Standardized Assessment via Telehealth in Speech Language Pathology: A Scoping Review

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Context: Telehealth has been used as an adjunct to traditional face-to-face Speech-Language Pathology (SLP) practice for quite some time. In March 2020, the COVID-19 pandemic forced a halt in much of SLP practice, followed by an uptake of telehealth. Practice via telehealth helped stop the spread of the virus, protected vulnerable populations, and enforced physical distancing. While this rapid change in practice posed many challenges, one of the main barriers that SLP practice faced was assessment of communication disorders.

Research Question: What is currently known about the application of standardized, norm referenced tests in SLP telehealth assessments?

Methodology: A scoping review using PRISMA identified 26 research papers between 1999 and 2019 that targeted SLP assessment of clients who were children (n=13), and adults (n=13).

Results:
- For both children and adult clients the feasibility of conducting assessments via telehealth is increased when a facilitator accompanies the client.
- Key considerations with regards to equipment and technology include the use of consumer grade equipment, control of the webcam by SLP, good lighting, use of virtual pointing, and high capacity internet bandwidth.
- Children's parents and adult clients reported high levels of satisfaction and comfort when participating in telehealth assessments.
- SLP assessment via telehealth has been found to be more robust with children over the age of 6 years, and for receptive language and vocabulary assessment.

Discussion: Although telehealth in SLP practice has been present in our profession for more than 20 years, research has not been well developed. We only identified 26 studies between 1999 and 2019 for the present review. We anticipate a large increase in the number of peer-reviewed studies in the near future, as telehealth has become an essential part of SLP clinical practice.

Context

Telehealth (also frequently referred to as telemedicine and telerehabilitation) has been used as an adjunct to traditional face-to-face Speech-Language Pathology (SLP) practice for quite some time. Often used in areas that are underserved or remote, it has been an option for clinicians to use if and when it suits their practice and their clients. In March 2020, the COVID-19 pandemic forced a halt in much of SLP practice, followed by an uptake of telehealth. Practice via telehealth helped stop the spread of the virus, protected vulnerable populations, and enforced physical distancing.

While this rapid change in practice posed many challenges, one of the main barriers that SLP practice faced was assessment of communication disorders. Standardized assessments are used often in the field: for pediatric clients, the assessment of receptive and/or expressive language and speech abilities; for adult clients the assessments of motor speech production, voice and vocal health, and acquired language impairments. Most standardized assessments are normed on children or adults who are assessed using strict protocols in face-to-face scenarios. The rapid shift to telehealth has brought into question the validity of the administration of a standardized assessment over an electronic platform (such as a video conference).

Research question

The current research question is: What is currently known about the application of standardized, norm referenced tests in SLP telehealth assessments, particularly when those tests have been normed for in-person administration only?

Method

This review aimed to identify peer-reviewed literature that addressed SLP assessment tools and practices in telehealth. A series of searches were carried out and additional searches were performed by hand-searching reference lists of papers which were reviews of the topic. SLP research in telehealth falls into the following main categories: pediatric treatment, pediatric assessment, adult treatment, adult assessment, dysphagia, audiology, and non-experimental studies. The current literature search focused on the categories of pediatric assessment and adult assessment.

Search Strategy

A systematic literature search identified studies that considered the telehealth assessment of adults and pediatrics by SLPs (Appendix A). A total of 25 search terms relating to Speech Language Pathology, assessment, and telehealth were used (see Appendix B for search terms). Seven electronic databases were searched: EBSCO Discovery Service, Ovid Medline, Medline Web of Science, CINAHL Plus, EMBase, PsycInfo and Clinical Key.

Inclusion Criteria

To be included in the review, studies met the following criteria: assessment of speech, language or motor abilities of children or adults by SLPs using telehealth. Studies with treatment were only included if assessment was completed through telehealth. We reviewed all abstracts

using the inclusion and exclusion criteria described above and also read the full text of the article when necessary to determine whether it should be included.

