

PERCEPTIONS OF OUTCOMES OF SPEECH  
THERAPY AMONG INDIVIDUALS WITH  
PARKINSON'S DISEASE – EXAMINING A CRITICAL  
AREA OF EVIDENCE-BASED PRACTICE

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Abstract:

Parkinson's disease (PD) is a progressive neurological disease that affects 60,000 Americans each year and over 10 million people worldwide.<sup>1</sup> Speech impairments are present in 49-70% of people with PD, often characterized by hypokinetic dysarthria and its symptoms include variable rate, monotonous, soft, and breathy speech, and quiet volume.<sup>2</sup> An overall aim of treatment in PD is to lower the negative impact of the disease on the functioning and quality of life (QoL) of patients in this population. Similar to other treatment approaches for PD, speech therapy for people with PD is aimed to improve their QoL. Some of the past research in speech therapy has focused on measuring QoL in patients with PD subsequent to their speech deficits. While these studies help us to understand the general lifestyle of patients with PD, it does not inform us about their perspectives on speech therapy. Relying on prior QoL studies presents us with a significant limitation to understanding whether speech therapy is considered beneficial for patients with PD. The term "evidence-based practice" (EBP) refers to using the best, research-proven assessment and treatment techniques to deliver the most effective services to patients.<sup>3</sup> EBP is the integration of clinical expertise, external and internal evidence, and client perspective. While there is published information on expert opinions and outcomes for different lines of speech treatment for people with PD, there is very limited information on how clients perceive the value of these treatments as consumers. To address this limitation, the current study aimed to survey patients with PD on their perspectives on speech therapy.

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## **CHAPTER I**

### **INTRODUCTION**

Parkinson's disease (PD) is a progressive neurological disease that affects 60,000 Americans each year and over 10 million people worldwide, according to the Parkinson's Foundation (Marras, 2018). PD impacts the rate of movement, reduced volume also known as hypophonia, reduced pitch, and difficulty articulating syllables. Although there is no cure for PD currently, the available surgical, medical, and behavioral treatments are intended to slow the progression of the disease. The symptoms associated with PD are numerous, including a wide range of motor as well as non-motor difficulties. Non-motor symptoms include cognitive changes, pain, fatigue, low blood pressure, and other symptoms relating to the non-motor difficulties. Motor symptoms are typically caused by a lack of dopamine, a neurotransmitter primarily within the substantia nigra of the basal ganglia but also in the other areas of the brain (Goberman, et al., 2001; Kalia & Lang, 2015). Some of the most common motor symptoms are bradykinesia, stooped posture, inappropriately scaled movements, rigidity, and tremor (Politis, et al., 2010; Janovic, 2008). In addition to these common symptoms, many individuals experience fatigue, pain, and depression due to the emotional impact of negative thoughts and reduced quality of life. PD is the second most common neurodegenerative disorder, aside from Alzheimer's disease, affecting between 139-172 men and 81-117 women per 100,000

individuals between the ages of 65-74 years old (Goberman, et al., 2001; Kalia & Lang, 2015).

One of the marked symptoms of PD includes speech impairment. Speech impairments are present in 49-70% of people with PD, often characterized by hypokinetic dysarthria. These symptoms include variable rate, monotonous, soft, and breathy speech, and quiet volume (Ho et al., 1999; Janovic, 2008). The severity of these speech symptoms is highly varied among patients, just as all symptoms differ for individuals with PD. The reduced quality of life for individuals with PD is acknowledged by the emotional impact and consequences including fatigue, social withdrawal, and lack of confidence needed for social interactions. An overall aim of treatment in PD is to lower the negative impact of the disease on functioning and quality of life (QoL) of patients in this population. There is a range of common treatment approaches that are used to treat the motor and non-motor symptoms of PD. The most common treatments include pharmacologic, surgical, and other behavioral therapeutic approaches such as speech therapy. Similar to other treatment approaches for PD, speech therapy for people with PD is aimed to improve their QoL. While there is a range of treatment options for speech deficits in individuals with PD, it is important for clinicians to incorporate evidence-based practice (EBP) in clinical decision-making to provide high-quality care to patients with PD. According to the American Speech-Language Association (ASHA), EBP refers to the integration of clinical expertise/expert opinion, external and internal evidence, and client/patient/caregiver perspectives (Sackett, 2000). In making clinical practice evidence-based, clinicians should recognize the preferences, interests, and abilities of needs of individuals and families to whom they provide clinical services and integrate



those factors along with the best current research evidence and their clinical expertise to provide high-quality clinical care.

