

Parkinson's Disease: Implications for Vocational Evaluation and Career Assessment

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Parkinson's disease (PD) is a degenerative disease of the central nervous system. It is estimated that approximately 1.5 million people in the United States presently have PD (National Parkinson Foundation, 2007). PD is both a chronic and progressive disorder. PD is the most common form of Parkinsonism, which is considered as a group of disorders with similar features and symptoms. The four primary symptoms of PD include tremor, rigidity, bradykinesia and postural disturbances (Ferreri, Agbokou & Gauthier, 2006). A number of other symptoms that may accompany PD include depression, emotional changes, difficulty swallowing and chewing, speech changes, urinary problems or constipation, skin problems, sleep problems, dementia or other cognitive problems, orthostatic hypotension, muscle cramps, dystonia, pain, fatigue and loss of energy, and sexual dysfunction.

According to the National Institute of Neurological Disorders and Stroke (2006), PD is not by itself a fatal disease; however the condition is considered chronic and typically gets worse over time. The average life expectancy of a person with PD is generally the same as other people who do not have the disease. The University of Virginia, Department of Neurology (2007) noted that PD is primarily a disease of later life, however approximately 10% of cases occur in patients under age 50. In contrast, the National Parkinson Foundation (NPF) (2007) estimates that approximately 15% of PD cases occur prior to age 50. The NPF noted that PD affects both men and women in almost equal number.

Jung (2004) noted that approximately 5% of Parkinson's patients are individuals between the ages of 21 to 40 years of age. This so-called young onset Parkinson's disease (YOPD) has an earlier onset of motor complications than later onset Parkinson's disease. While the specific disease

progression within a particular individual is difficult to predict, the YOPD patients are within the prime work-life years and functional limitations associated with the disease can have a negative impact upon employment.

Schrag and Banks (2006) examined time to loss of employment in United Kingdom (UK) based studies of 151 and 308 patients with PD with onset before age 65. The data revealed that 52% and 57% of patients has retired early secondary to PD. Within the same groups, 18% and 5% of patients were unemployed. By comparison, the

These social skill training approaches focus on teaching the skills needed to interact, and have been effective in teaching skills in the training setting. Unfortunately, this skill training alone has not resulted in increased employment outcomes

mean age of retirement was 55.8 years for participants in both studies compared to the average retirement age of 62 years in the general UK population. The mean time to loss of employment was 4.9 years with a mean of 6.7 years for individuals under the age of 45. Schrag and Banks concluded that PD leads to loss of employment on average within less than 10 years of disease onset. The researchers found that there were no significant differences between sexes, rural versus urban living, types of work, those living alone or with a partner and study participants with or without children living in their households.

Vocational evaluators, career assessment and rehabilitation professionals may encounter consumers with PD in their prac-

tices. It is critical for these professionals to be familiar with vocational assessment issues associated with this population. Power (2006) noted that a comprehensive vocational assessment emphasizes and incorporates medical, psychological, social, vocational, educational, cultural and economic data.

Cognitive impairment and depression are common among patients with PD and play a significant role with regard to the impact of the disability. In addition, tremor or shaking which affects the majority of PD patients can have a significant negative impact upon assessment instruments that require the consumer to perform tasks often necessary to satisfactorily complete paper and pencil type tests.

Employing a holistic approach in vocational assessment may be critical to obtaining an accurate picture of the functional abilities and limitations of individuals with PD for vocational evaluator and career assessment professionals. In general, neuropsychological evaluations can serve as a valuable resource for planning vocational evaluations and career assessments. The American Academy of Neurology (1996) observed that neuropsychological evaluations can be helpful in assessments of cognitive and behavioral disturbances associated with PD having the advantage of being objective, safe, portable and relevant to the functional integrity of the brain. The vocational evaluator and career assessment professional should keep in mind that neurological assessments like other objective evaluation instruments should be considered in the context of the consumer's age, education, socioeconomic status and cultural background. It is important for evaluation professionals to incorporate the necessary testing accommodations available to maintain compliance with the Americans with Disabilities Act of 1990 for individuals with disabilities.

Power (2006) noted that testing accommodations for individuals with disabilities usually fall into three categories, which include testing medium, time limits and test content. Testing medium might be defined as different methods to present the same information such as large print, a reader or audiotape. Power cautioned that changing a test into a sign language version should be considered a translation into another language rather than simply a change of medium. In the case of time limits, it is often difficult to determine exactly how

much additional time may be necessary for individuals with PD given the impact of the disease which may vary from one individual to another. The vocational evaluation and career assessment professional should be mindful of the impact of additional time may have also upon the validity and reliability of test results when compared to the methodology and standardization process used to develop such instruments. In addition, the American Academy of Neurology (1996) in its report from the Therapeutics

and Technology Assessment Subcommittee cautioned that patients with PD that are tested with timed tests (e.g., IQ tests) requiring the individual to complete the test in a specified period have a greater sensitivity to the evaluation of diffused or multifocal cerebral changes when compared to evaluations using untimed tests. The issue of timed tests appears to present as a double-edged sword for the evaluator in weighing the benefits of allowing additional time on an evaluation instrument for

Tests commonly used to perform assessments of major domains of neuropsychological functioning include the following: *Digit Span, Boston Naming Test, Wechsler Memory Scale - III, California Verbal Learning Test, Rey-Osterrieth Complex Figure, Block Design Subtest of WAIS - III, Wisconsin Card Sort Test, Stroop Test, Trails Making Tests A & B, Wechsler Adult Intelligence Scale -III (WAIS-III), Wechsler Intelligence Scale for Children (WISC-R), New Adult Reading Test-Revised, Finger Tapping, Groove Pegboard, Wide Range Achievement Test - 4, Luria-Nebraska Neuropsychological Battery and Halstead-Reitan Neuropsychological Battery.*