Search Results

Figure 1 depicts the PRISMA search process. The initial search provided approximately 280 articles. Each title and abstract was reviewed, with approximately 19 meeting the inclusion criteria to be reviewed as full text. Of these, 4 were rejected and 15 met the inclusion criteria.
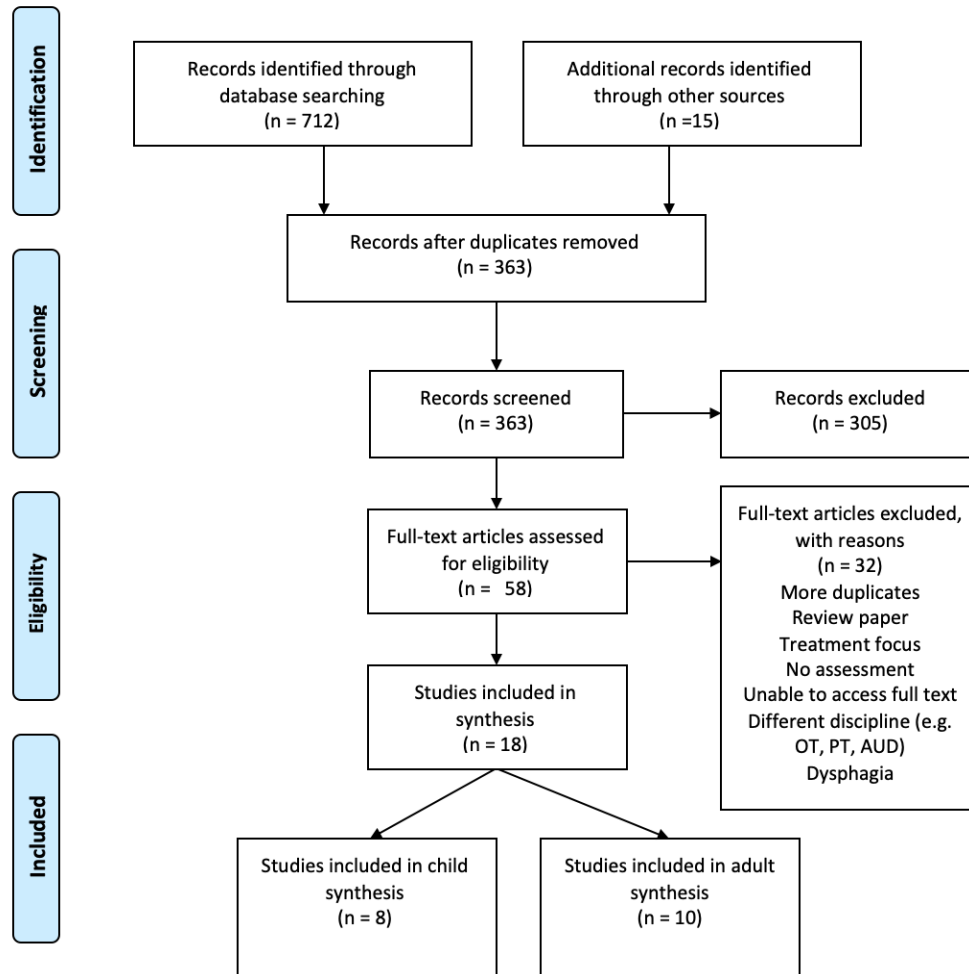
Figure 1. Search 1 PRISMA Process.
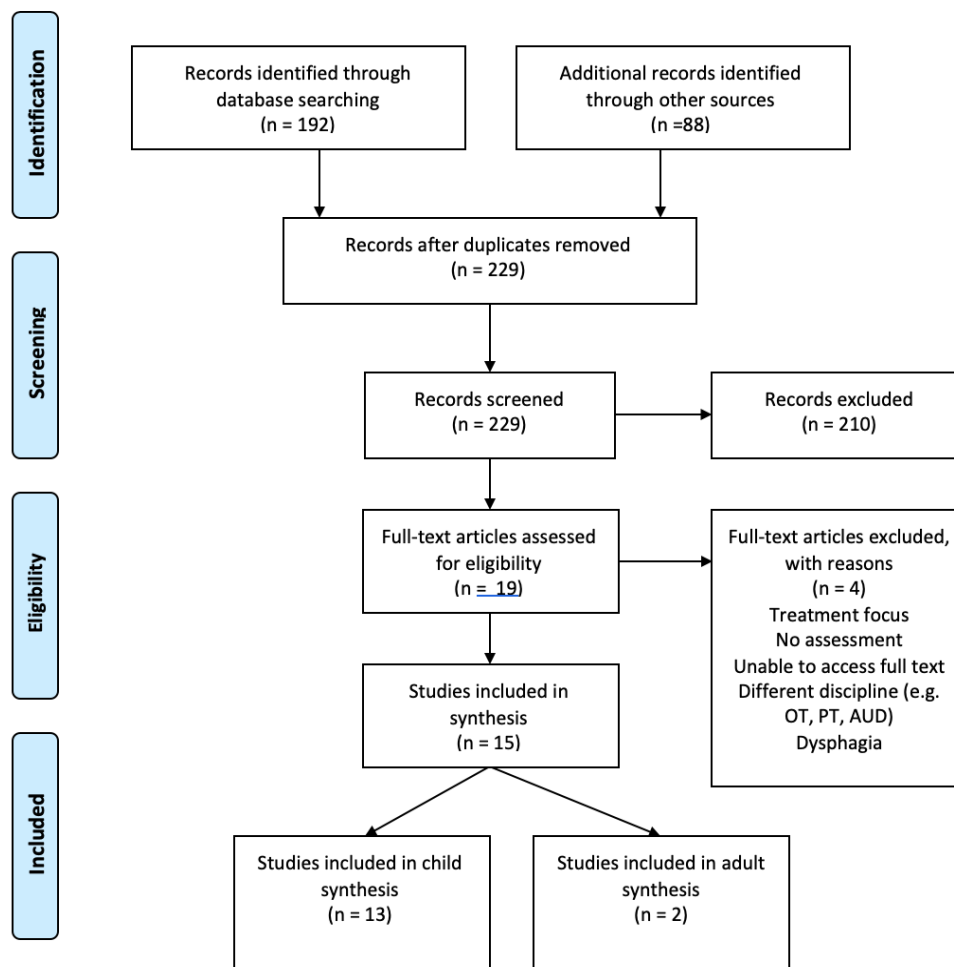
Following this first search, we noted that there was a lack of adult assessment focused papers.

