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LSVT or SPEAK OUT!®: Clinical Decisions when Treating Clients with Parkinson's Disease

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**LSVT or SPEAK OUT!®: Clinical Decisions when Treating Clients with Parkinson's
Disease**

Amanda M. Olson

A Thesis Presented to the Graduate Faculty of

Minnesota State University Moorhead

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in

Speech-Language Pathology

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Thesis Abstract

This study utilized a phenomenological design to understand the process through which speech-language pathologists choose between LSVT Loud and SPEAK OUT!® approaches when providing treatment to individuals with Parkinson's disease. Semi-structured interviews revealed that participants utilize the three components of the evidence-based practice triangle; however, client characteristics such as cognitive decline and progression of the disease were strongly considered by the participants when selecting between the two approaches. These themes and other considerations will be discussed as part of the overall participant experiences when selecting either LSVT or SPEAK OUT!®. Recommendations for future research include completing a larger study that can be externally generalized. This information may help patients and caregivers better understand the process through which SLPs pull together knowledge of current evidence, previous clinical experience, and client characteristics and preferences.

Keywords: Evidence-Based Practice, Speech-Language Pathology, LSVT Loud, SPEAK OUT!®

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CHAPTER I

Introduction

Parkinson's disease (PD) is a neurological disorder that affects the initiation of motor movements because of reduced production of the neurotransmitter dopamine (Mayo, 2019; Parkinson's foundation, 2019). The neurological changes in PD have an impact on the patient's whole body, including the structures used for communication. Speech-language pathologists (SLPs) often treat patients with PD at various stages of the disorder to assess and treat articulation, voice, swallow, and language (Duffy, 2014). Cognitive impairment and dementia are also common in people with late-stage PD. The SLP may assist in cognitive screenings and therapy to slow the cognitive decline progression (Svenningsson, Westman, Ballard, & Aarsland 2012).

While the SLP can focus on any of the aforementioned aspects, there are speech and voice treatment approaches specifically designed for people diagnosed with Parkinson's disease. Lee Silverman Voice Treatment (LSVT Loud) and SPEAK OUT!® are two treatment programs used by SLPs to treat individuals with PD and improve overall intelligibility. Both approaches require the SLP to complete a training program to become certified for safe and effective treatment (Levitt & Walker-Batson, 2018; Boutsen, Park, Dvorak, & Cid, 2018). LSVT and SPEAK OUT!® programs follow a highly structured format with a designated number of consecutive treatment sessions and weeks (Levitt & Walker-Batson, 2018; Boutsen, et al., 2018).

There are many similarities between LSVT Loud and SPEAK OUT!®; consequently, it can be difficult for clinicians to select which treatment approach to use when working with a patient diagnosed as having Parkinson's disease. However, if a clinician is certified in both programs, it is his or her responsibility to use whichever approach will likely be of the most benefit to the patient. According to the American Speech-Language and Hearing Association

(ASHA) Code of Ethics, “individuals who hold the Certificate of Clinical Competence shall use independent and evidence-based clinical judgment, keeping paramount the best interests of those being served” (ASHA, 2016 I section M). This includes providing therapy that fits the specific needs of the patient, not using a standard, one-size-fits-all mentality.

There is evidence to support LSVT and SPEAK OUT!® when treating individuals with Parkinson’s disease (Cannito, Sulter, Beverly, Chorna, Wolf, Pfeiffer, 2011 and Boutsen, et al., 2018). The purpose of this study is to explore the process by which speech-language pathologists determine whether LSVT or SPEAK OUT!® is more appropriate when providing therapy to individuals with Parkinson’s disease.

CHAPTER II

Literature Review

Parkinson's disease (PD) is a progressive neurological disorder marked by a decrease of dopamine in the brain, which impairs the individual's ability to control purposeful movements (Mayo Clinic, 2019). This includes the coordination of muscles required to verbally communicate and swallow safely such as the diaphragm, velopharyngeal port, tongue, and vocal folds (Kalf, de Swart, Bonnier, Hofman, Kanters, Kocken, Miltenburg, Bloem, Munneke, 2008). All of these structures coordinate to allow a person to communicate and swallow functionally. In addition, approximately 30% of people with PD develop dementia, which further affects the individual's expressive and receptive language skills (Svenningsson et al., 2012 and Troche & Altmann, 2010).

According to the National Institute of Health (2019), approximately one million people in North America are affected by PD. Because individuals with PD are often on the speech-language pathologist's (SLP's) caseload, SLPs must understand how PD affects an individual's communication and ability to safely swallow, along with treatment of individual communication deficits.

Evidence-Based Practice

The American Speech-Language and Hearing Association (ASHA) promotes the use of evidence-based practice (EBP) while making clinical decisions in speech-language pathology. According to ASHA, "evidence-based practice is the integration of external scientific evidence, clinical expertise/expert opinion, and client/patient/caregiver perspectives" (ASHA n.d., Evidence-Based Practice, para 1). It is common for the three elements of EBP to be represented on a triangle and referred to as the EBP triangle.

It is through incorporating all three elements of the EBP triangle that clinicians can make informed and ethical decisions when planning the care for their patients (ASHA 2016). External scientific evidence refers to the evidential support that is obtained through a variety of methods such as systematic reviews or meta-analysis (Nelson, 2017). Reviewing this evidence guides the clinician while determining if a technique has been proven to benefit a certain population, or under what circumstances the technique was effective.

Clinical expertise refers to the therapist's knowledge obtained through professional practice. This can also refer to the knowledge one gained from conversing with experienced colleagues (Nelson 2017). Lastly, client/patient/caregiver perspectives refer to the thought and feelings of the individual receiving services and those surrounding the individual, such as parents. By considering the patient's preferences and feelings, the clinician can make informed decisions and involve the patient in treatment planning (ASHA, n.d.). Evidence-based practice guides the decisions of clinicians in all communication areas affected by PD.

Impact on Speech Production

One area affected by PD is speech production and intelligibility. The clinician may assess the individual's speech characteristics such as phonation, articulation, resonance, and prosody (Duffy, 2013). Most often, a motor speech disorder, hypokinetic dysarthria accompanies the diagnosis of PD (Cannito, et al 2011). Some motor signs of hypokinetic dysarthria include imprecise consonants and short rushes of speech. These characteristics have a negative impact on overall speech intelligibility in individuals with PD.

In 2017, Kearney et al. conducted a study to measure the articulatory differences in individuals with PD and the effect on overall intelligibility. The researchers in this study instructed the participants to read from a script of sentences into a microphone. Utterances were

transmitted via wireless soundproofing headphones to unfamiliar listeners. The unfamiliar listeners were instructed to transcribe what they heard, which was later compared to the speaker's reading. While the participants were reading, the movement of their tongue and jaw were also tracked using probes to note any differences in movement patterns between the experimental and control groups.

Kearney et al. (2017) found that the group with PD demonstrated small jaw movements while speaking, which directly correlated with intelligibility and accuracy of the listener's sentence transcriptions. In the sentences and phrases that required little jaw movement for articulation, the participants with PD showed a significant increase in the movement of their tongue blades. This finding suggested that the tongue may increase in articulatory speed in order to attempt compensation for the decreased jaw movement (2017). Boone, McFarlane, & L,(2014) also argued for a correlation between connected speech and accelerated articulator movement causing a decrease in overall intelligibility in individuals with PD. Individuals with PD also have voice deficit characteristics that impact intelligibility (Ferrand, 2014).

Impact on Voice

Individuals with PD experience differences in the quality of their voice such as reduced loudness, monotonous pitch, and breathiness (Boone et al., 2014). Some of these differences can be due, in part, to respiratory changes associated with PD. In individuals with PD, vocal intensity generally decreases as the utterance gets longer in length, with a burst of loudness at the beginning of the utterance that quickly fades, often with each syllable (Duffy, 2013).

In 2014, Wight and Miller conducted an audit on the effects of intensive voice treatment in an outpatient medical setting. The study focused on loudness measured on a sound pressure

level (SPL) meter, along with subjective measures including a patient completed Voice Handicap Index (VHI), and family member or caregiver completed visual analogue scale (VAS).

All measures and therapy sessions were completed by the sample speech-language pathologist to ensure consistency. Measurements were taken prior to initiating therapy and completed again after the therapy cycle. Measurements were also taken at 12 and 24 months after discharge to gain an understanding of the long-term effectiveness of therapy. Pitch range was included in the initial measurements, but it was not included in the final or follow-up results in the study (Wight & Miller 2014). It should be noted that all included participants were assessed and treated during the early stages of PD and did not exhibit signs or symptoms of cognitive impairment.

