a research team.

ACCEPTABILITY

One study about telephone-delivered care found that only half of the 68 families with LEP surveyed were interested in receiving telehealth support overall. However, in this same study, nearly all caregivers who wanted health care delivered in Spanish or whose children had a confirmed diagnosis of speech or language disorder expressed interest in telehealth delivery (81% and 89%, respectively).²⁴ Study authors hypothesized that the overall lower apparent acceptability of telehealth in their entire cohort may have been due to misconceptions. For instance, 30% of families in this study believed that telehealth was only possible if one owned a personal computer and less than 20% were aware this was a legal form of service.²⁴ Using focus groups, a separate study team reported that Hispanic parents were amenable to telephone-based CBT, though they still preferred some face-to-face support.²⁷ Interestingly, in this same study, mental health providers reported more negative views about telephone-based interventions with Hispanic families than families did.

HEALTH OUTCOMES

Overall, most of the studies included reported on mental and/or behavioral health outcomes. One study provided evidence that telephone-based developmental screening and care coordination for families with LEP resulted in higher odds of a child receiving appropriate developmental screening and services compared to usual primary care-based developmental services.²⁰ Another group demonstrated that CBT could be delivered via telehealth to children with LEP and result in clinically meaningful symptom change that was comparable to CBT delivered in an in-person, office-based setting.^{22,28} Finally, one group demonstrated lower central-line associated bloodstream infection rates for patients receiving parenteral nutrition who received telehealth follow-up than those receiving standard follow-up.²¹ However, this study also found higher readmission rates among telehealth participants, a finding that the authors reported their study to be underpowered to explore. One of the interventional studies mentioned the use of certified medical interpretation during the telehealth visit but did not provide details on the interactions or if any barriers were faced.²¹ Furthermore, only one study reported that 100% of the cohort completed the language-screening assessment in Spanish.²³ Also, 8 out of 9 studies used reported parental preferred language and/or language spoken at home as proxies for language proficiency; only one used a validated language usage profile measure.²³ All studies included in this review recruited parents in the outpatient

setting, except for one,²³ which recruited from Head Start and preschool programs. Only two groups^{21,25} included participants who spoke all languages in their studies; all others focused on Spanish-speaking patients.

DISCUSSION

The aim of our study was to review recent literature that examined the feasibility, acceptability, and health outcomes associated with the use of telehealth for children in families with LEP. Our review found that the evidence base around the use of telehealth for pediatric health care delivery among families with LEP remains extremely limited. It remains unclear how well telehealth delivery might be occurring for families with LEP without the support of a research team. However, we did find that telehealth appears to be feasible among families with LEP, especially when language accommodations and access to technology were concretely addressed using research-related resources such as bilingual research coordinators and study-associated technology. There was limited evidence of the acceptability of telehealth among families with LEP, with only two studies reporting on this. Finally, the literature on health outcomes after telehealth primarily centered around mental/behavioral health but was positive overall.

We found that teams that attempted to mitigate the impact of relevant adverse social determinants of health that might impact a family's ability or willingness to engage with the technology itself were successful at engaging their participants in telehealth. For example, providing families with tablets, childcare, flexible scheduling, and other types of social support to increase their engagement were components of successful telehealth interventions.^{22,28} Providing families with access to language-concordant care coordination and/or real-time technological support was also critical to many teams. In addition, these strategies highlighted the importance of understanding community- and patient-specific factors to provide tailored solutions to structural barriers.^{29,30} Such initial localized barrier assessments may thus be beneficial to plan and budget for.³¹

In terms of telehealth modalities, although there was evidence in favor of the feasibility of videoconferencing in this population, telephone-based interventions appeared to have better acceptability, with families voicing more reluctance to engage in videoconferencing services.²⁷ Although the COVID-19 pandemic may have changed families' preferences around video-based interventions, the preference for telephone-based interventions in our pediatric study population is consistent with previously published adult literature, in which patients with LEP were found to be less likely to use video visits.³² Immigrant families are more likely to have lower socioeconomic status, which may be associated with increased barriers to Internet access, privacy concerns, discomfort with displaying living conditions, or lower digital literacy. Separately, immigrant families may also have

privacy concerns associated with videoconferencing if their family contains individuals of mixed documentation status.^{33,34}

Prior telehealth studies conducted in adult populations mostly focused on mental and behavioral health.³⁵ We identified the same pattern in telehealth studies targeted at pediatric patients living in families with LEP. Specifically, we found that CBT and treatment support for substance abuse had good outcomes when delivered by telehealth. With regard to medical care, the literature was particularly scarce, except for one study documenting lower infection rates among children in families with LEP on home parenteral nutrition followed by telehealth.²¹ In this study, however, there appeared to be higher hospital readmission rates associated with the use of telehealth, which may be an important balancing measure to study in future telehealth research. In line with our findings, a study done in 2014 showed that children living in rural communities at far distances from subspecialists had an increased likelihood of telemedicine use. However, use overall was low in this study, especially among Hispanic children,³⁶ which highlights the potential for subspecialty-related telehealth disparities.

LIMITATIONS

There are several limitations to our study. First, the papers we found examining telehealth delivery to children in families with LEP reported on health outcomes achieved in a research setting. Health outcomes may differ when telehealth is delivered to this community outside of the context of research funding and infrastructure. Secondly, we only studied US-based studies and thus our findings may not be generalizable to other countries that also face similar challenges with respect to telehealth delivery when providers and patients are not language concordant. In addition, we acknowledge that as a deficit-based term, LEP is slowly being replaced in the literature by the term "LOE," indicating a person's preference for a language other than English. As our search strategy used the term LEP, we may have missed studies using the phrase LOE not caught by other search terms. Finally, since we studied only synchronous telehealth delivery, our study's findings are not generalizable to all types of virtual health care interventions, such as video store-and-forward, web portals, mobile applications, etc. Nevertheless, our study represents one of the only comprehensive reviews of telehealth delivery in a patient population that is understudied yet at risk of poor health care access and health outcomes.