A second search was completed by a second team member with additional terms to capture the adult papers (Figure 2). This search provided 936 articles, for 363 the title and abstract were reviewed and 58 were reviewed as full text. Of these, 32 were rejected, and 18 met the inclusion criteria.

Figure 2. Search 2 PRISMA process.

Identification

Records identified through database searching (n = 712)	Additional records identified through other sources (n =15)

Screening

Records after duplicates removed (n = 363)

Records screened (n = 363) → Records excluded (n = 305)

Eligibility

Full-text articles assessed for eligibility (n = 58) → Full-text articles excluded, with reasons (n = 32) More duplicates, Review paper, Treatment focus, No assessment, Unable to access full text, Different discipline (e.g. OT, PT, AUD), Dysphagia

Included

Studies included in synthesis (n = 18)

Studies included in child synthesis (n = 8)	Studies included in adult synthesis (n = 10)

The search results of both searches were cross-checked, and duplicates removed. In total, 26 articles were selected to be reviewed and summarized in the scoping process.

Themes of Telehealth Assessment

Overall, the 26 articles concluded that telehealth assessment did not produce a significant difference in standard scores on standardized assessments. In many cases, the papers used a dual-assessment model, where there were two clinicians - one in person and one over telehealth. Depending on the condition, one clinician would lead and score the assessment (in person or over telehealth), and the other would only score. From these papers, four common themes recurred which will be further examined. These were: feasibility, equipment, parent satisfaction/comfort, and *focus of assessment*.

