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The Use of and Readiness for Speech-Language Telepractice in Medical Settings of Rural Areas of Nevada

Corinne Balliette

Western Kentucky University, corinne.balliette506@topper.wku.edu

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THE USE OF AND READINESS FOR SPEECH-LANGUAGE TELEPRACTICE IN
MEDICAL SETTINGS OF RURAL AREAS OF NEVADA

A Thesis
Presented to
The Faculty of the Department of Communication Sciences and Disorders
Western Kentucky University
Bowling Green, KY

In Partial Fulfillment
Of the Requirements for the Degree
Master of Science

By
Corinne Balliette

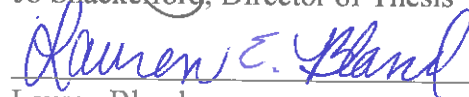
May 2016

THE USE OF AND READINESS FOR SPEECH-LANGUAGE TELEPRACTICE IN
MEDICAL SETTINGS OF RURAL AREAS OF NEVADA

Date Recommended 4/8/2016



Jo Shackelford, Director of Thesis



Lauren Bland



Barbara Brindle



Dean, Graduate School

4/13/16

Date

I dedicate my first research study to my mom. If it weren't for her selflessness, flexibility, or compassion, I would not have been able to complete this semester or let alone a research study.

I also could not have completed this thesis if it weren't for my caring husband. AJ has been ever so patient in my studies over the last year and has been more than supportive by caring for our household, caring for our infant son, and by lending an open-mind to my research ideas.

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THE USE OF AND READINESS FOR SPEECH-LANGUAGE TELEPRACTICE IN RURAL AREAS OF NEVADA MEDICAL SETTINGS

Corinne Balliette

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47 Pages

Directed by: Jo Shackelford, Lauren Bland, and Barbara Brindle

Department of Communication Sciences and Disorders Western Kentucky University

This study was developed to investigate the readiness or willingness of providers, speech-language therapists (SLPs), and patients to participate in telepractice for speech-language therapy services in rural areas of Nevada. Nevada has not ranked high in healthcare for several years and was noted to have low SLP to patient ratios, especially in rural areas of Nevada. A thorough literature review identified international and national studies that have shown resistance to telepractice expressed by patients and providers, but it has also shown an increase in interest post telepractice therapy. Nevada does not have current research on readiness to participate in telepractice medical settings of rural areas of Nevada, therefore a survey was developed to ask providers and patients for their opinions about participating in telepractice. Providers were selected using an online directory search, and patient participants were chosen at the discretion of the providers. A unique survey was presented to each type of participant (provider or patient) in order to compare opinions and readiness of each participant type. Specific questions related to voice and swallowing disorders were addressed. A large sample size was not obtained, but the researcher was able to make some associations to readiness to participate in telepractice and possible factors that may or may not have affected a participant's opinion. Age of participants, type of internet used, availability of webcam, and area of the state did not appear to have an association with the readiness to participate in telepractice. A positive response rate to engaging in telepractice of 40% was noted across patients and providers.

Though the participant sample size was small, there is still some indication that telepractice could be used to address the needs of patients who need speech-language therapy services in rural areas of Nevada.

Introduction

According to the Agency for Healthcare Research and Quality (AHRQ, 2013) healthcare services varied across the United States, with Nevada ranking as one of the 10 worst states in providing healthcare services. This trend has continued since 2008, with a major reason being low healthcare provider to patient ratio (Lyons, 2008). Medical students are leaving Nevada upon completion of their degrees and seeking employment in other states (McAndrew, 2015). This shortage requires families in urban and rural areas to seek providers in cities and states several hundred miles away from home.

Speech-language pathology is one of the medical professions in Nevada experiencing a shortage of providers. Speech-language pathologists are professionals that engage in practice in areas of communication and swallowing across the lifespan (American Speech-Language-Hearing Association [ASHA], 2016a). Communication involves speech production (articulation), fluency, language, cognition, voice, resonance, and hearing. Swallowing includes all aspects of swallowing and feeding behaviors (ASHA, 2016a). There is only one university in the state of Nevada that offers graduate training in speech-language pathology. With only 25 new speech language pathologists graduating each year, Nevada school districts and hospitals face shortages of qualified professionals (University of Nevada, Reno [UNR], 2015). For the 2015/2016 school year, there was a shortage of 84 speech-language pathologists (SLPs), which is up from 69 for the previous school year (Nevada System of Higher Education, [NSHE], 2016). This report does not address the additional shortages that exist in the medical and private sectors statewide.

Nevada's population is 2.8 million with up to 250,000 residents living in rural areas (Suburbanstats, 2015). Though data is not readily available for 2016 on the ratio of SLPs to rural patients in Nevada, ASHA reported there are 23.5 ASHA-certified SLPs per 100,000 people in the state of Nevada (ASHA, 2016b). Other states with similar total state populations of 2.9 million had higher SLP-patient ratios. Arkansas reported numbers as high as 74.2 ASHA-certified SLPs per 100,000 residents, Mississippi had 55.9 ASHA-certified SLPs per 100,000 residents, and Utah had 47.41 ASHA-certified SLPs per 100,000 residents. These 3 states with similar population size to Nevada may represent states with a better model of SLP to patient ratio, whereas Nevada represents a state that has a low SLP to patient ratio. Though ASHA has not defined or recommended SLP to patient ratios for states, the numbers indicate Nevada has a need for more certified therapists when compared to states with similar populations. One result of this low SLP to patient ratio in Nevada could be that rural patients who present with speech-language disorders may not have access to ASHA-certified SLPs.

SLP providers need to have specialized knowledge related to swallowing disorders across the lifespan (ASHA, 2001). Providers who evaluate and treat patients with swallowing and feeding disorders demonstrate an understanding of underlying medical and behavioral etiologies (ASHA, 2001). Similarly, providers who evaluate and treat patients who present with voice disorders need to demonstrate a thorough understanding of the head and neck anatomy and underlying medical and behavioral etiologies of various voice disorders (ASHA, 2005). SLPs may become certified in specific treatment programs to better assist clients who present with voice and/or swallowing disorders.

This study will attempt to determine the readiness of SLPs and patients to participate in telepractice to bridge the gap in the shortage of speech-language services in rural areas of Nevada. The focus of this study will be rural patients of Nevada who present with medical speech-language disorders with a primary focus on voice and swallowing.

Literature Review

To address shortages of speech-language pathologists (SLPs) in rural areas, providers around the world have invited telepractice into their therapy. Telepractice can be defined as an application of telecommunication technology to deliver speech language pathology services to patients at a distance (ASHA, 2015). Telepractice links the speech pathologist to the client/patient for assessment, intervention, and/or consultation related to disorders (ASHA, 2015). Providers must adhere to all responsibilities, Code of Ethics, Scope of Practice, and state and federal laws on speech language pathology practices (Nevada Speech and Hearing Association, [NSHA], 2015). Technologies commonly used include telephone services, videoconferencing, computer-based programs, high definition cameras, calibrated microphone and headsets, DVD recorders, whiteboards, and virtual environments (Karr, 2012). Settings may involve schools, medical centers, rehabilitation/residential centers, community health centers, outpatient clinics, universities, patients' homes, childcare centers, and business settings (ASHA, 2015).