Loudness measurements taken at discharge noted a median increase of 9 dB during across sustained /a/, a 20-30 second monologue, and a reading passage. All patient VHI results indicated a positive change in the way the patients perceived their speech. Visual analogue scale results also indicated positive perceptions of caregivers across all participants (Wight & Miller 2014). At 12-months post-treatment, the participant's average intensity during speech tasks was measured at an average of 7-8 dB above their baseline measures. Voice handicap index and visual analogue scale ratings showed the same trend in consistency. However, the increase across the three measurements was not maintained at the 24-month check-up for all participants.

It is important to note that homework was mentioned in the study as a tool used during therapy to improve carryover, but no data of homework completion was included. Wight and Miller (2014) also reminded the reader that PD is a degenerative condition that inhibits the sustainability of the gains made during therapy.

Impact on Swallowing

According to Groher and Crary (2016), roughly 50% of patients diagnosed with PD display signs and symptoms of swallowing difficulty or some degree of dysphagia. These swallowing concerns are due to changes in both sensory and motor function of the oral structures such as the tongue, lips, and cheeks (Coriolano, Belo, Carneiro, G Asano, Al Oliveira, da Silva, & Lins, 2012). Decreased ability to detect sensory information is common in people with PD, especially those who have developed dementia as a result of PD progression (Cereda, Cilia, Klersy, Canesi, Zecchinelli, Mariani, . . . Pezzoli, 2014). Changes in bolus manipulation and propulsion lead to piecemeal deglutition, the division of a bolus into two or three consecutive swallows rather than swallowing the bolus in one attempt (Coriolano, et al., 2012

In a 2012 study conducted by Coriolano, et al., this phenomenon was consistent in both water and smooth yogurt boli, representing two different consistencies. In this study, 80% of patients with PD demonstrated piecemeal deglutition while swallowing 10 and 20 mL of water and 70% of participants demonstrated the same pattern when swallowing a 5- or 10-mL bolus of smooth yogurt. On contrast, 20% of people without PD used piecemeal deglutition while performing the same tasks. The researchers in this study did not note whether the participants with PD had dementia which would have an impact on the participant's ability to attend to and follow instructions while completing the swallowing tasks that were evaluated. Memory and language are also common deficit areas for individuals with PD.

Impact on language

Troche and Altmann (2010), found that people with PD performed significantly lower than a control group in receptive and expressive language tasks. This study included expressive language tasks such as sentence repetition and generation tasks. Participants were instructed to describe a picture for sentence generation tasks. The authors found that grammar and sentence

completeness were significantly impaired while generating original sentences. When scoring completeness of connected speech samples, the researchers looked at the individual's use of ambiguous pronouns such as him, her, them rather than specific nouns such as man or woman. They found that people with PD tended to overuse pronouns, making their language less precise (Troche & Altman, 2010). Throughout the study, the researchers noted a relationship between cognitive decline and language deficits. Sentence comprehension and appropriate use of verbs in sentences require cognitive components such as working memory and executive functioning; this may indicate that connected speech may also rely on many cognitive abilities (Troche & Altmann, 2010). The negative impact of PD on language ties to the decline in cognitive skills experienced by individual with PD.

Impact on cognition

Some individuals with PD have a mild cognitive impairment at the time of their PD diagnosis. This mild cognitive impairment does not initially, substantially affect daily functioning; however, instrumental activities of daily living such as dressing, homemaking, medication management, and bathing are slightly impaired (Svenningsson et al., 2012). The research suggested that people diagnosed with a mild cognitive impairment in the early stages of PD are more likely to develop dementia as the disease progresses (Svenningsson et al., 2012).

When evaluated using a mini-mental state examination, people with PD typically show a decline in cognition by one point-per-year, on average (Svenningsson et al., 2012). This varies depending on the patient, and time post-onset of PD along with the progression of the disease. As the disease progresses, there are periods where cognition is less affected, and periods of faster rates of cognitive decline.

In a study completed by Barbosa, Voos, Chen, Francato, Souza, Barbosa,... Mansur, L. L. (2017) people with PD performed cognitive tasks at a slower rate than a control group. The participants were individuals with PD and a control group comprised of neuro-typical adults of the same demographic information. Word fluency was measured during the study. These word fluency tasks were completed by providing the participant with a probe to list items that would fit in a concrete category and words that began with a given letter. The researchers found that people with PD said fewer words when completing word fluency tasks. These differences reflected the change in the connected thinking of the participants with PD.

A study by Seppi et al., (2011) suggested that neurotransmitter medications often prescribed for PD can also slow down cognitive decline. The researchers mentioned that these medications do not affect or preserve the patient's voice (Seppi, et al., 2011). These results suggest that medications can help individuals with PD, however, direct therapy and daily exercise are required to improve or maintain vocal function in this progressive disease.

Lee Silverman Voice Treatment (LSVT)

Lee Silverman Voice Treatment (LSVT) is an intensive voice treatment designed for individuals with PD and other neurological disorders that affect verbal communication (LSVT Global, 2020). Research and development of LSVT was started in 1987 by Dr. Lorraine Ramig an SLP who was treating a patient with PD. With the slogan "Think Loud, Speak Loud," LSVT places an emphasis on increasing vocal loudness (intensity). This increase in vocal loudness has been shown to also improve other components of verbal speech to improve overall intelligibility, influencing rate and articulation (Levitt & Walker-Batson, 2018). "Today, LSVT Loud is the most researched treatment for people with Parkinson's disease and has been shown to be an effective behavioral treatment of voice and speech disorders associated with PD" (Mahler,

Ramig, Fox, 2012, p. 213). LSVT treatment includes daily exercises to be completed independently at home and in the community to generalize the patient's skills (LSVT Global, 2020)

In order to provide LSVT treatment, speech clinicians must complete a training and certification course to administer the LSVT Loud protocol. This training ensures that the SLPs providing LSVT treatment understand how to follow the exact protocol, which contributes to the reliability of treatment outcomes. According to Mahler et al., this ensures consistency across clinicians and patients: "people with PD can expect treatment outcomes similar to those documented in the research." (2012, p.213). According to the LSVT Global website, there are approximately 10,000 LSVT certified SLPs in the United States. This therapy program has been thoroughly researched since its debut in the 1980s, and there are a vast amount of studies documenting the effectiveness of LSVT at improving the vocal loudness of individuals with PD (Mahler, et al., 2012).

LSVT targets the goal of louder speech through increasing the effort the patient uses to produce speech. Patients are given the simple prompt "Think loud." In therapy, the patient completes various vocal exercises to increase loudness and volume awareness. "One of the key principles of the treatment stems from the hypothesis that increased speech loudness has a spreading effect on other speech components" (Sauvageau, Roy, Langlois, & Macoir, 2015, p. 425). Two components are improved articulation and reduced rate. These speech characteristics also contribute to the patient's overall intelligibility (LSVT Global 2020).

In study conducted by Sauvageau et al., (2015), researchers completed a clinical study to understand the impact of LSVT Loud treatment on speech loudness, vowel duration, and vowel coarticulation. Nine participants were included in this study. Each participant was evaluated by

two SLPs with LSVT Loud certification. In order to be included in this study, both SLPs had to express agreement of the diagnosis of dysphonia secondary to Parkinson's disease. After evaluation, each participant completed 16 individual one-hour direct therapy sessions across four weeks.

After the last session, evaluation was again completed to measure what changes, if any, occurred in respect to the participant's loudness, vowel duration, and vowel articulation. Speech loudness was measured across four tasks of varying complexity "(a) maximum sustained vowel "ah" phonation, (b) reading of a text, (c) a two-minute monologue and (d) 1:30 min phonemic verbal fluency (P and L)." (Sauvageau et al., 2015, p. 429) Vowel articulation was also measured while the patient completed the reading tasks. The researchers analyzed the participant's production of /i/, /u/, and /a/. Consonant-vowel coarticulation was measured while the participants completed a task that involved reading a passage loaded with consonant-vowel-consonant-vowel targets. The researchers analyzed the vowels /i/, /u/, and /a/, and the consonants /b/, /d/, and /g/.

In the area of speech loudness, the participants demonstrated an average 11.5 decibel (dB) increase in loudness during sustained vowel phonation and an average increase of 5 dB in conversational tasks. In respect to vowel articulation, the participants exhibited an average increase of 7.5 seconds during sustained vowel phonation tasks. During consonant-vowel coarticulation, the participants exhibited an "increase in coarticulation pattern distinctiveness" perceived as increased intelligibility (Sauvageau et al., 2015). The researchers proposed that "the increase in average sustained vowel articulation was strongly associated with loudness" (Sauvageau et al., 2015, 434). The researchers specifically noted that while vowel duration and articulation are not specific goals in LSVT treatment, improvements in vowel duration and

articulation were consistent across all participants. From this study, the researchers proposed that further research be completed to understand the correlation between loudness and intelligibility.