Our knowledge of understanding the efficacy of speech treatment approaches in patients with PD is solely based on empirical evidence and a handful of position papers from professional organizations (Behrman, 2020; Kalf et al., 2011; Ramig & Sapir, 2001; Taylor-Goh, 2005). For example, Ramig and Sapir (2001), provide evidence supporting the efficacy of the Lee Silverman Voice Treatment (LSVT) as well as the long-term maintenance of these effects in the treatment of voice and speech disorders in patients with idiopathic PD. The authors recruited 33 patients with PD from local support groups and evaluated them before and after their LSVT treatments to document their progress. In this study, the authors identified the correlation between LSVT and how this treatment impacts individuals with PD quality of speech after 2 years of treatment. The results of the study indicated that patients with idiopathic PD that are treated with LSVT are likely to maintain treatment-related improvements in vocal function up to 2 years after treatment. Three possible explanations for why LSVT produces long-term maintenance of PD vocal symptoms include: first, patients learned to increase vocal fold adduction and improve laryngeal muscle activation and synergy. Second, LSVT emphasizes loud phonation, high vocal effort, and self-monitoring of both loudness and effort. The third explanation is that LSVT put emphasis on loud phonation and high effort levels stimulated in the brain that associates with drive and goal-directed activities, thus emphasizing loud and effortful phonation stimulated in these systems in the brain that may be impaired in patients with PD (Ramig and Sapir, 2001). Similarly, Behrman (2020) investigated the effects of SPEAK OUT! and LOUD Crowd for individuals with

dysarthria due to PD on their speech outcomes. The authors recruited 12 individuals with PD who received SPEAK OUT! treatment combined with six weekly group sessions. Assessments were conducted three times at baseline and then within one and six weeks after completion of the individual SPEAK OUT! sessions. Acoustic outcome measures included mean intensity, the prosody measures of standard deviation of intensity and frequency and the voice quality measure of cepstral peak prominence. Patient perception of voice was also assessed with the Voice-Related Quality of Life. Post-therapy results indicated that mean intensity was greater, and variation of frequency was larger in reading and monologue. Cepstral peak prominence and Voice-Related Quality of Life scores were significantly improved.

While the studies similar to those discussed in the above paragraph help us understand the efficacy of certain treatment approaches for speech deficits in patients with PD, it is important to point out that these studies emphasize the importance of external evidence without considering the clients' perspectives. This makes clinicians rely excessively on external and internal evidence (and to some extent on their own expertise) when it comes to choosing an appropriate treatment approach for speech deficits in patients with PD. This has a major bearing on EBP as it is important to consider not only the available scientific evidence and clinicians' expertise, and patients' perspectives in making an informed clinical decision. In order to address this limitation, the current study aims to survey patients with PD on their perspectives on speech therapy. Based on the previous literature that has documented improved speech outcomes for people with PD subsequent to speech therapy, it is hypothesized that the patients with PD will perceive speech therapy to be beneficial. The proposed study will be a

significant contribution to the literature by addressing the perspectives of patients with PD on speech therapy and how this in turn influences EBP in our profession.