Feasibility

In **pediatric literature**, in terms of feasibility, the researchers (Waite et al., 2012) stated that telehealth assessment has the greatest potential for children 6;0 and older. One of the reasons for this age is the suggestion that children do not have the motor abilities to utilize the necessary equipment. However, researchers Haaf et al. (1999), found no significant differences

between standard pointing and trackball and/or automated scanning. They proposed that the motor abilities to use a computerized method do not affect performance. Another reason for the 6;0 cutoff proposed by Waite et al, is the child's ability to interact over a video platform. This was expanded upon by Raman et al (2019), who stated that a child's disposition also plays a role. They stated that a child who is shy by nature will likely be reluctant to seek clarification, especially over a video platform, and therefore having an in-person trained facilitator is important. Finally, these same researchers stated that motivation, attention, and concentration are more difficult for children to harness during telehealth assessment.

In **adult literature**, there was not such a clear cut exclusion criteria for appropriate candidates for telehealth. In many cases, however, having a facilitator (e.g., family member or spouse), was thought to be helpful for using the equipment. Other researchers mentioned how some adults had difficulty using iPads because they were touching the screen too fast or too often (Choi et al, 2015). This kind of technology barrier could be easily mitigated with proper instruction and demonstration. Ultimately, as long as the individual was comfortable to some extent using technology, assessment over telehealth is viable.

In summary, for both children and adult clients the feasibility of conducting assessments via telehealth is increased when a facilitator accompanies the client.

Equipment

The next common theme to come out of this scoping review was equipment, both access to and types of equipment. Researchers in many studies utilized consumer grade equipment, so as to ensure that these types of assessments could still work effectively using regular webcams/computers/microphones. A point that was made numerous times in both adult and child literature was that a webcam controlled remotely by the SLP was beneficial, in order to make sure they could actually see what they were looking for (Waite et al., 2010, Hill et al, 2009). Control of a webcam was especially important in motor speech and articulation assessment. Appropriate lighting was also a factor in these assessments so that the SLP had an adequate view of the mouth and oral structures (Hill et al., 2009). Additionally, researchers used different methods of virtual pointing, but common types were having a highlighted pointer on the screen so that the SLP could see where the mouse went to on a shared screen, or a touch screen so they could see where the person actually pushed (and this also more so mirrored real life pointing). Finally, the biggest issue within equipment had to do with bandwidth and internet capabilities. In most studies, 1-2 participant assessments experienced some sort of audio or visual lag, or difficulties with internet bandwidth. Researchers tried to mitigate this by upgrading internet capacity, or choosing times when there was little internet traffic. Ultimately, having lag or audio/visual troubles with videoconferencing is inevitable, which can pose problems for the standardization of assessments.

In summary, key considerations with regards to equipment include the use of consumer grade equipment, control of the webcam by SLP, good lighting, use of virtual pointing, and high capacity internet bandwidth.

Satisfaction

Client/parent satisfaction and comfort was another theme that was addressed by many of the studies. In these, clients and parents reported high levels of satisfaction and comfort with

assessment occurring over video platforms. For pediatric literature, an important caveat is that in these studies, the parents were not the main facilitators on their child's end, as there was always another researcher or clinician present. If the parents had been in charge of the facilitation and set up of the technology on their end, their responses may have differed.

In summary, children's parents and adult clients reported high levels of satisfaction and comfort when participating in telehealth assessments, but these were typically facilitated by a second SLP or trained professional with the client.

Focus of assessment

In **pediatric literature**, when the assessment required the individual to simply name or point to objects/pictures, this method was perfectly adequate (Eriks-Brophy et al., 2008). The areas where assessment became more difficult occurred in articulation assessment. For the most part, clinicians were able to understand and score accurately whether a response was correct vs. incorrect, but they had difficulty determining in what specific ways a response was incorrect. This made it difficult for an SLP to understand in what exact ways a child's speech is erroneous (in terms of speech sound patterning, distortions, and substitutions). Certain sounds were particularly difficult for clinicians to assess over telehealth, such as unvoiced phonemes, consonant clusters, and fricatives. For the same reasons, assessment subtests which required longer answers (such as Sentence Repetition in the CELF-P2), were difficult for clinicians to score over telehealth.

In **adult literature**, perceptual assessment was often used. It was noted that there was no clinical difference between perceptual assessment done in person versus over telehealth. However, standardized subtests such as "Repetition" from the BDAE and Auditory-Verbal Comprehension subtests were very variable in terms of scoring done in person or online. Those with severe apraxia were also reportedly more difficult to assess, and researchers state that their assessment may be optimal for face-to-face settings (Hill et al, 2009).