SPEAK OUT!®

SPEAK OUT!® is a therapy program developed by the Parkinson's Voice Project, a non-profit organization and voice clinic located in Richardson, Texas. The Parkinson's Voice Project was founded by Samantha Elandary, an SLP who has worked exclusively with patients diagnosed with Parkinson's Disease since 1999 (The Parkinson's Voice Project, 2020). The Parkinson's Voice Project operates in a "pay it forward" manner, meaning patients are not required to pay for the materials required to complete the program. The SPEAK OUT!® program consists of an evaluation followed by 9-12 individual therapy sessions.

"Each session is usually completed in 45 min and addresses 6 component activities. They include vocal warm-ups, vowel prolongation exercises, intonation/gliding exercises, verbal delivery of automatic sequences (e.g., counting numbers, days, and months), oral reading of sentences or passages, and cognitive tasks (e.g., talking about listing 3 things to consider before buying a car or going on a trip; providing 5–10 typical items on a grocery list)" (Boutsen, et al. 2018, p. 52).

During all speaking tasks, the patient is instructed to "Speak with intent!" further examples of this would include, prompts such as "say like you are a CEO" or "speak like you are presenting to an auditorium of people," among others. In addition to SPEAK OUT!®, Samantha Elandary also created LOUD Crowd, a free maintenance program open to all patients who have graduated from the SPEAK OUT!® program.

The Parkinson's Voice Project offers a grant program that is available to any speech therapy clinic that allows unlimited free SPEAK OUT!® and LOUD Crowd training to all the

SLPs and graduate students at the site (The Parkinson's Voice Project, 2020). This grant opportunity has helped increase the popularity and awareness of SPEAK OUT!® since it was first developed in 2010. Now there are approximately 2,500 speech-language pathologists certified in the SPEAK OUT!® program.

Boutsen et al., conducted a study in 2018 to research the effects of SPEAK OUT!® therapy on the prosody of patients with PD. There were 16 participants in this study, all of whom had been diagnosed with PD an average of eight years prior to the study. In order to measure prosody, the researchers examined changes in the patient's self-reported voice handicap, clinical ratings of dysarthria and prosody, and acoustic analysis of prosody. Self-reported voice handicap measures were collected using the Voice Handicap Index (VHI). Clinical ratings of dysarthria and prosody were completed by reviewing recordings of the patient's reading passages. These ratings were completed by two of the study researchers simultaneously to achieve inter-rater reliability. The recordings were rated on a five-point scale of dysarthria ranging from -2 through 2. Dysarthria severity was rated using a five-point rating scale 0-no dysarthria noted through 4-severe dysarthria present.

After completing the full SPEAK OUT!® therapy program, the participants were again assessed in the same areas (Boutsen et al., 2018). The post-treatment results revealed a statistically and clinically significant improvement in speech intensity, pitch range, sustained vowel duration, reading intelligibility, and vocal quality after SPEAK OUT!® training, consistent with both of the self-reported voice scores, clinical ratings of dysarthria and prosody, and acoustic analysis of prosody. Across vocal tasks, the participants achieved an average increased loudness of 8.2 dB. Additionally, the researchers noted that the participant's intelligibility increased to some degree across all participants in the study. Researchers also

reported that patients who were more recently diagnosed with PD demonstrated greater improvement than those who received treatment at a longer period post-onset of PD. Further research on this was recommended by the authors of this study to better understand the impact of time post-onset of PD on treatment outcomes.

SPEAK OUT!® intervention includes cognitive exercises in addition to exercises for voice. The patient is instructed to use intent while completing these exercises. The assessment protocol for SPEAK OUT!® includes using probing questions to learn from the patient (and caregiver, if present) if the patient is experiencing difficulties due to cognitive decline. There is also an area for the clinician to note any atypical features noted during assessment. There is no formal cognitive assessment included in the assessment protocol (Parkinson's Voice Project).

Research on SPEAK OUT!® therapy treatment is relatively limited when compared to the amount of external scientific research of other voice treatments for individuals with PD such as LSVT Loud. This further emphasizes the necessity of this study. If external evidence is limited, SLPs must rely on other components of the evidence-based triangle to make their therapy recommendations when assessing and treating individuals with PD for voice. Through exploring the process by which speech-language pathologists who are certified both in LSVT Loud and SPEAK OUT!®, the researcher hopes to gain increased knowledge of the phenomenon of SLP clinical decision making when treating patients with PD. This will lead to a more thorough understanding of the interaction between the three elements of the evidence-based triangle when one element of the triangle is limited or currently growing.

CHAPTER III

Methods

The purpose of this study was to explore the process by which speech-language pathologists (SLPs) determine whether LSVT or SPEAK OUT!® was more appropriate when providing therapy to individuals with Parkinson's disease. Speech-language pathologists trained in both techniques were interviewed to gain an understanding of their perspectives while planning for treatment with either technique.

Research Design

A qualitative research design is used when the purpose of the study is to explore the research question. This is done by compiling information gathered through oral or written statements, and through detailed accounts of an event (Nelson, 2017). It also involves the use of inductive reasoning to formulate a theory based on the data. A phenomenological qualitative research design is used when the study aims to understand how the participants perceive and interpret a situation (Nelson, 2017). This research design was selected because the main goal of the study was to explore how SLPs made treatment decisions when selecting between LSVT and SPEAK OUT!® programs. This design allowed the researcher to gain a deeper understanding of the experiences of the participants when supplied with their knowledge, views, and opinions (Nelson, 2017).

The study was designed to answer the following research question: How do LSVT and SPEAK OUT!® trained speech-language pathologists in the upper Midwest select a treatment approach when providing therapy to individuals with Parkinson's disease?

Data was collected via one-on-one interviews with the student investigator. Interviews are a common tool used to collect data in phenomenological research because interviews allow

the researcher to obtain a detailed and comprehensive description of the participant's experience (Giorgi & Giorgi, 2003). The interviews lasted approximately 30 minutes and followed a semi-structured format. The overall goal of the interviews was to gain a detailed description of the participant's experience when treating individuals with Parkinson's disease. The purpose of using a semi-structured format was to allow the student researcher to collect data that directly related to the research question. The utilized interview protocol is attached as Appendix A.

Participants

After approval from the Minnesota State University Moorhead Institutional Review Board (IRB), seven speech-language pathologists (SLPs) certified in both LSVT Loud and SPEAK OUT!® were recruited to participate in the study. These individuals were found via convenience sampling. This was done by searching certified clinicians through the websites for either treatment technique in Minnesota and North Dakota. The researcher intended to interview six speech-language pathologists to collect enough data to come to a common experience or phenomenon among a larger group of participants.

A recruitment email was sent to seven SLPs in the upper Midwest that were listed as certified in both the LSVT Loud and SPEAK OUT!® programs on each program's website database of clinicians. Of the seven clinicians that received a recruitment email, three responded to the researcher. The researchers attempted to use snowball sampling to obtain additional participants, by sending a recruitment email to referrals from the participants. However, no additional responses were received by the researchers. After analyzing the interviews with the three participants, the research team found that the amount of data obtained was sufficient to answer the research question for this study. No further recruitment was completed. Further

information about the recruitment process can be found in the “Negotiating Entry” section in this chapter.

All SLPs interviewed were current on their Certification of Clinical Competency (CCC-SLP) and trained in the use of both LSVT Loud and SPEAK OUT!®. In order to ensure all participants were trained in both LSVT Loud and SPEAK OUT!®, the investigative team accessed trained clinicians through each program’s database of certified therapists. All therapists in the target geographical area trained in both frameworks were written down as potential participants. All participants were asked if they held a CCC-SLP in an emailed screener provided with the letter of consent prior to scheduling an interview. A copy of the screener is included under Appendix A as part of the interview protocol. A copy of the letter of consent may be found in Appendix C.

Snowball sampling and extension of the geographical radius did not produce any additional participants. Participants were excluded from the study if they were not current on their CCC-SLP, did not have certifications in both programs, or did not feel competent in both LSVT Loud and SPEAK OUT!®. Participants were also to be excluded from the study if he or she did not consent to having the interview recorded. All recruited participants fit the screening criteria as outlined.

Pseudonyms were used to protect the identity of all participants. Each participant was given the opportunity to choose their own pseudonym. Those who did not have a preference were assigned a pseudonym by the investigating team. Names of towns and facilities were omitted or changed to protect the identity of the participants. Participants were informed of their right to withdraw from the study and have their interviews removed from the investigator’s research at any time while the research was being completed.