## **CHAPTER II**

### **METHODOLOGY**

#### **Construction of Survey Questionnaire**

A survey questionnaire was created using Qualtrics © software (Qualtrics, Provo, UT, 2005) for the purpose of the online data collection. The questionnaire included three blocks of questions that would include: (1) demographic details of the respondents, (2) treatment history, and (3) respondents' perception of speech treatment. The first block of questions solicited respondents' demographic details such as age range, nature of work, family dynamics, and sexual orientation. The second block solicited information from the respondents regarding the severity of PD and treatment history including the age of onset, disease progression, medications and dosage, co-morbid condition, and behavioral treatment history with specific reference to speech therapy. The final block of questions solicited information on the respondents' perception of speech therapy including their experience with speech therapy, perception of speech therapy to be beneficial or not and probable reasons for this, duration of speech therapy, the type of speech therapy approach they received, their experience with the speech therapist, and recommending speech therapy for other people with PD. If the respondent never received speech therapy, they were directed to the end of the survey with a thank you message.

The questionnaire took approximately 5 to 10 minutes to complete. The questionnaire included a combination of multiple-choice questions, yes/no questions, and Likert scale questions (for rating their experience). The survey questionnaire was thoroughly vetted by a practicing speech-language pathologist and this served as a content validity for the survey questionnaire.

### **Distribution of the survey questionnaire**

The survey questionnaire was distributed extensively via e-mail to PD support groups throughout the USA, posted on several social media outlets of various PD support groups, hospitals, and clinics, and finally, the survey was also distributed through word of mouth. The e-mail included an introductory message inviting the respondents to participate in the survey, the web link to the online survey questionnaire, and instructions to successfully complete the survey. In addition, each respondent was made aware that the questionnaire was used for research purposes. The social media and fliers included brief information on the nature of the study and directed prospective participants to the survey link. The survey was distributed via social media to 72 Facebook support groups and broadcasted to 17 PD clinical trials, four LOUD Crowd support groups, and five Zoom support groups. Additional outlets that distributed the survey included six hospitals, eight private clinics, and various PD social events and conferences such as the PD Parade. A variety of state board licensure associates and the Parkinson's Foundation affiliates were contacted for the distribution of the current study as well. The duration of the survey took place for 4 months from November 2021 to March 2022. The response rate of the survey could not be determined as the survey was not distributed directly to individuals. A total of 166 individuals responded to the survey, however several

respondents did not complete all the questions on the questionnaire and hence there were unequal responses across the questions.

### **Participants**

A total of 159 individuals (58 males, 59 females, and 1 non-binary/third gender) diagnosed with PD responded to the survey. The current survey was approved by the IRB at Oklahoma State University and all participants were required to provide consent electronically to participate in the current study. The participants' responses were completely anonymous to protect their identity. The participants were made aware that they could withdraw their participation at any stage of the survey.

### **Statistical Analysis**

Descriptive inferential statistics was used to analyze the obtained data. Descriptive statistics include reporting aggregate information (in terms of %) on the respondents' demographics and their responses (e.g., how many respondents indicated they viewed speech therapy positively). A practicing speech-language pathologist with 30 years of experience reviewed the content of the survey questionnaire to ensure that it was appropriate for soliciting appropriate information from participants with PD concerning their views on speech therapy. This served as a measure of content validity. Unfortunately, the test-retest reliability of this survey could not be determined as the same respondents were unable to take the survey for the second time.

## **CHAPTER III**

### **FINDINGS**

#### **Quality Check of the responses**

The Qualtrics survey review feature typically analyzes the survey responses for (1) responses from potential bots, (2) speedy respondents, and (3) overall completion rate. The quality check revealed that 99% of the responses from the participants passed all the quality checks conducted by Qualtrics.

#### **Demographics**

Among the participants who responded to the survey, 142 participants agreed to participate in the survey and 11 declined to participate. With regard to the age of the participants, the participants' age ranged from 30-39 years to more than 90 years. A majority of the respondents were between 60 and 69 years (34%) and this was closely followed by respondents who were between 70 and 79 years (25%). In terms of gender, there was an equal split between the respondents. About 49% were male respondents, 50.5% were female respondents, and one respondent identified as non-binary. In terms of race, a majority of the respondents were white/Caucasian (77.4%), followed by Asian (8%), Hispanic (6.45%), African American (2.4%), and Native American (1.6%).