There are a number of reasons SLPs tend not to engage in telepractice. Some barriers relate to the challenge of obtaining equipment and establishing compliance with privacy regulations. Before telepractice equipment can be used for therapy, it must be deemed HIPAA compliant (Fonssagrives, 2013). It is necessary for providers to wade

through a number of time-consuming considerations such as types of platform security, password-protection capabilities, security of server connections, and how to restrict access to files (Jakubowitz, 2014). Additionally, SLPs may find it difficult to locate equipment that can be set up and used easily without it becoming the focus of their therapy sessions (Larney, Parfaniuk, & Suess, 2014).

The need for on site personnel can be another barrier to establishing telepractice services. Staff working on site with the patient need to be trained in therapeutic strategies and use of equipment as the SLP may or may not be available to assist when questions or problems arise regarding hands on techniques (Larney, Parfaniuk, & Suess, 2014). Additionally, therapists may hesitate to make the commitment to telepractice because it is not appropriate for all clients, or because they are not familiar with telepractice therapy techniques (ASHA, 2016c).

A less explored potential barrier to using telepractice is cultural differences. Examples of cultural differences may include body language, religious preferences, age brackets, and gender roles of clients and providers (Billikopf, 1999). Sometimes providers may not be aware of the different uses of gestures or body language in cultures that are different from that of the SLP. Perhaps a provider is not aware of religious holidays that clients do or do not observe and how some clients may take offense to therapy materials containing holidays that they do not celebrate. Clients may also face barriers in bilingualism and not having enough information regarding telepractice potential and the benefits to therapy (Fitton, 2013). In Fitton's study, Spanish-English dual language learners reported uncertainty about telepractice and indicated interest in bilingual language support.

Despite these potential barriers, telepractice could be a positive alternate option for speech-language services because it is not fundamentally different in terms of treatment efficacy over face-to-face services (Larney, Parfiniuk, & Suess, 2014). Finding SLPs and patients ready to engage in telepractice, however, may pose some challenges. The following sections review research articles that examine SLP and patient readiness to use telepractice for speech-language services in their areas.

International Studies

This section reviews international studies examining SLP and patient perspectives on using telepractice to address needs in rural areas. The practice settings included in these studies are clinics and medical centers.

Several SLPs in Australia launched a study in 2010 to compare attitudes of SLPs and patients toward information and communications technology therapy services (ICT) and telespeech-language therapy (Dunkley, Pattie, Wilson, & McAllister, 2010). The SLPs believed that many rural residents would have little to no access to ICT, thus reducing their interest in participating in telespeech-language services. They found that 71% of rural residents had access to a computer and 61% had access to Internet. The majority of the residents expressed willingness to participate in telespeech-language therapy. Though rural residents were willing to participate in trial runs, many SLPs demonstrated resistance likely due to the need to make difficult changes in their current practice. Both SLPs and rural residents acknowledged using ICT might not be effective for every resident, but both believed using telespeech-language services could be beneficial.

Sharma and associates in another study from Australia compared patient perceptions of telepractice pre-assessment and post-assessment of dysphagia only (Sharma, Ward, Burns, Theodoros, & Russell, 2013). Pre-assessment, patients indicated they were open to telepractice, but were not sure if auditory and visual aspects of telepractice could be comparable to traditional assessment. Some patients were especially wary of possible complications with auditory and visual components of telepractice. The authors concluded that ensuring patients are wearing their assistive devices (glasses, hearing aids, etc.) to the telepractice sessions was critical in conducting a successful telepractice session.

After patients filled out the pre-assessment questionnaire, they were called in for the post assessment and were asked to fill out the post-assessment immediately following the session. Researchers found that 10% of patients were more comfortable with telepractice in the post-assessment. Even though 83% of the patients rated telepractice as comparable to traditional assessments and they had adequate time to perform tasks, opportunities to clarify questions, and SLP instructions were clear, 70% felt telepractice could replace traditional assessments and 45% still preferred traditional consultations (Sharma, Ward, Burns, Theodoros, & Russell, 2013). The researchers noted that 55% of those who still preferred traditional assessments were over 70 years of age. This could be indicative that the elderly population is less likely to be interested in participating in newer and different services (Sharma, Ward, Burns, Theodoros, & Russell, 2013).

The studies reviewed in this section were conducted in Australia. These studies indicated a reasonable degree of readiness on the part of patients to engage in telepractice, but revealed there were some areas of resistance or hesitation toward the use

of telepractice. Some concerns included availability of an Internet connection, the reliability of visual and auditory aspects of the equipment, and concerns regarding whether telepractice would be comparable to face-to-face interactions. Though face-to-face contact was still preferred by some patients, many were satisfied with the results of telepractice.

National Studies

This section reviews studies that researched SLP and patient perspectives on telepractice within the United States. The practice settings include a medical clinic and school-based settings.

Several SLPs in the U.S. have conducted telepractice studies in medical settings with positive results. In a North Dakota study, SLPs and patients were asked to take part in a study as North Dakota has limited speech-language providers in rural communities (Houn & Trottier, 2006). The SLPs treated pediatric through geriatric populations with disorders ranging from global developmental delays, speech-language deficits, Autism, voice disorders, cognitive deficits, aphasia, apraxia, dysarthria, dyslexia, and dysphagia. SLPs provided the same documentation for outpatient treatments in telepractice as they would for outpatient treatments in a clinic.

Upon completion of the study, patients were surveyed for feedback on the telepractice sessions. The majority of the patients responded positively to telepractice with reasons including being seen two or three times per week without the expense of food and gas, less time off from work, less time away from family, and reduced hazard risks of winter driving in North Dakota (Houn & Trottier, 2006). The SLPs in this study also responded with positive feedback regarding telepractice. Two major reasons for SLP

satisfaction were being able to treat rural residents and helping young children excel in school with the additional therapy.

A study in 2012 revealed mixed attitudes of SLPs in a northeastern U.S. school district toward telepractice for evaluation and treatment (Tucker, 2012). There were 170 SLP respondents out of 1900 ASHA-certified SLPs. Of 170 respondents, only 10 reported using telepractice in the school, 14 had prior experience with telepractice, and 156 had no prior experience. The disorders treated by the SLPs via telepractice included language disorders, articulation and phonology, fluency, learning disabilities, Autism, and Attention Deficit Disorders. There were disorders that were also noted by the SLPs as not appropriate for telepractice. These included dysphagia, motor speech disorders, articulation and phonology, cognitive disabilities, spectrum disorders, fluency, hearing impairment, psychiatric/emotional disturbance, voice, learning disabilities, children in the birth to three year old age bracket, and children in the preschool age bracket.

In Tucker's study, the majority of the SLPs received training in telepractice before beginning evaluation and treatment sessions (Tucker, 2012). Though training was provided, several SLPs reported needing more data on procedures and guidelines, confidentiality, informed consent, ethical considerations, technology procedures, and student selection criteria. Also, many SLPs indicated negative feelings toward telepractice assessment, establishment of rapport, and effectiveness of telepractice as compared to in-person treatment. When asked to provide reasons to use telepractice, several SLPs noted things such as telepractice should only be used when there is no in-person SLP, and telepractice could be used to guide speech-language assistants. SLPs also provided reasons for not using telepractice such as telepractice has no place in the

paradigm of communicating effectively person-to person, losing benefits of human interaction, and the art of communication can never be replaced with technology (Tucker, 2012). Upon further analysis, it was noted that younger SLPs were typically more eager and ready to engage in telepractice. SLPs with 25 years or more experience were less interested in engaging in this new form of service delivery.

