

# Investigating the Impact of Parkinson's Disease on IADL Performance, Emphasizing the Need for Earlier Diagnosis and the Value of Timelier Occupational Therapy Intervention

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## BACKGROUND

- Parkinson's disease (PD) is estimated to affect between 6-7 million people worldwide (Penko et al., 2020).
- Recently, figures have shown the rate of PD growth being the fastest of all neurological disorders, even more than Alzheimer's disease (Alberts & Rosenfeldt, 2020).
- PD is characterized by both motor and cognitive deficits, typically seen through symptoms including bradykinesia, tremors, rigidity, postural instability, fatigue, gait dysfunction, decreased executive functioning, and depression (Cusso et al., 2016).
- Occupations requiring both motor and non-motor skills, such as IADLs, are often identified as difficult before those tasks which are more physically oriented, especially early on in the progression of PD. Subsequently, individuals withdraw from them altogether, resulting in decreased productivity, independence, occupational participation and function in daily living, and ultimately their overall quality of life (Davis et al., 2019; Foster et al., 2021).
- These difficulties are recognized in recent research as prodromal symptoms noted years prior to actual PD diagnosis (Foubert-Samier et al., 2020).
- Early diagnosis and an increased role of OT in PD care, providing therapy earlier in disease progression to slow functional decline and progression of PD, are vital aspects of holistic care (Foster et al., 2021).
- OTs address both motor and non-motor performance difficulties by helping these individuals improve or maintain their functional abilities concerning their daily occupations before significant declines occur and preserve independence and quality of life longer (Abbruzzese et al., 2016; Foster et al., 2021).
- The use of rehab interventions including fall prevention, transfer training, fatigue management, and addressing ADLs have demonstrated positive effects on occupational participation, maintaining independence, and quality of life for those with PD (Radder et al., 2017; Welsby et al., 2019).
- The importance of increased PD care is even more significant for those residing in rural areas because of the issues of limited access, treatment options, and local resources (Singh et al., 2020).

## PURPOSE

The purpose of the capstone experience and project was to investigate the impact of PD on IADL performance, to better understand, and to highlight the importance of earlier diagnosis and the value of more timely occupational therapy intervention. It was designed to support rural/underserved populations that are not currently managing their PD due to inadequate awareness, access, options, or resources.

## CONCEPTUAL FRAMEWORK

### Motor Learning and Task-Oriented Approach

(Mathiowetz & Bass Haugen, 1994)

- Goal is to enhance participation in meaningful occupations by improving motor behavior and control
- Emphasizes a client-centered, holistic perspective concentrating on the connection between person, environment, and task/occupation
- Important in PD care because of variable disease progression and symptoms unique to every individual
- This theory was utilized in collaboration with clients to select essential tasks that are most challenging and collaboratively problem-solving the best way to complete those tasks, providing feedback on performance, and promoting self-reflection to stimulate the transfer of learning for skill development. Some of the specific approaches were related to on remediation/recovery, adaptation, and compensation.

### Canadian Model of Occupational Performance and Engagement (CMOP-E)

(Polatajko et al., 2007)

- Focus is on occupational performance and engagement
- Takes a client-centered approach to address all components, spiritual emotional, physical, and cognitive abilities and concentrates on congruence between person, occupation, and environment to attain function, health, and well-being
- Important in PD care to attend to health impairments across the entire lifespan, considering the constantly changing presentation and progression.
- This model was used by giving clients an opportunity to provide their own input in selecting meaningful occupations and using them to increase their motivation, set and achieve goals, and advance health and well-being. Components of education, collaborative problem-solving, encouraging self-management, and promoting health and well-being were applied.