FUTURE DIRECTIONS

Specifically addressing the needs of pediatric populations with LEP in their use of telehealth is a critical component of equitable care delivery. Given the limited literature, we aimed to translate research teams' experiences into strategies that may assist clinicians interested in optimizing

Table 2. Recommendations for Clinical Practice and Future Research Based on the Evidence

Implementation Challenges Identified	Strategies for Health Care Systems to Consider
Families were unsure how to connect	Families require education about how to navigate telehealth appointments. Information should be made available in multiple languages, and telehealth platforms made available in multiple languages (eg, sign-on instructions and navigation labels). Demonstration of how to connect can be done during in-person visits.
Some families preferred in-person technological support	Barriers and reluctance to participate in telehealth should be explored with families when appropriate, and barriers addressed. Ultimately, family preferences for in-person versus telehealth care should be respected.
Some families were unfamiliar with telehealth	Raise community awareness in multiple languages. Additional assurances about patient privacy, legality of telehealth practice, and insurance payment for telehealth should be provided.
Connectivity, device, and Internet access can be impediments to telehealth participation	Devices and Internet connection should be made available to promote telehealth participation, or resources deployed to increase equity of telehealth access.
Some barriers to telehealth were specific to a local community	Interventions should be tailored to the community and include community stakeholders in their development. Consider flexibility in timing when scheduling telehealth visits. Pilot studies are needed when conducting research with vulnerable communities.
Research Gaps Identified	Recommendations
Studies lacked description and standardized measures of caregiver language proficiency and health literacy	When studying telehealth interventions in languages other than English, caregiver language proficiency and health literacy should be explored to better characterize and compare populations.
Impact of telehealth delivery for common pediatric medical conditions, including assessment of quality of care	Conduct cohort or case-control studies comparing telehealth versus in-person care delivery for outcomes for the most common medical conditions that affect children, such as viral infections, asthma, or diabetes. Include quality metrics as primary or secondary outcomes.
Studies lacked descriptions of interpretation modalities via videoconference	Studies including participants with limited English proficiency should describe in detail the method used for communication. This will allow for reproducibility and to identify additional barriers and gaps.
Studies did not comment on the qualifications of bilingual team members and/or methods to ensure research team language proficiency.	Future studies should be explicit about team member and clinician language certification. All bilingual team members delivering telehealth care in languages other than English should report results of language-proficiency tests and qualifications.
Variability in methods for translation of materials, and in ascertainment of the validity and reliability of standardized measures	Studies should abide by best practices in translation of written and verbal materials. Published studies should be explicit about translation methods (eg, translation and back-translation, expert consultation, etc.). Validity and reliability should be reported for any standardized tools. If this information is unknown, that should be reported.
Studies were mostly limited to Spanish-speaking participants	Future research should study populations who speak languages other than English and Spanish. Additional research should evaluate variation in telehealth delivery and use of interpreters as well as the outcomes for diverse languages.

telehealth for this patient population (Table 2). These represent strategies that were undertaken by research teams to mitigate implementation challenges as they studied telehealth delivery among families with LEP, but which may also be helpful to clinicians and health care systems. For instance, health care teams could consider community needs assessments of their local patient populations, patient education around telehealth, and providing technological support.

Table 2 offers recommendations for future research teams to consider as they design, implement, and report research specifically on pediatric telehealth for families with LEP, a population with unique needs and vulnerabilities. For instance, our review showed substantial variation in how each study identified parents and pediatric patients with LEP. The approaches used are not always equivalent measures, for example, objectively evaluating English proficiency versus relying on surrogates (ie, preferred language, language spoken at home, and/or comfort with English).³⁷ Furthermore, these screening questions are subject to social desirability bias as families may underreport their need for interpretation in order to avoid stigma.³⁸ Thus, studies may have underestimated the prevalence of LEP among participants. In addition, the variability we found in how LEP is ascertained indicates the need to acknowledge that language proficiency is not the same as language preference, and that these two issues may not impact telehealth delivery in the same way.

Importantly, there is a lack of evidence for the relationship between telehealth and many pediatric conditions that may be well suited to virtual visits, such as follow-up of chronic medical conditions or medication refills. Additional data related to the quality of virtual care delivered will also be important to support the continued use of and reimbursement for telehealth. For instance, quality metrics could include the fidelity of interpretation provided to families with LEP via telehealth or families' understanding of treatment plans. None of the studies that met our inclusion criteria measured the quality of language interpretation, language proficiency of study team members or clinicians, or provided information on the validity of translated study surveys. This is important given existing literature that formal interpreting services are used haphazardly and that providers overestimate their own language ability.^{39,40} In addition, more research is needed on the telehealth experience among families preferring languages other than Spanish.

CONCLUSIONS

Currently, most telehealth guidelines are based on studies conducted among English-speaking families. Our review found that the use of telehealth services for pediatric patients living in families with LEP remains understudied. The limited existing evidence, however, suggests that telehealth is feasible, acceptable, and may be effective, in certain cases, for the provision of pediatric care among

families with LEP, especially when local community-specific barriers are queried and addressed.

DECLARATION OF COMPETING INTEREST

The authors have no conflicts of interest to disclose.

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APPENDIX A. SUPPORTING INFORMATION

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.acap.2023.06.025](https://doi.org/10.1016/j.acap.2023.06.025).

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