SLPs working for school districts in states like Minnesota and West Virginia noted they could use telepractice to reduce travel time to rural school districts without paying tens of thousands of dollars for equipment (Polovoy, 2008). The study was conducted because rural schools districts in need of speech-language services were too far for the SLPs to drive. To address the shortage of services in rural areas, several SLPs participated in telepractice using a telepractice company LinguaCare Associates, Inc. to compare progress made in face-to-face interactions and telepractice (Polovoy, 2008). Children appeared to be engaged in the telepractice sessions and enjoyed playing on the computer and wearing headphones. The conclusions of this research indicated students enjoyed coming to telepractice therapy and they gained as much progress as their peers in the traditional therapy programs.

One challenge SLPs noted was inability to do group sessions as the video camera could only capture two students at once. Glitches in the software were also noted on occasion. Collaborating with classroom teachers was also a difficulty (Polovoy, 2008).

In 2006, Forducey reported on successes of rural and urban school districts in Oklahoma that have implemented telepractice delivery models since 1999. The group of SLPs using telepractice for speech-language services reported conducting 11,000 telepractice sessions since the launch of their study. Students were reported to be

receptive to the telepractice therapy and were actively accomplishing goals. Several factors that were noted to contribute to the success of the telepractice model included open communication on use of equipment, trouble-shooting equipment, and establishing rapport with clients and families (Forducey, 2006). Prior to implementing a telepractice delivery model, Forducey reported that turnover of qualified providers was six months. Integrating telepractice into this school district led to an increase in student graduation rates from speech-language services and an increase in maintaining qualified SLPs.

These national studies examined attitudes of SLPs and patients toward the use of telepractice. As in the international studies, many providers and patients were satisfied with the outcomes of telepractice. Many were satisfied with the success and ease of using the telepractice equipment, retention of clients and SLPs, student enjoyment of the telepractice equipment, and the ability to add additional sessions without the additional cost of gas. Concerns still existed, and included equipment glitches, challenges in collaborating with other professionals, and the loss of the benefits of in-person human interaction.

National survey study

The following section explores a study conducted nationally on SLPs who conducted telepractice and it further explores the statistics available for the state of Nevada.

In a recent ASHA survey, individuals affiliated with Special Interest Group (SIG) 18 (Telepractice) were asked about telepractice services in their states (ASHA, 2014). Of the 567 surveyed, 483 were practicing SLPs. Fifty-five percent of the total participants reported using telepractice in their service delivery. This percentage is high, but it would

be expected for a group of professionals who had sufficient interest in telepractice to join a professional group dedicated to the topic.

This survey shed some light on the state of telepractice use in Nevada. Only 5 of the 567 participants (1.7%) were residents of Nevada (ASHA, 2014). When asked in which states telepractice was delivered, 9 participants indicated Nevada, Idaho, and Utah. California elicited the highest number of telepractice SLPs at 48, followed by Ohio at 28, and Florida at 21. Montana, North Dakota, and South Dakota elicited 3 or fewer participants. Though there is no legal or ethical issue with providers conducting therapy across state lines, this data indicates an opportunity for more Nevada-licensed providers experienced in telepractice to provide services to Nevada residents.

Licensure to practice telepractice in different states was not listed as a potential barrier. The guidelines and laws pertaining to telepractice licensure could open opportunities for out-of-state providers to address the needs of rural patients across several states. Licensure requirements for telepractice vary for each state, but currently there are only 16 states that regulate telepractice (Frailey, 2014). Providers licensed in only one state (including Nevada) may conduct telehealth services in other states using a limited license (Frailey, 2014). A limited license allows qualified providers to solely conduct telehealth services to patients and clients in other states (Frailey, 2014).

In conclusion, the national survey study explored the use of telepractice in the United States. Less than 2% of the participants indicated they provided telepractice services in Nevada.

Nevada studies

The next section reviews research and literature pertaining to the use of telepractice in rural areas of the state of Nevada.

Currently, no research has occurred on the use and effectiveness of providing speech and language services via telepractice for medical settings in Nevada, though there is some data for rural school districts. To address a shortage of SLPs in rural and urban school districts in Nevada, Kuhles, Verre, & Smerkers-Bass (2014) launched a statewide telepractice delivery model in 2010-2011 with monitoring in 2013-2014. This study focused on challenges faced by practicing SLPs in three areas: human, technological, and organizational. After identifying and implementing ways to overcome barriers in telepractice, Kuhles and associates noted the following results in various school districts: continuous and consistent services, increase in number of students served, reduced costs on transportation of traveling SLPs, and collaboration and education of other SLPs to continue services for students.

This literature review identified no studies examining the use of medical telepractice in speech-language pathology in Nevada. Though there was one study in Nevada related to telepractice in the school setting, there were no studies related to medical offices or private practice SLPs using telepractice in Nevada. Furthermore, there were no studies related to the use of telepractice in rural areas of Nevada.

The literature review has identified several studies related to using telepractice as a means of providing therapy to patients who live in rural areas. Studies were conducted internationally and nationally. More specifically, these studies related to the readiness of providers and patients alike to engage in telepractice to meet the needs of patients who

live in rural areas. The focus of this research study is to determine a need for speech-language services in select rural areas of Nevada and to determine the readiness of licensed medical SLPs in Nevada, referral providers, and patients to engage in, or refer out to, telepractice. The following research questions will be explored in this study:

- 1) How do patients currently view telepractice in rural areas of Nevada?
- 2) How do providers view telepractice in rural areas of Nevada?
- 3) Is there a perceived need for SLP telepractice services among patients and providers in Nevada?

Method

This survey research study was designed to look at readiness of speech-therapy providers and patients to participate in telepractice in order to meet the needs of clients in select rural areas of Nevada.

Measures

In order to collect data from the select rural areas of Nevada, the researcher created a survey packet that could be used by any participant (see appendix A). The survey page count totaled 8 pages. Depending on the role of the participant (patient, SLP, or medical provider) the participants were asked to skip certain sections of the survey and go directly to the page numbers that correlated with questions in conjunction to their role in the survey. Questions were based on single responses, multiple choice, and open-ended responses. SLPs were asked a total of 15 questions, other providers were asked a total of 6 questions, and patients were asked a total of 11 questions.

The survey asked demographic questions related only to age and type of participant (patient, SLP, or medical provider). The purpose of asking for ages of all

participants was to determine if older participants have negative opinions toward using telepractice for therapy. Age-related questions also helped the researcher ensure patients met the minimum age required to participate in the survey. Questions related to interest in learning more about telepractice were asked to determine if a second study could be conducted later on service delivery models.

All participants answered multiple-choice questions about their knowledge and interest related to telepractice, and they had the opportunity to expand upon responses or address concerns in open-ended questions. Benefits and drawbacks (pros and cons) of telepractice were also asked to help the researcher find trends that may influence the readiness to participate in telepractice. The benefits and drawbacks questions were the same for each category of participant.

SLP participants were specifically asked about referrals for voice and swallowing disorders due to the interest of the researcher in finding the need in rural areas for these specific disorders. SLP participants were asked about the range of disorders they were comfortable treating in order for the researcher to determine the need of providers in rural areas who have experience treating medical disorders outside the school district. Questions related to sending out referrals for voice and swallowing and the driving distance to the nearest provider were asked to determine the need for providers in the rural areas.

SLP participants were asked about their years of experience and age ranges of clients they were comfortable treating. The purpose of asking these questions was to help the researcher observe the experience of rural providers with treating adolescents, adults, and geriatric patients as this population is of particular interest to the researcher. SLP

participants were also asked about their knowledge of other SLP providers in the surrounding area that might provide telepractice services. This helped the researcher see if there is a need to set up telepractice in certain areas.