Concerning the educational level of the respondents, about 31% of the respondents had a Bachelor's degree, this was closely followed by 27% of the respondents having a Master's degree, and a handful of respondents had a professional/doctoral degree (10%). With regard to employment status, more than half the respondents had retired (50.4%), and some of the respondents worked either full-time (18.18%) or part-time (11.57%). About 14% of the respondents were on disability. Concerning marital status, about 80% of the respondents were married, 15% were single, and about 6% of the respondents were widowed. In regard to the geographical location, about 37% of the participants lived in the southern USA, about 24% were from the Midwest, another 13% were from the Northeast, and about 21% indicated they were from other regions including international countries such as Germany, England, Namibia, and Scotland. Finally, a majority of participants indicated each of them had co-morbid conditions such as diabetes, migraine, kidney failure, high blood pressure, and hypoglycemia. The demographic details of the participants are summarized in Table 1.

### **Treatment History**

The second block solicited information from the respondents regarding the severity of PD and treatment history including the age of onset, disease progression, medications and dosage, co-morbid condition, and behavioral treatment history with specific reference to speech therapy. Participants indicated the majority of participants were diagnosed with PD 3-5 years ago (30%), about 21% indicated that there were diagnosed 1-2 years ago, another 19% mentioned they were diagnosed more than 10



years ago, and finally, about 16% indicated they were diagnosed between 6-9 years ago. In terms of severity, the majority of the participants rated their severity of symptoms associated with PD as moderate (41.12%), about 28% rated the severity to be mild, another 13% indicated their severity to be very mild, and only 3% of the respondents mentioned their symptoms to be severe. In terms of deterioration of PD, most participants considered themselves in a stable stage of their PD (47%), whereas 42% of the respondents mentioned their disease to be progressive, and a small number of respondents mentioned that their PD was rapidly progressing. Interestingly, one participant commented that his/her deep brain stimulation (DBS) surgery was successful so he/she is gradually improving.

With regard to the duration of treatment sought, about 34% of the respondents mentioned that they had sought treatment for about 3-5 years, close to 20% of the respondents mentioned that they had sought treatment for more than 10 years, and about 345 mentioned they were seeking treating from 3-5 years, and close to 22% of the respondents said they were seeking treatment for 1-2 years. With regard to the type of treatment, we received a variety of written responses as this was an open-ended question. Many indicated that were receiving pharmacologic treatment and few others mentioned that along with surgical treatment (DBS), they were also receiving other behavioral treatments such as physical and speech therapy. A word cloud of the responses from the respondents pertaining to their treatment is illustrated in figure 1. The details of the treatment history are presented in Table 2.

**Figure 1. Word cloud depicting the respondents' treatment**



### **Perceptions of Speech Treatment**

The final block of questions solicited information on the respondents' perception of speech therapy including their experience with speech therapy, perception of speech therapy to be beneficial or not and probable reasons for this, duration of speech therapy, the type of speech therapy approach they received, their experience with the speech therapist, and recommending speech therapy for other people with PD. Of the participants who participated in this current study, surprisingly, only 45% of them indicated either they have received or continue to receive speech therapy.

Among these 45% of the respondents, about 50% of them have been receiving speech therapy for less than six months, about 30% of them have been receiving speech therapy between 1-2 years, and 14% of the respondents have been receiving speech

therapy between 3-5 years, and finally, only 4% of the respondents mentioned that they have been receiving speech therapy for 6-9 years. Among the respondents who received speech therapy, an overwhelming 87% of the respondents mentioned that through speech therapy was beneficial to them and about 70% mentioned they made adequate progress in their speech after receiving speech therapy. Among the respondents who received speech therapy, about 98% were pleased with their speech therapist and indicated that the speech therapist explained to them the goals and why they were working on the specific goals. Among these respondents, about 60% of them indicated that people with PD value the importance of speech therapy, and another 38% mentioned that people with PD have a neutral opinion about speech therapy. There were also a couple of questions pertaining to their opinion on the speech therapist and the speech therapy experience. As these were open-ended questions, the responses could not be quantified. However, a majority of the comments indicated that people with PD who received speech therapy were very happy with their speech therapist and they also mentioned the speech therapist was very patient and helpful when working with them. A word cloud depicting the respondents' opinion on what can their speech therapist would do is depicted in figure 2.