Negotiating Entry

Contact information was gained from the LSVT and SPEAK OUT!® websites including the name, facility, email address, and telephone number of potential participants. The researcher used this information to email perspective participants. All participants were recruited via email. If no response was received after three weeks, a follow up email was sent. If there was still no response, an additional email was sent two months after the initial email.

General information about the purpose of the study was included in the request along with contact information to schedule interviews. The student researcher also asked if they must contact a human resources representative, or gatekeeper for permission to conduct interviews. If required, the gatekeeper would have been contacted via email to inform them of the research study along with a request to send information for official consent. A copy of the recruitment email is included in Appendix B.

Data Collection

Three participants took part in an individual semi-structured interview, where they were asked open-ended questions by the student researcher. The interviews took place at a location selected by the participants at a time that was convenient for the participant, lasting approximately 30 minutes. The subjects were asked questions about their experiences while evaluating and treating patients with PD. There was a focus on the assessment process and how those results warranted either therapy framework. If time allowed, additional questions addressed treatment objectives and outcomes following therapy. A copy of the interview questions are attached in Appendix A. The interviews were recorded with a digital audio recorder and then replayed and transcribed by the researcher.

Data Analysis

According to Nelson in the 2017 textbook, *Research in Communication and Sciences and Disorders*, data analysis in phenomenological research includes several steps which are outlined and summarized below:

1. Recorded interviews are transcribed word for word.
 - a. This transcription serves as the raw data in the study. The only time the interview is not transcribed exactly word for word is if the interview was interrupted by an outside person (Magnusson & Marecek, 2015).
2. The transcript is then read from beginning to end by the researcher.
 - a. According to Giorgi and Giorgi (2003), this step allows the researcher to gain an understanding of the participant's experience in a holistic sense, prior to analyzing the data. They also state that the researcher does not do anything to the raw data during this step; that will happen in later steps (Giorgi & Giorgi, 2003).
3. The transcript is separated into meaning units.
 - a. During this phase, the researcher reads the transcripts and makes a mark whenever the dialog shifts to a different focus (Nelson, 2017). Each section is called a meaning unit; this step helps the researcher piece out sections of the raw data (Giorgi & Giorgi, 2003). Each meaning unit will be referred to as a code.
 - b. Member checking was used at this time to clarify the participants' experiences of the emerging themes. Two of the participants were contacted via email to detail their use of the themes in their practice while selecting a treatment for individuals with Parkinson's Disease. The third participant had not yet completed their interview and this question was included in the initial interview.

4. The parts can then be reworded to highlight the overall message.
 - a. During this phase, the researcher looks for the meaning within the participant's description of the phenomenon without focusing too much on the participant's specific wording (Giorgi & Giorgi, 2003). This step transforms the meaning units in the participant's language into units that are now expressed in language that is specific to the phenomenon being studied (Giorgi & Giorgi, 2003).
5. The researcher writes an overall description of the event described by the researcher.
6. The researcher takes the transformed meaning units and finds the essential meaning of them in relation to the phenomenon being studied.
 - a. This description may include some of the specific vocabulary eliminated in previous steps (Giorgi & Giorgi, 2003).

The analysis process lead the research team to an understanding of the process by which the participant speech-language pathologists determined the appropriate treatment approach when providing therapy to individuals with Parkinson's disease.

Methods of Validation

In order to aid in the accuracy of the study results, several methods of validation were used by the researcher. First, the researcher recruited participants who were certified to administer both the LSVT Loud and SPEAK OUT!® treatment programs. Any potential participants who did not hold a CCC-SLP or certification in both frameworks would have been excluded from the study.

Triangulation was used to ensure the validity of the study. During this process the researcher compared the collected data with the existing research on individuals with Parkinson's

disease, including the implementation of LSVT and SPEAK OUT!® programming (Creswell & Poth, 2018). The data was analyzed by the student researcher and the research supervisor. This process was similar to checking for interrater reliability in quantitative research to ensure others who are familiar with the research drew similar conclusions (Creswell & Poth, 2018). The use of member checking was used as the third element of triangulation. This is a process by which the participant was given a copy of the transcript from his or her interview and had the chance to edit their responses to ensure they were accurate and representative of their personal experiences.

Another method of validation used in this study was member checking. While coding and analyzing the data, certain themes were emerging that required follow up with two of the three participants that had completed their interviews. An email was sent to the necessary participants to clarify their experience with the theme. The third participant had not yet completed their interview, so this question was included in their initial interview.

This chapter discussed the methods that were used when creating this research project. The purpose of this study was to explore the process by which speech-language pathologists determined whether LSVT or SPEAK OUT!® was more appropriate when providing therapy to individuals with Parkinson's disease. The participants in this study were selected based on their experience while providing therapy to individuals with Parkinson's disease.

Personal Bias

It is relevant for the researcher to disclose a personal bias relating to this disorder. The researcher has a history of a family member with Parkinson's disease. The researcher expected to find that cognition would be a factor that impacted clinical decisions in favor of the SPEAK OUT!® program since it includes elements of cognitive rehabilitation. The researcher also expected to find that participants relied on their clinical expertise when choosing between LSVT

Loud and SPEAK OUT!® due to the limited amount of external evidence to exclusively support the use of the SPEAK OUT!® program. Though the researcher has previous knowledge and experience with Parkinson's disease, the use of validation measures mentioned were in-place to help acknowledge and attempt to limit undue influence on the results of the study.

CHAPTER IV

Results

The researcher conducted interviews with three speech-language pathologists in the upper Midwest. Each participant held a Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP) through the American Speech-Language-Hearing Association and additional training and certifications both in LSVT and SPEAK OUT!®. During 20-to-30 minute interviews, the participants shared their experiences while assessing and treating individuals with Parkinson's disease, particularly those with whom they used either the LSVT or SPEAK OUT!® protocols. After each interview was transcribed, the researchers read through the scripts, looking for statements that related to the phenomenon. These statements were broken down into meaning units or codes.

While analyzing the participants statements and codes, three major themes were revealed. Themes emerged from the data and are subsequently explored and discussed. The participant's experiences detailed a picture of decision making which reflected the three facets of the evidence-based triangle, external research, clinical expertise, and patient perspectives, with clinical expertise and patient perspectives being the most prominent. Direct quotes from the participants are italicized to denote when their exact remarks were included.

Evidence-Based Practice

When asked to describe evidence-based practice (EBP) and how it impacts their practice, all three participants specifically mentioned the importance of utilizing external scientific evidence prior to determining a treatment plan and monitor the patient's progress in therapy. One participant summarized, "*EBP is important in determining what programs or therapy to use with patients. Then ongoing assessment of my patient's progress and response to the intervention*

is key for determining modifications or alterations to intervention programs or my patient's plan of care." Debbie, an SLP with over 15 years of experience treating individuals with PD in a medical setting, reported using her clinical expertise to monitor and adapt treatment to fit the patient's needs: *"There are times where we may need to modify or adjust our treatment based on patient needs and use of clinical experience/expertise; these things too guide clinical decision making with the ultimate goal of successful communication for our patients."* Patient perspectives and characteristics were another prominent theme in the participant's decision-making process. Lina has been an SLP for two decades, spending approximately half of that time treating patients with PD in various settings. She had the following to say about incorporating the three components of the evidence-based triangle in therapy:

"Prior to doing anything as a therapist, I want to know that there's some research that's going to support what I'm doing...a lot of clients are putting all their trust in their faith in you as an SLP...but the reality is you will get sometimes clients will say like, 'Well, why is this going to help?' or 'why do I have to do it this way?' It's nice to have that support as an SLP to say, 'the research says this, and I can show you examples.' ...there are certainly things I've brought into my therapy that I have used because of my experience or expertise...You have to have client buy-in...They have to be in because that they're committing to lifelong therapy.

External Evidence

Before using a therapy technique, researching the approach can ensure that the SLP is providing effective and safe therapy to his or her patients (ASHA, n.d.). Rita, a member of the progressive neurological diseases team at her facility, emphasized the importance of evidential

support when selecting a treatment approach: *“Evidenced based practice to me is using therapy interventions and assessment protocols that have research supporting them and are clinically proven to be effective and ethical for patient care.”* Rita was first exposed to SPEAK OUT!® while attending a convention. She found additional resources through information provided by the Parkinson’s Voice project and found many similarities between LSVT and SPEAK OUT!® *“Truthfully, a lot of the evidence for SPEAK OUT!® is similar, or the same evidence as LSVT, and we know LSVT works. Plus, it was really nice to see some of those cognitive things in the program itself. So, I just read about it on the Parkinson's Voice Project and honestly it's a good certification.”* After reading the resources provided by the Parkinson’s Voice Project, Rita brought the information to her department supervisor to pursue the certification.