Medical providers were addressed in this survey to help find the need to raise awareness of SLPs in the area and their ability to treat speech-language disorders. The researcher wanted to determine if medical providers were aware of the professional they needed to refer out to when patients make complaints of, or comments of, speech-language and swallowing disorders.

Patient participants were asked about their travel time to see professionals for their speech-language or swallowing disorders in order to help validate the need of telepractice. Patients were also asked about the type of internet they used and if they had access to a webcam as this could indicate another factor as to if they would engage in telepractice for therapy.

Sample

Participants were medical providers at private practices or patients of speech-language services over the age of 18. Providers were selected by using an online directory search. Patients were selected by providers who opted to participate in the survey study.

Providers. Participants in the clinics were speech-language pathologists or medical providers (ENTs, audiologists, medical doctors, registered nurses, medical assistants, occupational therapists, physical therapists, or other providers). Inclusion criteria for providers selected were those who worked for private companies or clinics.

Exclusion criteria for providers were those who worked for large hospitals or corporations.

Patients. Participants were patients of the providers and speech-language pathologists working in private clinics who agreed to participate in the study. Inclusion criteria for patients were those who were over the age of 18 and had been seen for, or were currently being treated for, speech-language disorders. Exclusion criteria were those who were not at least 18 years of age or older and who had not received, or were not currently receiving, speech-language services.

Eleven rural cities were selected based on definition parameters for 'rural'. Rural was defined as a city with a population of less than 20,000 people and at least 30 miles away from the nearest urban city. The state was then divided into 11 areas, with one identified rural city in each area. Dividing the cities into areas of the state helped the researcher visualize where participants are participating.

Procedures

Providers. Speech-language provider and medical provider contact information such as phone number, email, and mailing address were gathered using an online directory search.

Providers were contacted via phone and/or email. Each site was first contacted via phone, then a second phone call as needed, with a third follow up contact via email for those who did not respond to phone contacts. If providers expressed interest, the researcher then asked for the address to send survey packets. The participants were verbally given a timeframe to complete the survey.

Providers interested in participating in the survey were mailed a packet containing a cover sheet that explained the purpose of the study, a consent form, a reminder of the timeframe to complete and return the surveys, and 20 surveys to be distributed to SLPs and medical providers in that site. Providers were also asked to offer a survey to patients at their practice who were currently receiving, or eligible to receive, speech-language services.

Providers were asked to return all completed surveys to the research in a pre-stamped return envelope. The envelope had only the researcher's address and an area PIN that identified the area the providers were located. This PIN secured anonymity with participants. Provider participants collected all completed surveys from their offices and placed them in the mail no later than December 15, 2015.

The researcher followed up with provider participants a maximum of three times. Follow up contacts were made three weeks and five weeks after mailing the packets to each provider to encourage completion and answer questions. Non-responders received a third follow up three weeks before the December 15, 2015 deadline.

Patients. Patient participants were contacted by their providers and were provided a description of this study. If they were willing to participate, they were provided a description of the project, a consent document, and a copy of the survey to be completed on site. Once the patient completed the survey, they returned it to the provider.

Participants' names or other personally identifiable information were not recorded on surveys. Participants were identified by a numeric PIN that only identified the total number of participants from a given area.

Data Analysis

Data were collected and recorded in an Excel table. Data were analyzed using descriptive statistics to determine answers to the following research questions: 1) How do patients currently view telepractice in rural areas of Nevada? 2) How do providers (SLPs and referral providers) view telepractice in rural areas of Nevada? 3) Is there a perceived need for SLP telepractice services among patients and providers in Nevada?

Results

Data were organized by labeling each participant as a provider or patient and by their area. Participant comments related to benefits and drawbacks of using telepractice for speech therapy were compared for providers, for patients, and by area.

Eleven rural cities were considered for this research project. Cities were then categorized into areas of the state and were numbered 1-11 (see Figure 1). Of the 11 cities that were considered, 9 providers from 3 cities indicated an interest in participating in the study. Five providers opted out, leaving 4 providers who participated in the survey. The response rate was 44%. Similar data could not be obtained for patients as patient selection was the responsibility of the provider.

Providers

All four providers who participated in the survey were speech-language pathologists (SLPs), and were from areas 1, 2, and 9. These providers returned the completed survey packets at least one week before deadline, and there was no missing data on provider surveys (see Table 1).

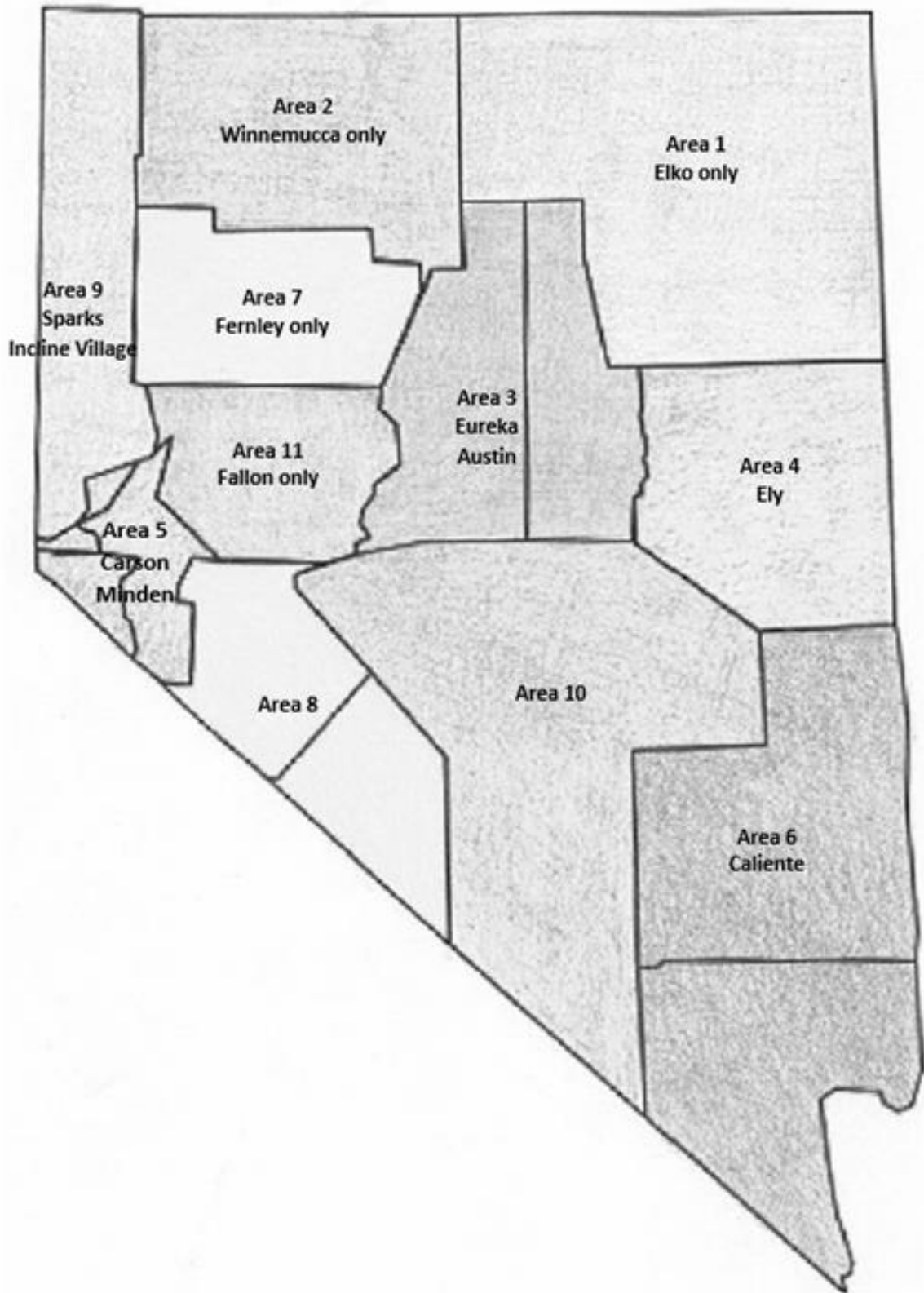


Figure 1. Nevada Area Map.