In summary, SLP assessment via telehealth has been found to be more robust for receptive language and vocabulary assessment.

Theme	Key Points
Feasibility	○ Age - >6;0 ○ Familiarity with technology ○ Motor skills may impact performance ○ Child's disposition (shy child may not seek clarification)
Technological Equipment	○ Internet capabilities/bandwidth resulting in audio/visual lag is a common complaint ○ Dual webcam or webcam controlled by the SLP ○ Consumer grade technology ○ Method of viewing child's responses (highlighted pointer or touch screen)

Satisfaction and Comfort	○ High degree of comfort and satisfaction
Focus of assessment	○ Difficult to assess articulation (especially unvoiced phonemes, clusters, fricatives) ○ Difficult to assess repetition and auditory-verbal comprehension

Conclusion

Although telehealth in SLP practice has been present in our profession for more than 20 years, research has not been well developed. We only identified 26 studies between 1999 and 2019 for the present review. We anticipate a large increase in the number of peer-reviewed studies in the near future, as telehealth has become an essential part of SLP clinical practice.

For both child and adult clients, research indicates that SLP assessment over telehealth is a viable option. Scoring of tests did not seem to differ significantly between face-to-face administration and telehealth administration. Important technological factors for implementation include the types of equipment used on both sides, and internet bandwidth and capabilities. It is important to note that the technological improvements in hardware, software, and internet capabilities over the past 20 years have also increased the feasibility of telehealth. Additionally, it is vital for clinicians to have an understanding of copyright allowances for online administration from the publisher of each test that they use. At the moment, telehealth assessment seems most beneficial for children who are older than 6 years who do not demonstrate significant speech sound disorders or delays, and for adults who are somewhat familiar with technology and do not exhibit severe apraxia. More research needs to be done to examine the feasibility of assessment tasks, in the different age ranges, and to better understand how to make speech sound assessments more viable.

References

References marked with an asterisk (*) indicate studies included in the review. The in-text citations to studies selected for the review are not preceded by asterisks.

Alt, Mary & Moreno, Melanie Humphrey. (2012). The effect of test presentation on children with autism spectrum disorders and neurotypical peers. *Language, Speech, and Hearing Services in Schools*, 43, 121-131. https://doi.org/10.1044/0161-1461%282011/10-0092%29

Choi, Y-H., Park, H. K., Ahn, K., Son, Y., Paik, N-J. (2015). A Telescreening Tool to Detect Aphasia in Patients with Stroke. *Telemedicine And E-health*, 21 (9) DOI: 10.1089/tmj.2014.0207

Ciccia, A. H., Whitford, B., Krumm, M., & McNeal, K. (2011). Improving the access of young urban children to speech, language and hearing screening via telehealth. *Journal of Telemedicine and Telecare*, 17(5), 240–244. https://doi.org/10.1258/jtt.2011.100810

Constantinescu, G., Theodoros, D., Russell, T., Ward, E., Wilson, S. & Wootton, R. (2010). Assessing disordered speech and voice in Parkinson's disease : A telerehabiliation application. *International Journal of Language & Communication Disorders*, 45(6), 630-644.

Dekhtyar, M., Braun, E. J., Billot, A., Foo, L., & Kiran, S. (2020). Videoconference Administration of the Western Aphasia Battery-Revised: Feasibility and Validity. *American Journal of Speech-Language Pathology*, 1–15. https://doi-org.login.ezproxy.library.ualberta.ca/10.1044/2019_AJSLP-19-00023

Eriks-Brophy, A., Quittenbaum, J., Anderson, D., & Nelson, T. (2008). Part of the problem or part of the solution? Communication assessments of Aboriginal children residing in remote communities using videoconferencing. *Indigenous and Colonial Languages: Implications for Speech-Language Pathology Research and Practice*, 22(8), 589–609.