One of the participants, Lina has been an SLP for over two decades, and spent approximately half of that time working in a home health setting with a partnership with a Parkinson’s center. Though her workplace strongly recommended she become certified in LSVT, Lina investigated the current research before attending the training:

Prior to training, I looked them (LSVT) up just to see if there was some what the evidence base was there. I don't want to go to a training that feels completely random and just because it's kind of trendy.

Before completing the required trainings to be certified in SPEAK OUT!®, the participants completed some form of research. While researching the SPEAK OUT!® program, Lina noticed similarities and differences between LSVT Loud and SPEAK OUT!®:

“they use similar types of components which are just really voice. Typical voice therapy type components. They (SPEAK OUT!®) didn't seem to have as much research into it. It wasn't as protocolled, but when I actually went to the training they talked a lot about what

they had in terms of research like how it really correlated. They were looking for people that were going to be providing services and hoping others would step in and do some of that.

Lina first heard about SPEAK OUT!® from a coworker who had attended at training on working with patients with PD and made the decision to become certified in the program as well: *“within about the last year and a half that my colleague, had gone to some training that spoke of the SPEAK OUT!® program. And so, she investigated that further and decided, we as a team kind of decided that was something that we were interested in and this could benefit our patients.”*

Participants reported that the evidence base for LSVT Loud and SPEAK OUT!® is skewed, with SPEAK OUT!® being a relatively new treatment program while LSVT Loud has been researched and used clinically since its debut in 1987 (LSVT Global, 2020). With this in mind, participants acknowledged the importance of using clinical expertise when selecting a treatment approach.

Clinical Expertise

When asked about her use of EBP, Lina mentioned use of clinical judgement when current research is not fully representative of clinical results: *“there are certainly things that I think there are definitely components I've brought into my therapy that I have used because of my experience or expertise in 22 years of experience.”* Participants also mentioned the importance of monitoring client’s progress and using clinical judgement, Debbie said *“There are times where we may need to modify or adjust our treatment based on patient needs and use of clinical experience/expertise.”* Participants also discussed using clinical judgement and expertise to guide their collection of the patient’s case history.

Case History. Rita commented on the importance of a thorough case history and interview to collect information from the patient themselves. *“I get the patient's perception of their speech abilities. We talk about, their volume, their rate, their prosody, their pitch, their breath support. If they're having issues communicating, where is it?”* In the participants descriptions, this information would aid in deciding between the two treatment approaches. Rita described how a thorough case history and interview could reveal “red flags” that would lead to one program over the other. *“If they're complaining of a lot of word finding difficulties or things like that, I'm going to think, Okay, well, SPEAK OUT!®, It includes that in their program, so I'm probably going to go that route.”*

Lina went on to explain the importance of asking follow-up questions clarify her patient's abilities and how they may lend to reason for clinical concern:

it is our job to dig in a little deeper and so it needs to go beyond just like oh do you have trouble with xyz... I try to just really steer from, from their report and if they give any idea or indication that that yeah they have noticed that, you know, they're struggling with memory, or they do have some foods they are avoiding or they aren't, drinking, as much as they used to because they do a lot of coughing, or, you know, they just they don't really participate socially because people can't understand them.

When the patient comes in with another person such as a family member, they are often included in this process as well: *“the patient answers first, and then I get their loved ones or their family member's information as well.”* This reflects the importance of family support and insight when completing assessment tasks and making clinical choices. Participants remarked that family support becomes increasingly important as PD progresses, noting changes in

cognition make it more difficult for the patient to independently complete home practice activities.

Cognition. Cognition impacts the patient's ability to utilize therapy techniques both inside and outside the therapy room. Rita emphasized that cognition is a main deciding factor when selecting a treatment:

If I have major cognitive concerns, or I see a mild cognitive impairment, or Lewy body dementia diagnosis anywhere in that chart, I'm going to push for the SPEAK OUT!® Because that structured program with that exercise workout book is great and I've seen better success with our patients who have those diagnoses with the SPEAK OUT!® program versus the LSVT program in regard to carryover.

Lina noted that when using SPEAK OUT!®, the goals are written differently: *"I write goals that are more related to cognition into my SPEAK OUT!® objectives. It's just because it's part of their protocol. LSVT, it's not that I wouldn't write an objective, but I think I might read it a little differently. I wouldn't necessarily flag cognition."*

Debbie noted that LSVT can be a good match for patients who exhibit significant cognitive deficits who need highly repetitive practice.

If they're pretty cognitively impaired, maybe we would do LSVT if it's looking like you know, we're not going to necessarily rehab that cognitive piece, but to do more of the drill that LSVT. With LSVT, the idea is that there is not very much cognitive load for the patient with the repetitive exercises, that drill over and over again, so they don't have to think about anything but "Think Loud".

Debbie also mentioned the importance of modifying therapy to fit the patient's cognitive capacities: *"If they're very cognitively compromised, they can, you know, have difficulty*

following directions have difficulty participating in maybe just the basic exercise tasks. Of course, I'm going to modify therapy to fit the person in front of me."

Progressive nature of the disease. All participants noted the importance of starting therapy close to the time a person is diagnosed with PD "...*early intervention is better. I want to get that patient at the early onset PD stage and for sure by mid stage PD.*" "I would say, *depending on how advanced they are, we try to get them in as early as possible.*"

Rita works closely with movement disorder specialists in her facility, which allows her to initiate therapy soon after the patient's initial diagnosis of PD. Some of these patients are newly diagnosed and have not yet seen all of the impact that PD has on their communication or swallowing. Rita discussed the importance of providing counseling to patients who do not yet notice a significant difference in their communication. "*With the patient we talk about the prophylactic nature of the exercises and how important it is to get the patient trained in that exercise program early on, because exercise is truly your medicine to preserve your voice, speech, and swallowing.*"

Debbie noted that due to the progressive nature of PD, a treatment approach that was appropriate in the early stages of the disease may be different than what would be recommended in later stages:

I would say that when I was doing LSVT, with the ones who have come back and now done, SPEAK OUT!®, were earlier in their disease at that time, and they didn't have some of the cognitive issues that they might have now, so LSVT worked wonderfully for them at that time. It's just that progressive nature of their disease.

Rita noted that decline in cognition or a diagnosis of dementia as PD progresses has a significant impact on the effectiveness of therapy:

When I find these programs not appropriate, is normally for those patients with a dementia onset... With any dementia or a severe enough cognitive decline, patients will typically need moderate to maximal cueing to be successful and do the exercises daily or be able to follow along with the book or exercise program. That would be the biggest barrier.

Support. Many patients using either protocol will require some assistance to complete home programming and daily exercises. Participants noted that this is especially true for individuals who are experiencing cognitive decline as a result of PD. Rita commented that it is important to know what kind of support the patient has at home:

It truly depends on everything else going on in that patient's life. If they have a good family support at home, somebody who can help them do their exercises daily. If they don't have anybody to help them to do the exercises at home on their own, and they don't have anyone to help them. It's just hard to get very far with that.

Rita went on to explain that some of the cognitive tasks included in SPEAK OUT!® can be difficult for some patients to complete on their own, depending on whether they are demonstrating decline in that cognitive domain.

Lina, who has experience in a home healthcare setting, remarked that the amount of support the patient has available at home to assist with completing daily practice impacts her clinical recommendations. Since she has experience with individuals at various levels of independent living, from those living through skilled nursing.

I would make a decision a little differently based on their environment and the type of support they have. If you have a client who is living at home and has a spouse that you know is going to be sitting there and providing the model and being able to walk them

through it, that's very different than setting someone up that's in like a nursing home long term care that has a visitor once every couple weeks that you know nursing is no way going to be able to provide. Then I would say ethically I don't feel like you're as a, as a clinician I'm not providing a service that is going to be helpful to them, you know I don't feel like that would be.

Lina went on to clarify that individuals that were able to complete the daily exercises daily without support from others would not be included in this statement. Patients that did not require additional support to complete the tasks would not be excluded from intervention based exclusively on whether or not they had family support.