Age brackets. Three of the four providers were 31-50 years of age and one provider was in the 51-70 year age bracket. Three SLPs had 11-20 years of experience as a licensed SLP and one had 21-30 years of experience.

Comfort levels of various disorders. Providers were asked about their level of comfort with treating voice and swallowing disorders and how often they receive and send out referrals for these disorders. Three providers (75%) indicated being comfortable treating voice and swallowing disorders and one provider (25%) indicated not being comfortable treating either disorder. One provider indicated they were only comfortable treating articulation/phonology and dysfluency disorders, one indicated not being comfortable treating phonology/articulation, and one indicated not being comfortable treating dysfluency.

Finding out which patient disorders were treatable by the providers was included in the survey in attempt to find any gaps in treatment. If there are more patients in rural areas that are in need of services that few providers selected, the patients could potentially benefit from participating in telepractice.

Voice disorder referrals. Three SLPs indicated they received less than 5 voice disorder referrals per month and one SLP indicated receiving 10-20 referrals per month. If the SLPs were not comfortable treating voice disorders, they were asked to indicate how many referrals they sent out each month. Three SLPs indicated they referred out less than 5 voice disorders per month and one SLP indicated this question did not apply to them. Perhaps 2 SLPs selected that they referred patients out for more advanced or complex voice disorders, whereas they would otherwise be comfortable in treating voice disorders.

Table 1

Descriptive Statistics for Provider Survey Items

Survey Question	Mean	Std. Deviation
I1 Role in Survey	1	0
I2 Age Range	2.25	0.5
Q1 Voice In	1.5	1
Q2 Swallow In	2	1.15
Q3.1 Comfortable: Phonology/articulation	0.75	0.5
Q3.2 Comfortable: dysphagia	0.75	0.5
Q3.3 Comfortable: dysfluency	0.75	0.5
Q3.4 Comfortable: voice	0.75	0.5
Q3.5 Comfortable: TBI	0.75	0.5
Q3.6 Comfortable: stroke	0.75	0.5
Q3.7 Comfortable: aphasia	0.75	0.5
Q3.8 Comfortable: Alzheimer's/Dementia	0.75	0.5
Q3.9 Comfortable: Other	0	0
Q4 Voice Out	2	2
Q5 Swallow Out	2	2
Q6 Nearest referral provider	3.25	2.22
Q7 Years Exp.	2.25	0.5
Q8.1 Ages: 0-6 months	0.25	0.5
Q8.2 Ages: 6 months-3 years	0.5	0.58
Q8.3 Ages: 3years-12 years	1	0
Q8.4 Ages: teens/adolescents	1	0
Q8.5 Ages: adults	0.25	0.5
Q8.6 Ages: 65 years and older	0.25	0.5
Q9 Current SLP using TP?	1.5	1
Q10 TP provider?	1.5	0.58
Q11 TP beneficial?	1.75	0.96
Q12.1 Pro: Saves time and \$	1	0
Q12.2 Pro: Increased satisfaction	0.25	0.5
Q12.3 Pro: Increased continuity	0.5	0.58
Q12.4 Pro: Increased quality of life	0.5	0.58
Q12.5 Pro: Other:	0.25	0.5
Q13.1 Con: Set up cost	1	0
Q13.2 Con: Internet reliability	0.75	0.5
Q13.3 Con: Decreased satisfaction	0.25	0.5
Q13.4 Con: Equipment Maintenance	0.5	0.58

Table 1 Continued

Descriptive Statistics for Provider Survey Items

Survey Question	Mean	Std. Deviation
Q13.5 Con: Learning equipment	0.5	0.58
Q13.6 Con: Other	0.25	0.5
Q14 Learning more about TP?	1.5	0.58
Q15 Engaging other clinicians?	2	0.82

Swallowing disorder referrals. For swallowing disorders, 2 SLPs indicated they received less than 5 referrals per month and 2 SLPs indicated they received 10-20 swallowing disorder referrals per month. If the SLPs were not comfortable treating swallowing disorders, they were asked to indicate how many referrals they sent out per month. Three indicated referring out less than 5 swallowing disorders per month and one SLP indicated this question did not apply to them. Again, perhaps SLPs indicated the need for referring more advanced or complex swallowing disorders whereas they are otherwise comfortable in treating swallowing disorders.

Distance to nearest referral provider. When asked about distance to the nearest provider who was capable of treating patients referred for voice and swallowing disorders, one SLP indicated 1-50 miles, one SLP indicated 51-100 miles, and one indicated 200-350 miles. This information indicates that patients may be required to drive up to 350 miles to see a provider who is capable of treating their disorders.

Age brackets of clients treated. Age ranges of clients treated varied among the 4 providers. One SLP reported treating clients aged 0-6 months, 2 indicated treating patients ages 6 months-3 years, all 4 participants reported treating patients aged 3 years-12 years and teens and adolescents, and only one SLP reported treating patients that were adults and adults aged 65 years and older. This could indicate a need for more therapists

to treat clients in the age brackets of 0-6 months, adults, and adults aged 65 years and older.

Telepractice use. Two of the SLP participants indicated they were current telepractice providers and the other 2 indicated they do not currently use telepractice. When asked if the SLPs were aware of other providers in their areas using telepractice, 3 reported there was a provider using telepractice and one selected that they were not sure. When asked if the providers believed telepractice would benefit patients that were referred to other providers, 2 SLPs who were not telepractice providers indicated yes, one telepractice provider indicated no, and one telepractice provider indicated not sure.

Telepractice interest. Two of the SLPs indicated they would be interested in learning more about telepractice and two SLPs indicated they were not interested in learning more about telepractice. The two providers who indicated they were interested in learning more were the providers who were not currently offering telepractice services.

Telepractice benefits and drawbacks. All four SLPs indicated one benefit of having telepractice would be saving the patient time and money in driving. One SLP indicated a benefit was increased patient satisfaction, 2 indicated patient continuity, and 2 indicated increased patient quality of life. One SLP commented: “Allows patients who would not be able to receive intervention in rural communities the ability to participate/benefit from therapy”.

All 4 participants indicated that set up and startup costs were negative factors in setting up telepractice. Three SLPs identified Internet connection reliability, one identified decreasing patient satisfaction, 2 identified equipment maintenance, and 2

identified learning the use of the equipment. One SLP commented, “Dysphagia assessment is much more comprehensive when face to face”.

Patients

Patients who participated in the survey were receiving or had received speech-language therapy services from the providers who participated in the survey. Eleven patient participants fully completed the survey (see Table 2). Four patients (36%) were in the 51-70 year age range and 4 participants were in the 71-90 year age range. One patient (9%) was in the 18-31 year age range and 2 patients (18%) were in the 31-50 year age range.