Guo, Y. E., Togher, L., Power, E., Hutomo, E., Yang, Y.-F., Tay, A., Yen, S.-C., & Koh, G. C.-H. (2017). Assessment of Aphasia Across the International Classification of Functioning, Disability and Health Using an iPad-Based Application. *Telemedicine & E-Health*, 23(4), 313–326. https://doi-org.login.ezproxy.library.ualberta.ca/10.1089/tmj.2016.0072

Haaf R, Duncan B, Skarakis-Doyle E, Cawer M, & Kapitan P. (1999). Computer-based language assessment software: the effects of presentation and response format. *Language, Speech & Hearing Services in Schools*, 30(1), 68–74.

Hill, A. J., Theodoros, D. G., Russell, T. G., Cahill, L. M., Ward, E. C., & Clark, K. M. (2006). An internet-based telerehabilitation system for the assessment of motor speech disorders: a pilot study. *American Journal of Speech-Language Pathology*, *15*, 45+.

Hill, A. J., Theodoros, D., Russell, T., & Ward, E. (2009). Using telerehabilitation to assess apraxia of speech in adults. *International journal of language & communication disorders*, *44*(5), 731–747. https://doi.org/10.1080/13682820802350537

Hill, A. J., Theodoros, D. G., Russell, T. G., Ward, E. C., & Wootton, R. (2009). The effects of aphasia severity on the ability to assess language disorders via telerehabilitation. *Aphasiology*, *23*(5), 627–642. doi: 10.1080/02687030801909659

Hill, A. J., Theodoros, D. G., Russell, T. G., & Ward, E. C. (2009). The redesign and re-evaluation of an internet-based telerehabilitation system for the assessment of dysarthria in adults. *Telemedicine journal and e-health : the official journal of the American Telemedicine Association*, *15*(9), 840–850. https://doi.org/10.1089/tmj.2009.0015

Hodge, M. A., Sutherland, R., Jeng, K., Bale, G., Batta, P., Cambridge, A., Detheridge, J., Drevensek, S., Edwards, L., Everett, M., Ganesalingam, C., Geier, P., Kass, C., Mathieson, S., McCabe, M., Micallef, K., Molomby, K., Pfeiffer, S., Pope, S., … Silove, N. (2019). Literacy Assessment Via Telepractice Is Comparable to Face-to-Face Assessment in Children with Reading Difficulties Living in Rural Australia. *Telemedicine Journal and E-Health*: *The Official Journal of the American Telemedicine Association*, 25(4), 279–287. https://doi-org.login.ezproxy.library.ualberta.ca/10.1089/tmj.2018.0049

Jessiman S. Speech and language services using telehealth technology in remote and underserved areas. *J Speech Lang Pathol Audiol* 2003;27:45–51

Marble-Flint, K. J., Strattman, K. H., & Schommer-Aikins, M. A. (2019). Comparing iPad® and Paper Assessments for Children with ASD: An Initial Study. *Communication Disorders Quarterly*, 40(3), 152–155.

Palsbo S. E. (2007). Equivalence of functional communication assessment in speech pathology using videoconferencing. *Journal of telemedicine and telecare*, *13*(1), 40–43. https://doi.org/10.1258/135763307779701121

Raman, N., Nagarajan, R., Venkatesh, L., Monica, D. S., Ramkumar, V., & Krumm, M. (2019). School-based language screening among primary school children using telepractice: A feasibility study from India. *International Journal of Speech-Language Pathology*, 21(4), 425–434. https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/17549507.2018.1493142

Sutherland, R., Trembath, D., Hodge, A., Drevensek, S., Lee, S., Silove, N., & Roberts, J. (2017). Telehealth language assessments using consumer grade equipment in rural and urban settings: Feasible, reliable and well tolerated. *Journal of Telemedicine & Telecare*, 23(1), 106–115. https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/1357633X15623921

Sutherland, R., Hodge, A., Trembath, D., Drevensek, S., & Roberts, J. (2016). Overcoming Barriers to Using Telehealth for Standardized Language Assessments. *Perspectives of the ASHA Special Interest Groups*, 1(18), 41–50. https://doi-org.login.ezproxy.library.ualberta.ca/10.1044/persp1.SIG18.41