**Figure 2. Word cloud illustrating the respondents’ opinion on what their speech therapist can provide for them.**



Among the respondents who had not received speech therapy, about 10% mentioned that they thought speech therapy will not be beneficial for them, another 5% indicated that they had tried speech therapy in past and it did not help them, and finally about 85% mentioned that they did not received speech therapy for other reasons. As the respondents has an opportunity to document the other reasons, these reasons ranged from speech therapy not being available to them to neurologist not recommending. A few other had documented that they do not rely on their speech and one person mentioned that the disease had made him/her so fragile that it was difficult to seek therapy. The respondents’ perception of speech therapy is presented in Table 3.

## **CHAPTER IV**

### **DISCUSSION**

The current study sought to survey the perspectives of individuals with PD on speech therapy. The survey questionnaire was distributed through multiple outlets to solicit the maximum number of responses. A total of 166 participants responded to the survey. Interestingly, the survey results indicated that less than half the number of respondents had received speech therapy. Among the respondents who received about 90% considered to be beneficial. The findings are discussed below in the light of prevalence rate of speech deficits among PD and the need for speech therapy.

The prevalence of speech deficits among individuals with PD has been reported to be as high as 89%. But we found that in the current survey more than half of the respondents indicated that they did not attend speech therapy. The respondents' reasons for not receiving speech therapy ranged from not requiring speech therapy to neurologist not suggesting speech therapy. While it is possible that some of the respondents were in their early stage of their disease and did not feel the need for speech therapy, lack of awareness of speech therapy can also be an attributable factor in respondents not receiving speech therapy. Some of the studies that relied on self-reporting of patients with PD indicate that voice, speech, and swallowing difficulties occurred late in the progression of PD.

However, it is well known that people with PD, do not have an accurate judgement of their deficits. (Siminoff, 2013).

On the other hand, studies using objective measures indicate that 40 to 78% of patients with early stage PD have changes in voice, speech, and swallowing (Rusz et al., 2011). It is possible that some of these respondents did present with speech deficits and they were not aware of those deficits. So, it is critical that healthcare providers are aware of this and direct their patients with PD to reach out to a speech-language pathologist early in the onset instead of waiting until the symptoms are apparent. However, for this to happen, it is important to educate the allied healthcare providers on the possible speech deficits seen in individuals with PD and the importance of addressing them as early as possible.

Among the respondents who received speech therapy, a majority of them indicated that they were satisfied with their speech services. This is in line with the external evidence that has suggested that people with PD who receive intense speech intervention demonstrate good outcome measures. For example, Ramig and colleagues (2001) administered Lee Silverman Voice Treatment (LSVT) on 33 patients with idiopathic PD. One group received the LSVT, which emphasizes high phonatory-respiratory effort. The other group received respiratory therapy (RET), which emphasizes high respiratory effort alone. Speech outcome measures were taken at baseline, immediately after the treatment termination, and two years after the termination treatment. The results indicated that LSVT was more effective than the RET in improving participants' vocal loudness over RET and these improvements were maintained at the two-year follow-up as well. Also, a majority of the participants who received speech therapy were pleased with their speech