Speech-language disorders. When asked about disorders for which they were treated in speech-language therapy, 3 participants (27%) indicated voice and 10 (90%) indicated swallowing. One patient was treated for both voice and swallowing, one patient was treated for solely voice, and 5 patients were treated for solely swallowing. One patient reported being treated for swallowing and apraxia, one was for voice, swallowing, and Parkinson’s, one was for swallowing and aphasia, and one was for swallowing and traumatic brain injury (TBI). Using descriptive statistics, the researcher was able to find a need for services for voice and swallowing disorders in at least 3 rural areas of Nevada.

Title of professional treating the disorders. Two patients (18%) indicated they had been treated by an ENT, 8 (72%) indicated an MD, and one (9%) indicated an SLP. When asked about distance to the nearest professional that treats their disorders, 5 patients (45%) indicated 1-50 miles, and 6 (54%) indicated 51-100 miles. Five patients (45%) indicated they would be interested in engaging in telepractice, 2 (18%) patients

indicated they would not be interested, and 4 (36%) indicated they were not sure. Zero participants had engaged in telepractice previously.

Telepractice and Internet connection. Four participants (36%) indicated they had been informed about telepractice previously, 4 (36%) indicated they have not been informed before, and 3 (27%) indicated they were not sure if they had been informed previously. No participants indicated they were using a dial-up Internet connection. Five participants (45%) indicated they used wireless, 3 (27%) used broadband, one (9%) used mobile, one (9%) used a hotspot, and 3 (27%) used DSL. Of these reports, 2 patients used 2 types of Internet. One reported using wireless and broadband and the other used wireless and mobile. Types of Internet used were incorporated into the study to determine if there was a relationship to Internet type and negative associations with possibly using telepractice. Three participants (27%) indicated they had a webcam in their home and 8 (72%) reported they did not have a webcam.

Age brackets. Of the 5 participants that indicated they were interested in telepractice, 2 participants were in the 71-90 year age bracket, 2 participants were in the 51-70 year age bracket and one participant was in the 18-30 year age bracket. One of the two participants in the 71-90 year age bracket indicated they had a webcam and used DSL Internet and the other did not have a webcam and used wireless Internet. One of the participants of the two participants in the 51-70 year age bracket indicated they had a webcam and used wireless and broadband for Internet while the other did not have a webcam and used a hotspot for Internet. The participant in the 18-30 year age bracket indicated they did not have a webcam and used wireless and mobile for Internet.

Table 2

Descriptive Statistics for Patient Survey

Survey Question	Mean	Std. Deviation
I1 Role in Survey	3	0
I2 Age Range	3	1
Q1.1 Disorder: Voice	0.27	0.47
Q1.2 Disorder: Swallowing	0.91	0.3
Q1.3 Disorder: Other	0.36	0
Q2 Title of provider	1.91	0.54
Q3 Nearest provider	1.55	0.52
Q4 Interest in TP?	1.91	0.94
Q5 Previous participation in TP?	2	0
Q6 Engage in TP again?	0	0
Q7 Informed about TP before?	1.91	0.83
Q8.1 Dial-up	0	0
Q8.2 Wireless	0.45	0.52
Q8.3 Broadband	0.27	0.47
Q8.4 Mobile	0.09	0.3
Q8.5 Hotspot	0.09	0.3
Q8.6 DSL	0.27	0.47
Q8.7 Other:	0	0
Q9 Webcam in home?	1.73	0.47
Q10.1 Pro: Saves time and \$	1	0
Q10.2 Pro: Increased satisfaction	0.18	0.4
Q10.3 Pro: Increased continuity	0.18	0.4
Q10.4 Pro: Increased quality of life	0.18	0.4
Q10.5 Pro: Other	0	0
Q11.1 Con: Set up costs	0.64	0.5
Q11.2 Con: Internet reliability	0.64	0.5
Q11.3 Con: Decreased satisfaction	0.45	0.52
Q11.4 Con: Equipment maintenance	0.64	0.5
Q11.5 Con: learning equipment	0.73	0.47
Q11.6 Con: Other:	0	0

Of the participants who indicated they were not sure about participating in telepractice, one was in the 71-90 year age bracket, one was in the 51-70 year age bracket, and the other two were in the 31-50 year age bracket. This indicates there is no pattern in relation to age of participant and willingness to participate in telepractice. Three of the participants who were not sure about using telepractice indicated they did not have a webcam, which could play a factor as to why they were not sure about using telepractice for therapy. Of those who did not have a webcam, two participants used DSL for Internet and one used wireless. Type of Internet used does not appear to have an association with willingness to participate in telepractice.

Of the two participants who indicated they were not interested in telepractice, one was in the 71-90 year age bracket and one was in the 51-70 year age bracket. Neither of the participants indicated they had a webcam and both indicated they were using broadband Internet.

Benefits and drawbacks of utilizing telepractice. One benefit of telepractice that all 11 participants indicated was saving the patient time and money in driving. Two patients (18%) (one aged 71-90 and one aged 51-70) indicated increasing patient satisfaction, increasing patient continuity, and increasing patient quality of life as benefits to using telepractice. When asked about the drawbacks of having telepractice, 7 patients (63%) indicated set up and startup costs, 7 (63%) indicated Internet connection reliability, 5 (45%) indicated decreasing patient satisfaction, 7 (63%) indicated equipment maintenance, and 8 (72%) indicated learning the use of the equipment.

Discussion

This section further analyzes the results of this study and interprets patterns detected among provider and patient responses.

Providers

Three providers (75%) were in the 31-50 year age bracket and one provider (25%) was in the 51-70 year age bracket. Based on descriptive statistics, there were no apparent patterns in age of providers who expressed readiness to participate in telepractice. Part of this could be due to the fact that 2 of the providers (50%) indicated they already participated in telepractice. The other 2 providers indicated they were not telepractice providers, however they did indicate interest in learning more about telepractice. There was insufficient sample size to allow conclusions to be drawn regarding contribution of age to readiness.

Years of experience also did not seem to have an impact on the readiness to participate in telepractice. The researcher asked this question to see if there was a pattern in maintaining traditional therapy methods but the providers' indications to participate or to learn more about telepractice indicates there is no connection between the two. There was no association between years of experience and readiness to participate in telepractice.

The majority of providers were comfortable treating at least 75% of the disorders listed. This could indicate that the providers may be able to provide ample medical speech-language therapy to a variety of clients without needing to refer clients to urban cities. Though, when referrals were needed, providers indicated patients would need to drive as little as 50 miles to as far as 350 miles. Even though the providers could provide

ample treatment, there are still speech-language disorders that require referrals to providers who live several hundred miles away from the patients. Using telepractice could help these patients and save them time and money in driving.

Another reason that could lead to the longer distance referrals is age of the client receiving services. Though all 4 providers indicated they were comfortable treating teens and adolescents, only one provider indicated they treated patients that were adults or adults 65 years and older. Providers who are not comfortable treating adults may refer the patients to providers who are located several hundred miles away, thus indicating a need for telepractice to help treat patients who are in this older age bracket.

Seeing that the two non-telepractice providers were interested in telepractice indicates a readiness to use this method to deliver therapy services. However, when asked about engaging other providers in telepractice, the two current telepractice providers indicated they would not be interested in engaging other providers with telepractice. Engaging other providers with telepractice refers to education, participation, and/or research in telepractice. This could be relevant to the larger number of drawbacks verses benefits in using telepractice.