Turkstra, L. S., Quinn-Padron, M., Johnson, J. E., Workinger, M. S., & Antoniotti, N. (2012). In-person versus telehealth assessment of discourse ability in adults with traumatic brain injury. *The Journal of Head Trauma Rehabilitation*, *27*(6), 424–432. https://doi.org/10.1097/HTR.0b013e31823346fc

Waite, M. C., Theodoros, D. G., Russell, T. G., & Cahill, L. M. (2010). Assessment of children's literacy via an Internet-based telehealth system. *Telemedicine Journal and E-Health: The Official Journal of the American Telemedicine Association*, 16(5), 564–575. https://doi-org.login.ezproxy.library.ualberta.ca/10.1089/tmj.2009.0161

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Waite, M. C., Theodoros, D. G., Russell, T. G., & Cahill, L. M. (2010). Internet-Based Telehealth
Assessment of Language Using the CELF-4. *Language, Speech & Hearing Services in
Schools*, 41(4), 445–458. https://doi-org.login.ezproxy.library.ualberta.ca/10.1044/0161-
1461(2009/08-0131)

Waite, M. C., Theodoros, D. G., Russell, T. G., & Cahill, L. M. (2012). Assessing children's
speech intelligibility and oral structures, and functions via an Internet-based telehealth
system. J*ournal of Telemedicine & Telecare*, 18(4), 198–203.

Appendix A

Search Strategy

Ideas:
1. A scoping review identifying research that addresses the SLP assessment tools and practices in telehealth, with particular emphasis on standardized assessments that were not normed for the telehealth context.

Research Question: What is currently known about application of standardized, norm-referenced tests in telehealth assessments, particularly when those tests have been normed for in-person administration only?

Population	*How would you describe a group of patients similar to mine? (condition, age, gender, etc.)*	Pediatrics Adults People with dysphagia
Intervention	*What main/new intervention is being considered?*	Ax through telehealth
Comparison	*What is the alternative to compare with the placebo?*	Ax in person
Outcome	*What is hoped to be accomplished, measured, improved or affected?*	Differences, strengths, challenges of ax in each way
Study Design	*What study design will provide the best level of evidence for the research question?*	Scoping review

Appendix B: Search Terms

Concept 1	Concept 2	Concept 3
Speech-Language Pathologist (s) Speech Language Therapist (s) Speech Language Pathology Speech Therapy Language Therapy Speech Pathology SLP SLT	Telehealth Telerehab(ilitation) Telepractice Telemedicine Teletherapy telecare videoconference	Assessment (s) evaluation(s) Measure (s) Outcome (s) tool(s) Test / testing / tests Administration Standardized test/ing Standardized assessment Standardized administration

Appendix C: Search 1

Search #	Terms Used	Database?	Adjustments	Date	Yield	Link	Broad Categorizations:
1	telehealth or telepractice AND standardized tests AND administration	EBSCO	change 'standardized tests' to assessment, add in SLP	April 29	28 w/o duplicates)	Search 1	Child Ax: 2 Child Tx: 0 Adult Ax: 1 Adult Tx: 0 Dysphagia: 0 Audiology: 0 Irrelevant field: 19 Not experimental: 2 (4 duplicate results reamining)
2	telehealth or telepractice AND assessment AND administration AND speech therapy or speech pathology or speech language pathology	EBSCO	add in 'standardized'	30/04/ 2020, May 2	32 w/o duplicates	Search 2	Child Ax: 2 Child Tx: 3 Adult Ax: 2 (+1 non std) Adult Tx: 2 Dysphagia/Cleft Pal: 1 Audiology: 6 Irrelevant field: 4 Not experimental: 6 (4 duplicate results reamining)
3	telehealth or telepractice AND standardized assessment AND speech therapy or speech pathology or speech language pathology	EBSCO	remove administration add 'standardized' assessment	May 2	17 w/o dupes	Search 3	Child Ax: 4 Child Tx: 3 Adult Ax: 1 Adult Tx: 2 Dysphagia/Cleft Pal: 1 Audiology: 1 Irrelevant field: 2 Not experimental: 3