## METHODS AND ACTIVITIES

- This capstone project included a four-week in-depth clinical experience at a large research center with a specific focus on PD, to learn more about current research being conducted using virtual reality to evaluate PD and its impacts on IADLs.
- The information obtained related to this was then used over ten weeks in the development and implementation of a therapy-based wellness program at a rural, critical access, non-profit hospital in the Midwest.
- Two programs were conducted, one as a community-based group and another group at the LTC facility.
- The capstone experience and project were guided by the following objectives and corresponding deliverables:
  - **Objective 1:** Discover current PD research being done investigating outcomes of IADL performance with the use of a virtual reality task.
    - Task analysis and protocol for a virtual reality task incorporating IADLs
    - Summary of assessment results from IADL assessment/questionnaire
  - **Objective 2:** Better understand the role of occupational therapy in Parkinson's intervention.
    - Conduct 5+ intervention sessions – Group protocols
    - Conduct 6+ group exercise classes (LSVT, PWR!, Cycling) – Group protocols
  - **Objective 3:** Work alongside interdisciplinary teams to provide the best care for clients with PD by supporting daily occupational participation and performance.
    - Narrative paper on interdisciplinary team approach to PD
  - **Objective 4:** Develop and implement an outpatient Parkinson's program to address functional components of daily living, cognition, and other PD associated symptoms.
    - Marketing and advertising tools (flyers, ads, social media posts, etc.) for PD group
    - Development of outpatient PD program – summarizing outcomes with at least 3 individuals
  - **Objective 5:** Increase awareness of and inform other healthcare professionals about the value of occupational therapy interventions in Parkinson's treatment.
    - Annotated bibliography
    - Write article and submit to OT Practice
    - Educational materials to provide to other healthcare professionals, facilities, etc.

## RESULTS

- All five of the objectives were met and all deliverables completed.
- The task analysis was done on the virtual reality grocery store task and used in the development of an assessment to be used to score participants' performance on the IADL task.
  - 'Young adult' group: 'No challenge'
  - 'Healthy older adults' group: 'Minimally challenged' – 'Moderately challenged'
  - 'Those with PD' group: 'Moderately challenged' – 'Greatly challenged'
- Results from this IADL assessment were used in analyzing the most problematic parts and underlying factors to select topics to be discussed at the PD Focus Group in Sioux Center. The chosen topics included:
  - Education and Management, Health and Exercise, Cognitive Training, Fall Prevention, Energy Conservation and Work Simplification, Social Participation and Re-engagement in Meaningful Activities
- The PD Focus Group drew anywhere from fourteen to twenty-one attendees each week (A mix of those with PD and caregivers).
- Based on positive verbal feedback and engagement in weekly discussions and activities by group members, the program was effective in expanding knowledge, providing resources and tools for PD management, offering support and engagement with others.
- A modified client satisfaction questionnaire was performed at the conclusion of the program, which also found similar reflections of perceived satisfaction through interval and open-ended questions.
  - Results of interval questions:
    - The program was good/excellent
    - Felt very satisfied with the help they received
    - Most/almost all of their needs were met
    - Would recommend this program to a friend
    - Would certainly come back to this program
  - Common themes of open-ended questions:
    - Enjoy the fun, organized atmosphere
    - Benefit of meeting and learning from others' experiences
    - Like receiving information, practical tips, professional expertise
    - Desire for more information for caregivers and additional topics such as medication management

## IMPLICATIONS/RECOMMENDATIONS

- Occupational therapists are in a perfect position to advocate for and support this rapidly growing population earlier in disease progression to prevent further disability and disengagement.
- Recognize importance of earlier diagnosis and timelier intervention in PD care to improve health outcomes and enhance quality of life.
- Inform other healthcare professionals of the benefits of early therapeutic intervention to manage PD throughout disease progression and specifically what services OT can provide.
- Work in collaboration, as a team, with other healthcare professionals to ensure the best care is provided.
- Promote and encourage members of this population to start or get moving as soon as possible.
- Offer tools, advice, support, and even suggestions for adaptations, modifications, and prevention strategies for these individuals to encourage continued occupational participation.
- Implementation of more programs similar to this in rural areas, where individuals have limited access and are more likely to be unfamiliar with the valuable, recommended resources that are available, is important for increasing care.

## CONCLUSIONS

As the rate of PD continues to rise at an alarming rate, more individuals are experiencing both motor and non-motor symptoms resulting in difficulties with various daily activities leading to decreased engagement, performance, and quality of life. Occupational therapists have the unique knowledge and abilities to manage or overcome these obstacles and provide valuable support for individuals in maintaining their independence. Earlier referrals for rehabilitation are critical for providing these individuals with the best opportunities to manage PD and ultimately slow the progression of PD. Based on the conclusions of this capstone experience and project, one of the best ways to support increasing care for those with PD is to offer programs similar to the PD Focus Group discussed in this paper. Consequently, it is essential for occupational therapists to address the needs of and advocate for this rapidly growing population earlier, to prevent further disability, improve health outcomes, and enhance their quality of life.

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