Only one provider selected increasing patient satisfaction as a benefit to using telepractice, and the same provider indicated decreased patient satisfaction as a con. This supports previous studies indicating that satisfaction is decreased when patients and providers are not face-to-face. Patient satisfaction may not relate to the therapy itself but rather the fact that the patient is not physically in contact with another person.

Two providers indicated increasing patient continuity and patient quality of life as two more benefits to using telepractice. The other two may not have selected these

options because continuity and quality of life may appear higher when therapy is conducted face-to-face. Given this evidence, the researcher found no association between provider ages to options selected in benefits of using telepractice.

All 4 providers selected set up and start up costs as a con to using telepractice, an area that will need further exploration. The literature review identified time-consuming setup drawbacks but costs to starting telepractice were not identified. In fact, reducing costs to the patient were identified in the literature review as a benefit to using telepractice.

The two providers who were not telepractice providers indicated equipment maintenance as a con and the two who used telepractice did not indicate this as a con. This could suggest that equipment used for telepractice is more of a perceived barrier than an actual barrier, but further investigation on the type of equipment used or perceived to be used is warranted. Learning the use of equipment was identified as a con by one provider who used telepractice and by one provider who did not use telepractice. Further exploration is necessary in this case as the platform used was not identified nor how it compares to other platforms used by other providers.

One provider who used telepractice and two providers who did not use telepractice indicated Internet connection reliability as another con to using telepractice. Perhaps the type of Internet or Internet provider is a factor in reliability in different areas of the state, but again this is another area that needs further exploration.

Given these results, the researcher has determined that the SLP participants view telepractice as a possible method of treatment for some patients. Provider views and readiness of telepractice did not appear to have an association with the age of the

participant. Further investigation is needed in areas of Internet reliability, equipment maintenance, learning the equipment, and setup costs as it relates to the views of the providers in participating in telepractice.

Patients

It was interesting to see that even though only one SLP participant selected adults and adults over 65 as patients they were comfortable treating, the majority of the patients were in the adult and adults over 65 year age bracket. Eight patients (72%) indicated they were between the ages of 51-90 years old and every patient (100%) indicated they had been treated for a voice or swallowing disorder among others. This could indicate there is a need for more providers in rural areas who are comfortable treating adults, but a larger sample size would need to be studied and analyzed.

The researcher asked participants about the title of providers who referred them for speech-language services in order to see which providers most frequently see patients that have speech-language disorders (more specifically voice and swallowing) and to see if these providers are making referrals. Eight patients (72%) indicated they were referred by a medical doctor (M.D.), 2 patients (18%) indicated an otolaryngologist, and one patient indicated an SLP. Seeing the types of referral providers helps the researcher see which providers are familiar with SLP providers and their ability to treat the speech-language disorders. Two participants that originally opted to participate in the survey were an occupational therapist and physical therapist but they were not able to complete the study.

Six patients (54%) indicated they drove up to 100 miles to see a referral SLP. One patient was in the 71-90 year age bracket, 3 were in the 51-70 year age, one was in the

31-50 year age bracket, and the other was in the 18-30 year age bracket. Mileage could be a burden to the patients who are in the older age bracket, however this specific question was not asked in the survey.

Patient age did not seem to affect their readiness to participate in telepractice for speech-language services. This result does not support the researcher's hypothesis that older patients would be reluctant to try telepractice. In fact, two of the oldest patients indicated a willingness to participate in telepractice. This result is encouraging in terms of patient readiness to experiment with this new medium of engaging in therapy.

No conclusions could be drawn about the impact of Internet speed on readiness to participate in telepractice. Type of Internet used could not be determined as a factor contributing to readiness of patients to participate in telepractice. The sample size is too small and participants selected various types of Internet. Patient age did not appear to be related to the type of Internet used nor having access to a webcam at home. A larger sample size would need to be studied and analyzed to further determine if there is a relationship between participant age and Internet and/or access to a webcam at home.

All patient participants indicated that telepractice would save them time and money by reducing travel to distant providers. Surprisingly, satisfaction with services, continuity of services, and impact on quality of life were important to very few patients in this sample.

Patients in rural areas of Nevada appear to have mixed views on using telepractice for speech-language services. The majority of patients indicated more drawbacks than benefits in using telepractice and this could be related to unfamiliarity with types of platforms used.

Limitations

Several factors limit the generalizability of the results of this study: small participant sample size, response rate from SLP providers only, and response rate only from patients with at least a voice or swallowing disorder.

The small sample size of this study limits the researcher's ability to determine need for telepractice in rural Nevada. The study was also analyzed only using patient and SLP participants, whereas using a sample containing other providers could indicate a need and/or readiness to participate in telepractice in other areas of Nevada. However, both provider and patient results indicate there is some level of readiness for providers and patients alike to participate in telepractice.

Future Research Implications

The sample size for this research study was small with only 4 provider participants and 11 patient participants. Future studies should attempt to gather a larger sample size in order to gain a better overall indication for the readiness of providers and participants to participate in telepractice.

The researcher attempted to reach other providers in rural areas of Nevada in order to determine if there is a need for speech-language services in areas where there are no practicing SLPs. Providers such as occupational therapists and physical therapists may see patients who also present with speech-language disorders. To get a more accurate idea of the number of patients need speech-language services, more providers in the selected areas and additional areas of Nevada are needed to participate in the study.

Low response rate could be related to the lack of incentives for completing the survey. Future research may benefit from offering small gift items such as a matching

pen and note pad, movie vouchers, or gift cards. One could offer the incentive to providers and ask that they complete the provider portion entirely and obtain a certain amount of patients to participate in the survey in order to receive the incentive. One could also extend the time period in which data collection occurs. A 4 to 6 month window for data collection would provide greater opportunity to gather a larger sample that could be more representative of rural areas of Nevada. A researcher may also need to consider any specific holidays or events that may impact the amount of time providers are in office (i.e. Thanksgiving, Christmas, or New Year's).

To capture a larger sample, future research could involve using additional methods of delivering surveys to participants. For instance, a researcher may create an electronic survey to accompany the hard copy survey. It is easy to dismiss survey emails and mark them to the spam folder in an email. For this study, the researcher only mailed hard copies of the survey packets in hopes to increase the chances of survey participation. However, there was still low participant turnout so including a separate option to complete surveys could increase participant turnout, thus increasing the sample size to be more representative of rural areas of Nevada.

One drawback that several participants selected was the setup costs of equipment and equipment maintenance. Though this was not in the scope of this study, further research may be necessary to determine true setup costs for equipment, what equipment works best for telepractice sessions, and what it takes to maintain the equipment.

The final implication would be to develop a service delivery model that can be tested for patients at least in the selected rural areas of Nevada and compare patient and provider satisfaction levels and opinions of telepractice. Though this research study

involved a small sample of participants there were indications for readiness in participating in telepractice by 2 providers and 5 patients, a total of 46% of the total participant sample.

Conclusion

Fifty percent of the providers and 45% of patients indicated a positive response to trying telepractice, even with advanced medical disorders such as voice or swallowing. The researcher was not able to identify a relationship between ages of participants to readiness to participate in telepractice. Participants had varying age ranges and mixed opinions on engaging in telepractice. Some patients are receiving services in their areas, whereas others are traveling up to 350 miles to see providers who can treat them. The sample size for this study was small and could not be conclusive for a need for speech-language therapy services in most rural areas of Nevada, however the small sample size did indicate an interest and need for telepractice in select areas.