therapist. The participants indicated that their speech therapist educated them and their families on the goals that were worked on and the rationale for these goals. The respondents also indicated that they would recommend speech therapy to other patients with PD. All these findings suggest that people with PD who receive PD perceive the benefits of speech therapy. As mentioned in the introduction section, EBP is an integration of the external evidence, clinicians' expertise, and client's perspective. It is critical for professionals to integrate the patients' perspectives so that we understand if the intended treatment benefits our clients. An emerging branch of science within the context of EBP is implementation science. To put it simply, implementation science helps professionals to understand the best mechanisms for moving clinical research findings into routine clinical practice that would improve patient outcomes and service-delivery models (Eccles & Mittman, 2006). Implementation science is different than typical research as it seeks to examine factors surrounding implementation (e.g., processes and outcomes), in addition to intervention outcomes (Fixsen et al., 2005). The evidence-base for speech treatments for people with PD is largely restricted to efficacy-based studies that represent early pipeline research. It is imperative for us to move beyond the efficacy phase and explore opportunities for the implementation of these treatment in real-life settings. For this purpose, client perspectives are fundamental to implementation science as it informs what works best in the field rather than inside a controlled environment such as a laboratory. Based on the current survey findings, a major bottleneck to implementing evidence-based speech treatments for people with PD is the lack of awareness among healthcare service providers. So, within the context of implementation science, there

should be appropriate education opportunities for healthcare professionals so that they are aware of the role of speech-language pathologists in management of PD.

### **Limitations**

While the current study does present an interesting variety of findings, it does not come without some limitations. First, the survey sample size was relatively small and was drawn from convenience distribution across different platforms. The small sample size impacts the generalization of the current findings. Second, not all participants were able to complete the survey on their own and required assistance from their caregiver, which could have biased the accuracy of the responses and results of the study.

### **Conclusion**

This is the first survey to our knowledge to survey patients with PD on their perspectives of speech therapy. The findings suggest that patients with PD value the benefits of speech therapy and in fact, recommend speech therapy to other patients with PD. These findings along with the external evidence for speech therapy in people with PD strengthen the evidence base. Future studies need to investigate why a sizable amount of people with PD do not find the need for speech therapy, as in the case of the current study. This line of research will have implications for evidence-based practice in speech-language pathology.



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**Table 1: Demographic Information of the Participants**

Demographic details of the participants	Response %	Count
<b>Age of the participants</b>		
30-39 years	4.41%	6
40-49 years	11.03%	15
50-59 years	17.65%	24
60-69 years	33.82%	46
70-79 years	25.00%	34
80-89 years	5.15%	7
90+ years	1.47%	2
<b>Gender</b>		
Male	48.76%	59
Female	50.41%	61
Non-binary / third gender	0.83%	1
<b>Race</b>		
African American	2.42%	3
Asian	8.06%	10
Hispanic/ Latino	6.45%	8
Native American	1.61%	2
Pacific Islander	0.00%	0
White/Caucasian	77.42%	96
Other/mixed	4.03%	5
<b>Level of education</b>		
Elementary level	0.83%	1
High School	16.53%	20
Vocational training/ Associate's Degree	11.57%	14
Bachelor's Degree	30.58%	37

<b>Table 1 (cont'd):</b> Demographic details of the participants	Response %	Count
<b>Geographical location</b>		
Midwest	23.97%	29
South	37.19%	45
Northeast	13.22%	16
East	4.96%	6
Other (please indicate your response in the below textbox)	20.66%	25
<b>Employment status</b>		
Full-time	18.18%	22
Part-time	11.57%	14
Retired	50.41%	61
Unemployed	3.31%	4
On disability	14.05%	17
Unemployed, but not retired or on disability	1.65%	2
Other	0.83%	1
<b>Marital status</b>		
Single	14.88%	18
Married	79.34%	96
Widowed	5.79%	7
Master's Degree	27.27%	33
Professional/ Doctoral Degree	9.92%	12
Other	3.31%	4