4	telehealth or telepractice AND speech therapy or speech pathology or speech language pathology AND testing and assessment	EBSCO		May 4	39 w/o dupes	Search 4	Child Ax: 2 Child Tx: 2 Adult Ax: 2 Adult Tx: 2 Dysphagia: 6 Audiology: 16 Irrelevant field: 5 Not experimental: 2
5	**Reference list of** "Waite et al 2010"	reference list					Avoided adult, and non experimental, and non-Ax
6	**Reference list of:** Reynolds AL, Vick JL, & Haak NJ. (2009). Telehealth applications in speech-language pathology: a modified narrative review. Journal of Telemedicine & Telecare, 15(6), 310–316. https://doi-org.login.ezproxy.library.ualberta.ca/10.1258/jtt.2009.081215	reference list					
7	**Reference List of:** Regina Molini-Avejonas, D., Rondon-Melo, S., de La Higuera Amato, C. A., Samelli, A. G., Molini-Avejonas, D. R., & Amato, C. A. de L. H. (2015). A systematic review of the use of telehealth in speech, language and hearing	reference list					

	sciences. Journal of Telemedicine & Telecare, 21(7), 367–376. https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/1357633X15583215						
8	"speech language pathology" in Journal of Telemedicine and Telecare	journal of telehealth and telemedicine		May 8	83	Search 8	Child Ax: 6 Child Tx: 3 Adult Ax: 2 Adult Tx: 2 Dysphagia: 3 Audiology: 14 Irrelevant field: 51 Not experimental: 12
9	**Reference List of:** Brennan, D. M., & Barker, L. M. (2008). Human factors in the development and implementation of telerehabilitation systems. Journal of Telemedicine and Telecare, 14(2), 55–58. https://doi.org/10.1258/jtt.2007.007040	reference list		0 - none directly applicable			
10	**Reference List of:** Taylor, O. D., Armfield, N. R., Dodrill, P., & Smith, A. C. (2014). A review of the efficacy and effectiveness of using telehealth for	reference list		4 already covered 4 articles dont meet criteria			

	paediatric speech and language assessment. Journal of Telemedicine and Telecare, 20(7), 405–412. https://doi.org/10.11 77/1357633X145523 88					
11	**Reference List of:** Campbell, J., Theodoros, D., Hartley, N., Russell, T., & Gillespie, N. (2019). Implementation factors are neglected in research investigating telehealth delivery of allied health services to rural children: A scoping review. Journal of Telemedicine and Telecare. https://doi.org/10.11 77/1357633X198564 72	referenc e list				
12	((telehealth or telepractice) and (speech therapy or speech language pathology or speech pathology) and (testing and assessment)).af.	PsycInfo		May 15	59		Other Discipline/Not Telehealth: 27 Not experimental: 8 Audiology: 12 Adult tx: 3 child tx: 2 dysphagia: 1 adult ax: 2 child ax: 3 - all already summarized

13	((telehealth or telepractice) and (speech therapy or speech language pathology or speech pathology) and (testing and assessment)).af.	Medline		May 19	5		Dysphagia: 2 Audiology: 2 Adult ax: 1
14	((telehealth or telepractice) and (speech therapy or speech language pathology or speech pathology) and (testing and assessment)).af.	CINAHL Plus with full text		May 19	2		Dysphagia: 1 Peds Ax - 1 (already done)
15	((telehealth or telepractice) and (speech therapy or speech language pathology or speech pathology) and (testing and assessment)).af.	EMbase		May 19	3		Dysphagia: 2 Adult tx: 1
16	((telehealth or telepractice) and (speech therapy or speech language pathology or speech pathology) and (testing and assessment)).af.	Clinical Key		May 19	3		Dysphagia/Voice: 1 child tx: 1 Adult ax: 1

Link to data in Google Docs:
https://docs.google.com/spreadsheets/d/1L67d2yrl--Cb1iPOx4IDzrF28Pfih_nShZv3IzmOeQQ/edit?usp=sharing

Appendix D: Search 2

Link to Google Doc:
https://docs.google.com/spreadsheets/d/1RVRFq5_PwTiLhUcO1NTuN_Yyi_-YIjMB9wDhz_mjyNw/edit#gid=1352442222