Debbie has spent the majority of her career practicing in outpatient rehabilitation settings. She noted that many of her patients with PD have families who are involved in their care. Debbie noted positive support from patients' families: *"they tend to get a lot of family support for the most part."*

Exercise is the best medicine. Rita noted that the addition of LOUD Crowd has helped her patients be more consistent with their home practice regimen. *"I always tell my patients that consistent exercise is the best medicine for them. And when they come to the therapy group, even if it is only twice a month, I have found that they are usually more likely to do the exercises than if it is only them."*

Debbie's experiences emphasized the importance of daily practice. Debbie invited all of her patients who have completed LSVT or SPEAK OUT!® to LOUD Crowd: *"we try to keep in touch with our patients by phone call to encourage them to keep exercising, but if we can get them to come into the LOUD Crowd and they're exercising in that group."*

Lina commented on the difference between LSVT and SPEAK OUT!® in regard to continued practice after completing each program: “*with LSVT, technically when they're done with the protocol, it's "okay, you're going to keep doing your homework, you're going to do it twice a day and you're going to do it every day and you're not going to miss it."* Lina noted that follow up is a significant difference between LSVT and SPEAK OUT!®: “*With the SPEAK OUT!® approach, there's that follow up piece or that group and that's kind of part of the assumption that if you agree to do this therapy, you're agreeing to attend a group and this is a lifetime type of commitment for both of them.* Each setting had a different approach to follow up after finishing the therapy programs, which was also impacted by each clinician’s characteristics as well.

Clinician characteristics. While each participant’s experiences followed the ASHA Code of Ethics and guidelines to use the three elements of the Evidence-Based Triangle, clinician characteristics impact decision making as well. Rita commented on her clinical experience with both programs:

We've used LSVT for a very long time, you know, we have really seen nice progress with that in patients. We've also seen very good success with SPEAK OUT!® And with the addition of, the LOUD CROWD and some of those things that the SPEAK OUT!® program includes has been very beneficial for patients.

Debbie talked about the change to learn about her clients through each treatment approach: “*I like both programs, LSVT Loud and SPEAK OUT!®, and especially that conversation component of it all. These people have amazing stories to share.*”

Looking at the whole person or using a holistic approach to treatment was common to all the participants. Lina made the following remark regarding her approach to treatment: “*I try to*

always treat my clients within a holistic approach because cookie cutter doesn't fit everybody.”

While the participants cited varying clinical characteristics, all three of them reported rigorous schedules. This led to the need for treatment that could be implemented without lengthy preparation.

Convenience of the approach. Rita noted the ease of becoming trained in SPEAK OUT!®: *“honestly it's (SPEAK OUT!®) a good certification, it's reasonably priced, it doesn't take a ton of time and effort to get trained.”*

Lina talked about the convenience of SPEAK OUT!® including cognitive exercises in the therapy workbook: *“I feel like SPEAK OUT!® as a program, has more cognitive exercises directly laid out for the therapist to use and maybe an easier format. I think maybe the LSVT makes you work a little bit harder as a clinician.”* In the participant's experiences, SPEAK OUT!® was easier to administer with included workbook. These workbooks are also provided to the patients, free of cost to complete their daily exercises at home, which the participants reported were easy and convenient for their patients to order and use.

Client Characteristics and Preferences

Patient buy-in. All participants commented that client buy-in is important for both therapy protocols: *“if they are resistant to it you there's only so much you can do.”* When describing a client with whom she has used SPEAK OUT!®, one participant talked about how the cognitive component of therapy was especially motivating:

“he recognizes he's having troubles with maybe memory, some memory things. So, for him, he sees that component of the treatment as a vital component for him, and really helpful. And because of that, he's all into the therapy, you know, so I think that's a huge piece for that.”

Two participants talked about their experiences treating clients with SPEAK OUT!® who had received LSVT treatment earlier in their diagnosis. Both participants commented that their patients appeared to show a preference of one over the other: *“I had patients that were coming back, who were just in their checkups, for LSVT, and we did the SPEAK OUT!®. And they were giving positive feedback that they liked this therapy program a little bit better than LSVT.”*

Client choice. Patient preferences are often included in the decision between therapy approaches. Rita talked about discussing the options with her patient and giving them a choice when appropriate:

if I'm trying to differentiate between the two, typically, I leave it up to the patient to decide. I do my normal evaluation. And then from there, I explain both the therapy programs. I don't ever say, this one's better than the other. And then truthfully, if I don't have major cognitive concerns, I let the patient decide.

Another participant made a similar remark about her recommendations after completing an evaluation: *“And then I kind of let the client decide what they feel is going to be the best fit for them.”* When patients are making a choice, many aspects with influence this decision, one of them being the patient’s outlook and feelings about their diagnosis.

I'm going to take care of myself. The participants commented on the patients’ acceptance of the diagnosis of PD and how it affects the timing of therapy and the willingness of the patients to initiate therapy. One participant outlined the two main perspectives she has seen while treating patients with PD: *“They know it's going to get worse which can be, you can kind of take two roads, like, “forget it my life's over” or you can take that high road and be like, “you know what, all right, I'm gonna live my best life I'm going to do these things.”*

Another participant commented on the importance of client participation, especially immediately following diagnosis, even when the patient is not able to directly see how therapy can benefit them:

I think that, you know, sometimes you get resistance from the patient, they don't want to do the therapy program when it's probably the best fit for them and their disease progression. So, they wait it out and don't do therapy. Then sometimes they get too advanced with cognitive deficits and then it's a struggle when they come for the programs.

Participants were asked to describe an ideal client for each approach. One participant noted that early diagnosis and limited impact on cognition were two important characteristics:

I would say an ideal client is somebody for LSVT that comes in and that has recently been diagnosed, and they have that attitude of like 'you know what I'm going to take care of myself,' and there's not a lot of cognitive effect right now."

In addition to the patient's perspective of their diagnosis of PD, another factor that clinicians and patients consider when selecting an approach is the time commitment involved with either approach.

Time commitment. One major factor in a patient's choice for therapy and success is the time commitment involved. All participants noted the impact of the duration and frequency of therapy as a major deciding factor of their patients. *"For the most part, clients don't want the rigidity of four times a week for 60 minutes, it's a big commitment."* *"People with Parkinson's tend to have a lot of appointments."* Lina reflected on her patient's reactions regarding the time commitment for each therapy program. She reported that the time commitment is a factor both for her schedule as a clinician and her patient's schedule as well:

“One of the biggest differences being LSVT has a very rigid protocol, four times a week, 60 minutes sessions, 14, or you know, four weeks in a row...I think a lot of times patients might hear the frequency of therapy sessions, and three times a week is easier to handle than four times a week.”

Lina noted that her patients show a concern for the effectiveness of treatment, they often show more dedication to completing therapy when they see it as more convenient: *“they want to know that they're going to get good results, but I always feel like the commitment comes from the flexibility within the program.”* Participants reported that a component that affects a patient's willingness to commit to a therapy program is the patient's access to therapy.

Access to therapy. Lina spent a significant portion of her career working in facility that served several rural communities. When discussing success with LSVT, she mentioned the role of access to therapy being of great importance: *“He was just so proactive and so it he was committed, and he was local. So, it was kind of like, "oh yeah I'm already coming over to do my workout," and he was all in consistently.”*

She further remarked on her experience in this setting and how access to therapy impacted her patient's willingness to participate in therapy:

that's something that is found more in these rural areas, or areas where we tap into clientele. They're driving from a long distance and like where I provided the LSVT services more often, we were kind of a hub to many small rural communities. So my clients weren't always living in 10 miles away from me, they were living in, you know, wherever I mean they might be in small towns with a 40 minute drive, they might live in another town which is a 20 minute drive that you know they just so that's a hard commitment.

The number of visits appeared to have an impact on her patient's willingness to regularly attend therapy. She later went on to say that some of her patients would stop coming consistently: "*And the reason they have drifted away from it is because the protocol is so rigid.*" Participants acknowledged the impact that the time commitment of therapy can alter the patient's regular schedule and plans outside of therapy.

Quality of life. All the participants discussed, in some way, the importance of understanding the patient's activities outside of the therapy room. As a therapist who has worked with many retired patients, Lina brought that travel plans can have an impact on the patient's willingness to participate in therapy. "*And that age group, they travel, so they're snowbirds, you know, like they they're busy they're busy in a non-busy way.*"

When asked about working with individuals who travel for the winter, Rita talked about the availability of resources outside of those provided at her facility. "*A lot of the places that my patients are going during the winter also have groups like LOUD Crowd, which I highly encouraged them to attend. Heck, I've even held off or paused the therapy program until they have come back.*" Individual therapy sessions are an important component of both LSVT Loud and SPEAK OUT!®, but both programs require the patient to complete exercises at home daily to improve, maintain, and generalize therapy skills.

Completion of home programming. Participants were asked if there was a difference in the completion of home programming between the two therapy protocols. All participants noted that this was entirely patient dependent and did not seem to correlate with the type of therapy. "*It's so patient dependent on if they are someone who is going to follow through anyway, because if they're committed in there, I mean, I've seen great follow through with LSVT. I've seen great follow through with SPEAK OUT!®, It really depends on the patient, I would say, if they're*

going to do that or not? difference between the two? I guess I wouldn't say that there is a difference.