**Table 2. Respondents' Treatment History Details**

<b>Treatment History</b>	<b>Response %</b>	<b>Count</b>
<b>Length of diagnosis</b>		
Less than 6 months	8.40%	10
1-2 years	21.01%	25
2-3 years	29.41%	35
3-5 years	16.81%	20
6-9 years	19.33%	23
10+ years	5.04%	6
<b>Symptoms Severity Rating</b>		
Very mild	12.84%	14
Mild	28.44%	31
Moderate	40.37%	44
Moderate-severe	15.60%	17
Severe	2.75%	3
<b>Current stage of PD</b>		
Stable	47.71%	52
Progressive	41.28%	45
Rapidly progressive	3.67%	4
<b>Treatment History</b>	<b>Response</b>	<b>Count</b>
<b>Received speech therapy</b>		
Yes	45.45%	50
No	54.55%	60
<b>Length of speech therapy</b>		
Less than 6 months	50%	25
1-2 years	30%	15
3-5 years	14%	7
6-9 years	4%	2
10+ years	2%	1

**Table 2. Respondents' Treatment History Details (cont'd)**

Treatment History	Response	Count
<b>Received speech therapy</b>		
Yes	45.45%	50
No	54.55%	60
<b>Length of speech therapy</b>		
Less than 6 months	50%	25
1-2 years	30%	15
3-5 years	14%	7
6-9 years	4%	2
10+ years	2%	1
<b>Length seeking treatment</b>		
Less than 6 months	13.76%	15
1-2 years	22.02%	24
3-5 years	33.03%	36
6-9 years	11.93%	13
10+ years	19.27%	21
<b>Duration of treatments</b>		
1-2 years	21.90%	23
3-5 years	21.90%	23
6-9 years	20%	21
10+ years	11.43%	6
	19.05%	20

**Table 3. Respondents' Perception of Speech Therapy**

Respondents Perception of Speech Therapy	Response	Count
<b>Belief of if ST is beneficial</b>		
Yes	86.96%	40
No	13.04%	6
<b>Disease progression affects your speech</b>		
Yes	89.13%	41
No	10.87%	5
<b>Progress after ST</b>		
Yes	70.45%	31
No	29.55%	13
<b>Did SLP provide enough education about ST?</b>		
Yes	79.55%	35
No	20.45%	9
<b>Would you recommend ST?</b>		
Yes	95.56%	43
No	4.44%	2
<b>Did SLP explain the purpose of treatment?</b>		
Yes	95.56%	43
No	4.44%	2

## APPENDIX



### Oklahoma State University Institutional Review Board

Date: 06/24/2021  
Application Number: IRB-21-248  
Proposal Title: Perceptions of outcomes of speech therapy among individuals with Parkinson's disease-  
Examining a critical area of Evidence-Based Practice

Principal Investigator: Nancy Preston  
Co-Investigator(s):  
Faculty Adviser: Ramesh Kaipa  
Project Coordinator:  
Research Assistant(s):

Processed as: Exempt  
Exempt Category:

#### Status Recommended by Reviewer(s): Approved

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in 45CFR46.

**This study meets criteria in the Revised Common Rule, as well as, one or more of the circumstances for which continuing review is not required. As Principal Investigator of this research, you will be required to submit a status report to the IRB triennially.**

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be approved by the IRB. Protocol modifications requiring approval may include changes to the title, PI, adviser, other research personnel, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any unanticipated and/or adverse events to the IRB Office promptly.
4. Notify the IRB office when your research project is complete or when you are no longer affiliated with Oklahoma State University.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact the IRB Office at 405-744-3377 or [irb@okstate.edu](mailto:irb@okstate.edu).

Sincerely,  
Oklahoma State University IRB

VITA

Nancy Ann Preston

Candidate for the Degree of

Master of Science

Thesis: PERCEPTIONS OF OUTCOMES OF SPEECH THERAPY AMONG  
INDIVIDUALS WITH PARKINSON'S DISEASE – EXAMINING A  
CRITICAL AREA OF EVIDENCE-BASED PRACTICE

Major Field: Communication Sciences & Disorders

Biographical:

Education:

Completed the requirements for the Master of Science in your major at  
Oklahoma State University, Stillwater, Oklahoma in May, 2022.

Completed the requirements for the Bachelor of Science in your major at  
Abilene Christian University, Abilene, Texas in 2020.