**Tests Commonly Used in Neuropsychological Evaluations
Associated with Parkinson's disease**

<i>Neuropsychological Test</i>	<i>Assessment Domain Purportedly Measured</i>
<i>Digit Span - Subtest Wechsler Adult Intelligence Scale - III (WAIS-III)</i>	<i>Attention</i>
<i>Boston Naming Test</i>	<i>Language facility</i>
<i>Wechsler Memory Scale - III</i>	<i>Memory</i>
<i>California Verbal Learning Test</i>	<i>Verbal learning, organization, and memory</i>
<i>Rey-Osterrieth Complex Figure</i>	<i>Visuospatial ability and memory</i>
<i>Block Design Subtest of WAIS-III</i>	<i>Visuospatial skills</i>
<i>Wisconsin Card Sort Test</i>	<i>Ability to learn concepts</i>
<i>Stroop Test</i>	<i>Attention, mental speed, and mental control</i>
<i>Trails Making Tests A & B</i>	<i>Attention, visual searching, mental processing speed</i>
<i>Wechsler Adult Intelligence Scale -III</i>	<i>General IQ Test - several subtests, foundation for neuropsychological testing</i>
<i>Wechsler Intelligence Scale for Children-IV</i>	<i>General IQ Test - several subtests, foundation for neuropsychological testing designed for children</i>
<i>New Adult Reading Test-Revised</i>	<i>Intelligence</i>
<i>Finger Tapping</i>	<i>Motor speed and possible lateral brain damage</i>
<i>Groove Pegboard</i>	<i>Performance speed in fine motor tasks</i>
<i>Wide Range Achievement Test - 4</i>	<i>Educational achievement</i>
<i>Luria-Nebraska Neuropsychological Battery</i>	<i>Analyses of strengths and weaknesses across areas of brain function</i>
<i>Halstead-Reitan Neuropsychological Battery</i>	<i>Language, attention, motor speed, abstract thinking, memory, and spatial reasoning</i>

Note: Table adapted from American Academy of Neurology (1996) and Swiercinsky (2001)www.Brainsource.com.

accommodation purposes while at the same time such strategies may violate strict time limits imposed by test developers. Likewise, changes in test content may also impact test standardization requirements. In any event, the vocational evaluator and career assessment professional should comment within the evaluation report about any changes in the assessment instrument's protocol which violate administration standards. PD and its impact upon an individual's functional physical ability should be taken into consideration when performing vocational and career assessment. As noted previously, tremor or shaking can have a significant negative impact upon assessment instruments that require the person with PD to perform tasks often necessary to satisfactorily complete paper and pencil type tests. For example, performance subtests on the Wechsler Adult Intelligence Test - III such as *Digit Symbol-Coding* require the consumer with PD to utilize paper and pencil skills (Groth-Marnat, 2003). The *Block Design* subtest requires the evaluate to manipulate small blocks with their hands.

Physicians and particularly neurologists use several different evaluation protocols to assess the functional ability of PD patients such as the Hoehn and Yahr Staging of Parkinson's disease, Unified Parkinson Disease Rating Scale (UPDRS), and Schwab and England Activities of Daily Living (Massachusetts General Hospital, 2005). The Hoehn and Yahr Staging of Parkinson's disease has five stages ranging from Stage

One with characteristics such as "usually presents with tremor of one limb" to Stage Five "cannot stand or walk".

The UPDRS is a rating tool that follows the longitudinal course of PD and includes factors such as mentation, behavior and mood within the first section. The second section includes assessment of factors involving activities of daily living skills. The last section of the UPDRS includes examination of motor activities such as speech, facial expressions, tremor at rest, gait and rigidity.

The Schwab and England Activities of Daily Living scores range from 0% to 100%. The 0% rating is assigned to PD patients with vegetative functions involving loss of swallowing ability along with impaired bladder and bowel control. PD patients that receive a score of 100% are completely independent and able to do all chores without slowness, difficulty or impairment.

While there are a number of treatments and management strategies available for PD, there remains no cure for the medical condition (University of Virginia, Department of Neurology, 2007). From a pharmacological standpoint, Levodopa is the primary and most effective medication for the treatment of PD, however its long-term use is limited by motor complications and drug-induced dyskinesia (Rao, Hofmann & Shakil, 2006). Several researchers have raised concerns that PD can also have a significant impact upon an individual's ability

to safely operate motorized vehicles (Blair 2000; Wood, Worringham, Gerr, Mallon & Silburn, 2005; Uc, Rizzo, Anderson, Sparks, Rodnitzky & Drawson, 2006). It is critical that the evaluator have proper training and credentialing when evaluating and making recommendations regarding the ability of a person with PD to safely operate a motorized vehicle.

Summary

Vocational evaluators, career assessment and rehabilitation professionals may encounter consumers with PD in their practices. It is essential for these professionals to be familiar with vocational assessment issues associated with this population. The four primary symptoms of PD include tremor, rigidity, bradykinesia and postural instability. A number of other symptoms that may accompany PD include depression, emotional changes, difficulty swallowing and chewing, speech changes, urinary problems or constipation, skin problems, sleep problems, dementia or other cognitive problems, orthostatic hypotension, muscle cramps, dystonia, pain, fatigue and loss of energy, and sexual dysfunction. Employing a holistic approach in vocational assessment may be critical to obtaining an accurate picture of the functional abilities and limitations of individuals with PD for vocational evaluator and career assessment professionals.

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