Conclusion

Fifteen themes were identified from the interviews with the participant LSVT and SPEAK OUT!® trained speech-language pathologists. Some of these themes contained subthemes, which were identified as a result of commonalities in the responses provided by the participants. These themes revealed the factors considered by speech-language pathologists when selecting between LSVT and SPEAK OUT!® for patients diagnosed with PD.

Based on this research, it is evident that the participants selecting a treatment approach for patients with PD do so with consideration to the three points of the Evidence-Based Triangle in mind. First, the participant's experiences emphasized the importance to initiating interventions in the earliest possible stages of PD to maximize the effectiveness of therapy. Possible treatment approaches are selected based on the current research to ensure the therapy technique is valid and ethical.

Next, therapists use their clinical judgement during assessment procedures to identify any red flags that may indicate a need for cognitive rehabilitation, or any indications that cognition would not be an appropriate target. Clinicians also considered the patient's perspectives and preferences impacting buy-in. Access to therapy and quality of life played a role in scheduling and the patient's willingness to participate in therapy. During treatment, the techniques and stimulation tasks were modified as warranted to ensure that the patient receives individualized to the patient's specific needs.

Living environments played a role in the amount of support available to the patient. In-home/family support was a prominent theme that impacted the success of therapy when

completing either program. This support is needed to ensure the patient can complete home programming and continue to complete daily home exercises to maintain and generalize therapy skills.

CHAPTER V

Discussion

The purpose of this study was to explore the process by which speech-language pathologists determine whether LSVT or SPEAK OUT!® was more appropriate when providing therapy to individuals with Parkinson's disease. The goal of this chapter is to discuss the results of the study. The research question explored in this study was "How do LSVT and SPEAK OUT!® trained speech-language pathologists in the upper Midwest select a treatment approach when providing therapy to individuals with Parkinson's disease?" The participants mentioned considerations which were classified as related to one of three elements of the evidence-based triangle. Overall, this study explored the use of the evidence-based triangle in the clinical decisions of speech-language pathologists who provided services to individuals with Parkinson's disease. Fifteen subthemes were identified that were classified into the areas of scientific evidence, clinical experience, and patient preferences, with cognition being the most prominent subtheme, followed by the progressive nature of the disease and time commitments.

All three participants included in this study reported using the three elements of the evidence-based triangle when selecting the most appropriate intervention techniques and programs for their patients with PD. This is consistent with best-practice guidelines from the American Speech-Language-Hearing Association (ASHA) as outlined on their website (ASHA, n.d., Evidence-Based Practice, para. 1). It is recommended that clinicians utilize components from across the three elements of the evidence-based triangle.

External Evidence

In the area of external scientific evidence, participants noted the importance of completing research on therapy techniques before becoming certified in and implementing a

therapy program. While researching a technique, therapists looked for the effectiveness of the treatment. Participants noted that patients trust their clinicians to implement therapy that will work to improve, or maintain, their communication abilities. It is the role of the clinician to know that the therapy they recommend has evidential support (ASHA, 2016). Some of this support directly relates to whether the therapy works, while other support will guide the clinician to know whether the technique is ethical.

Ethics play a significant role in clinical decision making throughout the treatment process. Participants noted the importance of providing services that are ethical, meaning they are effective, safe, and warranted (ASHA, 2016). Use of ethics to guide clinical decisions was integrated throughout all three elements of the evidence-based practice triangle, following guidelines outlined in the ASHA Code of Ethics (2016). Clinicians cited experiences of using ethics to select treatment approaches, writing objectives, monitoring progress, and selecting alternative treatment approaches when clinical indicated.

Clinical Expertise

Clinical expertise was a prominent theme across all participants that led to seven sub-themes. Many of these themes were inter-related with other portions of the EBP triangle as well. All the participants cited cognition and cognitive decline as a major factor when selecting a treatment approach for individuals with PD. Participants noted that patients tend to experience declines in cognition as the disease progresses. This finding agrees with the study completed by Barbosa et al in 2017 noting that many people with PD present with changes in cognition at the time of diagnosis. Patients with PD may not see many changes in daily activities initially, but they will often see significant changes with time (Svenningsson et al., 2012). Incorporating

cognitive rehabilitation into voice treatment early on in therapy can help slow the cognitive decline commonly found in patients with PD (Svenningsson et al., 2012).

Cognition

All participants agreed that including a cognitive component in therapy had, in their experiences, increased patient buy-in. Some noted that this additional motivation in therapy was grounded in the patient noticing a decline in their abilities. Other participants stated that their patients enjoyed exercising their cognitive abilities in functional ways. Quality of life is greatly impacted by cognitive decline and working on cognitive-based therapy tasks can improve the patient's perceived independence and overall quality of life (Svenningsson et al., 2012).

Participants noted that changes in cognition have an impact on the patient's ability to succeed in therapy. The levels of support required to complete therapy tasks in sessions and while completing home exercises tended to increase as the disease progressed. One participant mentioned that when treating patients with severe cognitive decline, she would at times, elect not to complete cognitive therapy tasks due to ethical issues. She also noted that patients with significant cognitive decline required maximal cueing to complete the voice exercises across both therapy programs. Another participant recognized that she felt uncomfortable implementing a therapy technique if the patient required assistance to complete daily exercise tasks and did not have the support at home they would need to successfully complete home programming. Advances in cognitive decline was noted as a reason to elect select LSVT Loud over SPEAK OUT!®, for the participants observed that the exercises require less cognitive load. When reviewing the evaluation protocols for both LSVT and SPEAK OUT!®, no formal cognitive evaluation measures were found. Consequently, it is understood that this group of participants were relying, at least in-part, on their own clinical expertise in the area of cognitive deficits to

determine the extent of possible cognitive decline in their patients. Based on the results, these distinctions were determined using clinical expertise, not formal testing or external scientific evidence. This has implications for the use of the EBP triangle, and clinical reasoning in the areas of cognition, by less-experienced SLPs when working with individuals with PD.

Early Treatment

All the participants reported that early treatment was a significant factor in therapy, stating that individuals that are treated early typically see the most improvement. This experience is consistent with the findings of Troche and Altman (2010) that cognitive decline is a common symptom of PD that adversely affects the prognosis for treatment. This finding was also consistent with those of Svenningsson et al., (2012) who found cognitive decline has a negative impact on language abilities in addition to attention and other skills needed to succeed and generalize therapy skills to their home environments.

Patient's Support

Participants noted that they, for the most part, experience positive interactions with their patient's support systems during therapy. They shared that home support has improved patient outcomes, whether it is a spouse who attends therapy with the patient, or another loved one ensuring the completion of home practice exercises. The experiences of the participants reveal the importance of family support completing either program. Continued support after finishing the formal program can improve the patient's maintenance as well, especially for individuals with cognitive changes due to the progression of their disease (Barbosa et al., 2017). Participants shared that the families of their patients with PD typically were involved in some way, providing support to the patient. Many times, these caregivers would try to increase carryover and maintenance of skills from therapy.

Time Commitment

Time commitments and access to therapy was a consistent theme in the area of patient perspectives and preferences. In situations where the clinician let the patient choose between LSVT Loud and SPEAK OUT!®, participants experienced that their patients were more likely to select the SPEAK OUT!®, noting they preferred fewer therapy sessions. The participant who practiced in a rural area noted that local patients were more likely to succeed in therapy and consistently attend their scheduled sessions. The participants noted that having a choice in the therapy decision increased patient buy-in, and in turn, improved patient outcomes and carryover of skills. Consistent practice at home is vital to maintenance of therapy skills after completing intensive voice therapy (Mahler, et al., 2015).

Limitations

There were limitations to this study. The first limitation was that this study included three participants when it was originally designed to include at least five. This led to results that can be internally generalized within this small group of participants, but they cannot be externally generalized to the larger population of SLPs and individuals with PD.

Recruitment included seven SLPs in Minnesota and North Dakota who were certified in both LSVT Loud and SPEAK OUT!®, however, only three invited clinicians chose to participate. Because of the limited number of participants, the results were narrowly defined. Further study is warranted to expand on the experiences described by the participants who were included in this study. Another limitation of this study is that participants were recruited only from the upper Midwestern portion of the United States. Though the experiences described by the participants are consistent across the study, a larger study across different geographical regions may lead to a description of differing experiences.

