

Emphasizing Occupation in the Lee Silverman Voice Treatment (LSVT BIG)

Program for Persons Diagnosed with Parkinson's Disease

Student Researcher: Katelyn Walsh, OTS

Faculty Mentor: Ranelle Nissen, PhD, OTR/L

BACKGROUND & PURPOSE

- Parkinson's disease (PD) is the second most common neurological disorder (Foster, Bedekar, & Tickle-Degnen, 2014).
- PD affects one million people in the U.S. and 60,000 are newly diagnosed each year (American Parkinson's Disease Association, 2019; Foster et al., 2014).
- PD is characterized by destruction of neurons in the brain leading to motor and nonmotor symptoms (Bologna et al., 2016).
- Symptoms may include slow, small movements, tremor, sleep difficulties, or sensory changes (Fox, Ebersbach, Ramig, & Sapir, 2012; Tanveer, Attique, Sadiq, & Ahmad, 2018).
- Quality of life may be significantly impacted (Fox et al., 2012)
- To address functional impairments, the Lee Silverman Voice Treatment (LSVT BIG) has been used to emphasize bigger movements using cues, repetition, and functional tasks (Dastipour et al., 2015; Fox et al., 2012)
- LSVT BIG has been shown to improve motor performance with positive effects on gait, balance and bed mobility (Janssens, Mafoed, Nyffeler, Bohlhalter, & Vanbellinghen, 2014; McDonnell et al., 2017)
- Fischel, Hotchkiss, & Brown (2018) recommend developing strategies to overcome barriers to compliance outside therapy

Purpose: Place greater emphasis on occupation throughout the LSVT BIG program in hopes of enhancing carryover of LSVT BIG principles into everyday tasks.

METHODS

- LSVT BIG sessions occur for one hour, four times a week, for four weeks (Ueno et al., 2017)
- Development of the occupation-based manual "Think BIG, Be BIG," provided pictorial representations of 11 tasks identified by the site mentor as most commonly reported as difficult at evaluation
- Tasks included rolling in bed, handwriting, buttoning, feeding, reaching, stepping up/down a curb, car transfer, putting on a seatbelt, toilet transfer, BIG walking, and BIG posture
- Manual implemented with one participant as a case description using a pretest/posttest design
- Inclusion criteria:
 - Diagnosis of PD
 - Referral to occupational therapy
 - Score on the Short Blessed Test of 9 or less
 - Ability to attend sessions in outpatient clinic
- Assessments:
 - Nine Hole Peg Test: fine motor coordination
 - Timed Up and Go: gait, balance, functional mobility
 - Functional Tasks Recording Form: occupational performance
 - Barthel Index: occupational performance
 - Satisfaction survey

THEORETICAL FOUNDATION

- **Biomechanical Frame of Reference:** Using functional, meaningful activities facilitates change in strength, range of motion, and activity tolerance (Dutton, 1989; Fabrizio & Rafols, 2014). The LSVT BIG protocol includes Maximal Daily Exercises that are completed every session. Functional component tasks supplement the exercises by breaking down everyday activities into smaller components. Through inclusion of an occupation-based manual, participants are able to address functional performance deficits to overcome barriers to engaging in meaningful occupations according to this model.
- **Task-Oriented Approach:** A component of motor learning theory, the task-oriented approach emphasizes use of repetition in conjunction with meaningful activities to enhance task performance (Cole & Tufano, 2008). Additionally, auditory, somatosensory, and visual cues contribute to enhanced movement patterns (Rochester et al., 2010). Implementation of the occupation-based manual aligns with this approach through use of meaningful activities as well as cueing strategies. As PD progresses, this manual may be particularly helpful to use as an alternative method to facilitate learning (Nieuwboer, Rochester, Müncks, & Swinnen, 2009).
- **Model of Human Occupation (MOHO):** According to MOHO, humans are open systems that have an innate desire to gain mastery over the environment (Kielhofner & Burke, 1980). Change occurs when a person has the performance capacity and motivation to engage in meaningful occupations (Kielhofner, 2009). By using this manual, participants may be able to enhance occupational performance through these motivating tasks.

RESULTS/CONCLUSIONS

- Nine Hole Peg Test scores indicated improvements in fine motor coordination. At initial evaluation, participant scored 35 seconds with right hand and 60 seconds with the left. Upon completion of program, participant scored 31 seconds with the right hand and 33 seconds with the left. Significant qualitative improvements in amplitude, spacing, and legibility of handwriting were also noted.
- The Timed Up and Go assessment revealed changes from pre to post program. At initial evaluation, the participant completed the task in 49 seconds. At discharge, the task was completed in 37 seconds. The participant was able to complete the task without an assistive device at discharge in 24 seconds, but the rollator was recommended for use at home for increased balance and safety.
- The Functional Tasks Recording Form (reference Table 1) indicated improvements in ability to complete self-identified occupation-based tasks. The participant made significant positive changes from pre- to post-program in all categories.
- The Barthel Index indicated no change from initial evaluation to discharge. The participant scored 75/100 indicating some assistance is required to complete ADL tasks. Participant's increased need for assistance largely related to visual deficits.
- In conclusion, the participant experienced positive changes in movement patterns related to functional, occupation-based tasks. When surveyed, the participant indicated she sometimes referenced the manual and would find it beneficial to reference after discharge.

IMPLICATIONS FOR OCCUPATIONAL THERAPY

- Client education is of great importance regarding available resources and symptom management
- Communication among the various disciplines involved in the care for a person with PD is critical to provide quality, evidence-based intervention
- Emphasis on occupation is highly important for improving functional outcomes
- Intervention methods should be grounded on theory to remain evidence-based
- Occupation-based assessments should be examined for effectiveness in determining change from initial evaluation to discharge
- Future directions for research:
 - Emphasis on occupation with the LSVT BIG program
 - Long-term impact of the LSVT BIG program for symptom management
 - Ways adherence to exercise regimen at home may be enhanced

Table 1
Comparison of Functional Tasks Recording Form at Initial Evaluation to Program Discharge.

Task	Pre-Program	Post-Program
Walking Straight	Extremely difficult	Somewhat difficult
Handwriting	Extremely difficult	Minimally difficult
Putting Dishes Away	Moderately difficult	Not difficult
Going Shopping	Unable	Not difficult
Lower Body Dressing	Somewhat difficult	Not difficult
Using Phone	Extremely difficult	Minimally difficult
Changing Litter Box	Unable	Not difficult
Bed Mobility (recliner)	Extremely difficult	Not difficult
Car Transfer	Moderately difficult	Not difficult
Walking While Carrying Things	Very difficult	Somewhat difficult

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