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Appendix A

1. Which best describes your role in this survey:

Speech-language pathologist

Medical Provider

Patient or client receiving speech-language pathology services

2. What is your current age? (Circle one)

18-30 years

31-50 years

51-70 years

71-90 years

91 or older

3. Please skip to the following pages if you are:

Speech-language pathologist: Pages 2-4

Medical Provider: Pages 5-6

Patient: Pages 7-8

1. Speech-Language Pathologists

1. On average, how many referrals do you receive for **voice** disorders per month?

- Less than 5 _____
- 5-10 _____
- 10-20 _____
- 20-30 _____
- 30-50 _____
- More than 50 _____

2. On average, how many referrals do you receive for **swallowing** disorders per month?

- Less than 5 _____
- 5-10 _____
- 10-20 _____
- 20-30 _____
- 30-50 _____
- More than 50 _____

3. Please indicate the speech and language disorders you are comfortable evaluating and treating:

- 3.1 Phonology/Articulation _____
- 3.2 Dysphagia _____
- 3.3 Dysfluency _____
- 3.4 Voice _____
- 3.5 TBI _____
- 3.6 Stroke _____
- 3.7 Aphasia _____
- 3.8 Dementia/Alzheimer's _____
- 3.9 Other: _____

4. If you are not comfortable treating **voice** disorders, how many referrals do you send out per month to other SLPs?

- Less than 5 _____
- 5-10 _____
- 10-20 _____
- More than 20 _____
- N/A _____

5. If you are not comfortable treating **swallowing** disorders, how many referrals do you send out per month to other SLPs?

- Less than 5 _____
- 5-10 _____
- 10-20 _____
- More than 20 _____
- N/A _____

6. How close is the nearest clinician that is capable of treating the referral disorders?

- 1-50 miles _____
- 51-100 miles _____
- 100-200 miles _____
- 200-350 miles _____
- 350+ miles _____
- N/A _____

7. How many years of experience do you have as a licensed SLP?

- 1-10 years _____
- 11-20 years _____
- 21-30 years _____
- 30 years + _____

8. What are the age ranges of patients you treat for speech-language services? (Check all that apply)

- | | |
|----------------------------|-------------------------------------|
| 8.1 0-6 months _____ | 8.4 Teens and adolescents _____ |
| 8.2 6 months-3 years _____ | 8.5 Adults _____ |
| 8.3 3 years-12 years _____ | 8.6 Adults 65 years and older _____ |

9. Is there currently a speech-language pathologist using telepractice in your area?

- Yes _____
- No _____
- Not sure _____

10. Are you a telepractice provider?

- Yes _____ Number of years: _____
- No _____

11. Do you believe having a telepractice provider would benefit patients that you refer to other clinicians?

- Yes _____
- No _____
- Not Sure _____
- N/A _____

12. What are some PROS of having a telepractice provider for voice and swallowing in your area?

12.1 Saves patient time and money in driving _____

12.2 Increases patient satisfaction _____

12.3 Increases patient continuity _____

12.4 Increases patient quality of life _____

12.5 Other (please specify):

13. What are some CONS of having a telepractice provider for voice and swallowing disorders in your area? (Please check all that apply)

13.1 Set up and startup costs _____

13.2 Internet connection reliability _____

13.3 Decreases patient satisfaction _____

13.4 Equipment maintenance _____

13.5 Learning the use of the equipment _____

13.6 Other (please specify):

14. Would you be interested in learning more about telepractice?

Yes _____

No _____

Not sure _____

15. Would you be interested in engaging other clinicians in telepractice if you are currently a telepractice provider?

Yes _____

No _____

Not sure _____

2. Medical Providers

1. What is your professional title? (Check one)

- Otolaryngologist (ENT) _____
- Audiologist (AUD) _____
- Medical Doctor (MD) _____
- Registered Nurse (RN) _____
- Medical Assistant (MA) _____
- Occupational Therapist (OT) _____
- Physical Therapist (PT) _____
- Other: _____

2. How many referrals do you send to speech-language professionals and/or otolaryngologists for speech, language, or swallowing disorders?

- 1 per week > _____
- 1-5 per week _____
- 5-10 per week _____
- 10-20 per week _____
- More than 20 per week _____

3. How close is the nearest provider that is capable of treating speech, language, or swallowing disorders?

- 1-50 miles _____
- 51-100 miles _____
- 100-200 miles _____
- 200-350 miles _____
- 350+ miles _____
- N/A _____

4. What are the age ranges of patients you refer for speech-language services? (Check all that apply)

- 4.1 0-6 months _____
- 4.2 6 months-3 years _____
- 4.3 3 years-12 years _____
- 4.4 Teens and adolescents _____
- 4.5 Adults _____
- 4.6 Adults 65 years and older _____

5. What are some PROS of having a telepractice provider for speech, language, or swallowing disorders in your area? (Please check all that apply)

- 5.1 Saves patient time and money in driving _____
- 5.2 Increases patient satisfaction _____
- 5.3 Increases patient continuity _____
- 5.4 Increases patient quality of life _____

5.5 Other (please specify):

6. What are some CONS of having a telepractice provider for speech, language, or swallowing disorders in your area?

- 6.1 Set up and startup costs _____
- 6.2 Internet connection reliability _____
- 6.3 Decreases patient satisfaction _____
- 6.4 Equipment maintenance _____
- 6.5 Learning the use of the equipment _____

6.6 Other (please specify):

3. Patients

1. Which speech-language disorder(s) are you or have you been treated for:

1.1 Voice _____

1.2 Swallowing _____

1.3 Other (please specify): _____

2. What is the title of the professional that refers you for treatment for speech, language, or swallowing disorders?

Otolaryngologist (ENT) _____

Medical Doctor (MD) _____

Speech and Language Pathologist (SLP) _____

Occupational Therapist (OT) _____

Physical Therapist (PT) _____

Other (please specify): _____

3. How close is the nearest professional who treats your speech, language, or swallowing disorders?

1-50 miles _____

51-100 miles _____

100-200 miles _____

200-350 miles _____

350+ miles _____

N/A _____

4. Telepractice is a practice where patients can interact with their speech-language pathologist using a computer. This eliminates the need to drive lengthy distances and it eliminates extra expenses. Recent studies across the nation indicate patient and provider satisfaction using telepractice for speech-language services. Would you be interested in participating in telepractice with Nevada speech-language pathologists?

Yes _____

No _____

Not Sure _____

5. Have you participated in telepractice for speech-language services before?

Yes _____

No _____

6. If you stated yes in the previous question, would you engage in telepractice again if needed?

Yes _____

No _____ Why Not? _____

7. Have you ever been informed about telepractice before?

- Yes _____
- No _____
- Not Sure _____

8. If you have Internet at your home, which type of Internet do you use?

- 8.1 Dial up _____
- 8.2 Wireless _____
- 8.3 Broadband _____
- 8.4 Mobile _____
- 8.5 Hotspot _____
- 8.6 DSL _____
- 8.7 Other: _____

9. Do you have access to a webcam in your home?

- Yes _____
- No _____

10. What do you believe are the PROS of having telepractice available in your area?

- 10.1 Saves patient time and money in driving _____
- 10.2 Increases patient satisfaction _____
- 10.3 Increases patient continuity _____
- 10.4 Increases patient quality of life _____

10.5 Other (please specify):

11. What do you believe are the CONS of having telepractice available in your area?

- 11.1 Set up and startup costs _____
- 11.2 Internet connection reliability _____
- 11.3 Decreases patient satisfaction _____
- 11.4 Equipment maintenance _____
- 11.5 Learning the use of the equipment _____

11.6 Other (please specify):