The participants in this study had at least a decade of experience in speech-language pathology. Thus, the participants' clinical expertise was developed through years of practical application of clinical interventions. New or inexperienced SLPs would not have the same wealth of knowledge in the area of clinical expertise and may rely more heavily on other areas of the EPB triangle. More specifically, a consideration was found in the area of cognitive evaluation for both programs. The evaluation protocols allow for an informal, screening procedure; however, it may be that less experienced SLPs have less robust experience in the nuances of cognitive decline in individual with PD. This may result in different clinical decision-making patterns when compared the experienced SLP participants in this study.

Recommendations

Future research on this topic and population should aim to increase awareness of the process(es) SLPs use when selecting a treatment approach. The findings provide us with a picture of the experiences of this group and advance the understanding of the LSVT versus SPEAK OUT!® selection phenomenon. Further knowledge of this topic may help caregivers advocate for their loved ones who have been diagnosed with Parkinson's disease to understand how therapists are making ethical decisions based on current scientific research, clinical expertise, and patient perspectives. It may also expand the evidence base used by new, and experienced, SLPs when evaluating and treating individuals with dysphonia and PD. There is a shortfall in the research behind SPEAK OUT!® and ongoing study is warranted across with decision-making process.

Conclusion

To answer the research question of "How do LSVT and SPEAK OUT!® trained speech-language pathologists in the upper Midwest select a treatment approach when providing therapy

to individuals with Parkinson's disease?" For these participants, it can be concluded that they are using the three elements of the evidence-based triangle when making clinical decisions.

Participants cited utilizing current research to determine appropriate programs and therapy techniques in which to be trained and certified. While completing this research, the participants ensured that the techniques were ethical and could benefit their patients.

To differentiate between LSVT Loud and SPEAK OUT!®, the participants applied their clinical expertise when collecting a case history. During case history intakes, the participants used probing questions to determine the presence of several differentiating factors. Participants noted that cognitive decline was an important factor to consider when selecting between LSVT Loud or SPEAK OUT!® therapy programming. When cognition was found to be an area of concern, SPEAK OUT!® was frequently recommended to stimulate and rehabilitate cognitive functioning. When the patient had experienced more severe cognitive decline, to the point that they were unable to complete the cognitive exercises, then LSVT Loud was judged as most appropriate by the participants.

Participants also took into consideration the living situation and level of support available to their patients when recommending a therapy program. Therapy was not recommended for patients who did not have enough support to successfully complete the carryover exercises for either LSVT Loud or SPEAK OUT!®. Participants remarked that most patients with PD had supportive families who were able to help the patients complete the carryover exercises. When clinicians did not notice concerns with cognition or family support, they allowed the patient to choose between the two therapy programs after providing information for both approaches.

Patient perspectives and willingness to complete therapy was also a factor in selecting a therapy program. Patients were more willing to commit to fewer therapy sessions. In the

experience of these participants, this was the primary reason patients chose SPEAK OUT!® over LSVT Loud when given the choice. Consistent exercise is a vital component of both LSVT Loud and SPEAK OUT!®. This follow-through and completion of home practice exercises were dependent on the individual patient with no known connection to the treatment program used in the case of this participant group.

The participants reported that they, and their patients, appreciated the cognitive exercises included in the SPEAK OUT!® program. The participants felt that this component helped their patients see additional purpose in the therapy, which increased patient buy-in. Buy-in is an important component of therapy that impacts the patient's willingness to attend therapy and regularly complete home programming (ASHA n.d.). Consistent practice of therapeutic skills after completing the program improved the patient's maintenance of the learned therapy skills. Participating in group therapy after completing LSVT Loud or SPEAK OUT!® was reported as a positive effect on the patient's consistency with completing home programming.

This study presented the experiences of three speech-language pathologists when selecting between LSVT Loud and SPEAK OUT!® during treatment planning for their patients with Parkinson's disease. This information revealed indications of how these clinicians distinguish client perspective, utilizing that information to guide counseling statements and treatment modifications to fit individual client needs. This study also revealed how the use of evidence-based practice lead to clinician's preferences. The participant's experiences can be used by patients, family members, and caregivers to understand ways in which a treatment approach is selected and participant approaches to the use of EBP during clinical decision-making.

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APPENDIX A

Interview Protocol

Pre-interview Screener

1. How long have you been a speech-language pathologist?
2. Are you current in your Certification of Clinical Competence (CCC-SLP)?
3. Do you have any certifications beyond your CCC-SLP?
4. What type of facility do you work in?
5. Do you have a specialty?
6. How many clients do you have on your current caseload?
7. What type of diagnoses do you have on your current workload?
8. What percentage of your caseload includes individuals with Parkinson's disease?
9. Approximately, how many clients with Parkinson's disease do you treat each year?

Interview Questions

1. Describe the procedures do you use while assessing an individual with Parkinson's disease.
2. How does the client's case history documents influence your assessment?
3. How often do you use LSVT Loud or SPEAK OUT!®?
4. How would you describe an "ideal" client for LSVT?
5. How is would you say an "ideal" client for SPEAK OUT!® is the same or different?
6. Can you describe any red flags that would lead you to believe a patient would not benefit from either LSVT or SPEAK OUT!®?
7. How do you feel the objectives for LSVT Loud differ from those for SPEAK OUT!®?
 - a. How do you feel are they similar?
8. Looking back on your clinical experiences, have you ever started with one framework and then found it wasn't the best fit?
 - a. What did you do in that scenario?
9. How would you describe Evidence-Based Practice and its role in assessment and treatment?

APPENDIX B**Participant Recruitment Email**

My name is Amanda Olson and I am a Speech-Language Pathology graduate student at Minnesota State University Moorhead. I am writing to invite you to participate in my thesis research about the clinical decision-making process while treating individuals with Parkinson's disease. I have invited you to be a part of this study because of your training in LSVT Loud and SPEAK OUT!® therapies. I obtained your contact information through the LSVT Loud and SPEAK OUT!® websites.

If you decide to participate, I will complete a 30-minute semi-structured interview with you about your experiences while providing therapy to individuals with Parkinson's disease. This interview will either be completed face to face at a time of your convenience or remotely through a telephone or video call. Should you agree to be included in the study, I will be in contact with you within one week with a letter of consent and pre-interview screener. After returning the screener, I will be in contact with you to schedule an interview any time from mid-summer to early fall.

Remember, this is completely voluntary. You can choose to be in the study or not. If you'd like to participate or have any questions about the study, please email or contact me at amanda.olson@go.mnstate.edu. Please include your preferred contact information in your reply.

Thank you for your time

Sincerely,

Amanda Olson

Student Clinician/Graduate Assistant
Speech-Language Pathology
Minnesota State University Moorhead

APPENDIX C

Informed Consent for Study

You are invited to participate in a study of the clinical decision-making process when treating individuals with Parkinson's disease. I hope to learn the process by which speech-language pathologists in the upper Midwest determine whether LSVT or SPEAK OUT!® is more appropriate when providing therapy to individuals with Parkinson's disease. You were selected as a possible participant in this study because you were listed as a clinician certified in LSVT Loud and SPEAK OUT!® therapies on the clinician search feature on both the LSVT Loud and SPEAK OUT!® websites.

If you decide to participate, I will complete a semi-structured interview with you about your experiences while providing therapy to individuals with Parkinson's disease. This interview will either be completed face to face at a time of your convenience, or through telephone or video call. This interview will be audio recorded and then transcribed. After your interview is transcribed, a copy of the transcript will be emailed to you to review and make any necessary edits to ensure that your answers are accurate to your experiences. The interviews are analyzed, you will also receive a copy of the compiled findings to review. Should you agree to be included in the study, I will be in contact with you within one week to schedule an interview any time from late summer to early fall.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will not be disclosed. You will be given the opportunity to select a pseudonym prior to your interview, if you do not choose a pseudonym, one will be assigned.

Your decision whether or not to participate will not affect your future relationships with Minnesota State University Moorhead, the American Speech-Language Hearing Association, or your work setting. If you decide to participate, you are free to discontinue participation at any time.

Please feel free to ask questions regarding this study. You may contact me if you have any additional questions at (218) 684-1098 or amanda.olson@go.mnstate.edu, or Joni Mehrhoff. Her contact information is as follows: Joni Mehrhoff, Minnesota State University Moorhead Speech Language and Hearing Sciences, joni.mehrhoff@mnstate.edu, (218)477-2725. Any questions about your rights may be directed to Dr. Lisa I. Karch, Chair of the MSUM Institutional Review Board, at 218-477-2699 or by email at: irb@mnstate.edu.

You will be offered a copy of this form to keep.

You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above and have decided to participate. You may withdraw at any time after signing this form should you choose to discontinue participation in this study.

Signature of Participant

Date

Signature of Investigator

Date