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Original article

A validity and reliability study of *Parkinson Disease Sleep Scale 2* (PDSS-2) in Parkinson disease patient with sleep disorder☆

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ABSTRACT

Objectives: This study aims to measure the level of validity and reliability of PDSS-2 in Parkinson's disease with sleep disorders.
Methods: The study was conducted on Parkinson's patients with sleep disorders that the inclusion criteria are women or men aged >40 years, diagnosed with Parkinson's disease. The PDSS-2 score is used to assess sleep disorders. Assessment is done twice with an interval of examination 10 min. Then measure the Pearson correlation test between two examinations (validity test) and reliability by calculating the Cronbach's alpha PDSS-2 value, and *inter-rater reliability* to determine *internal consistency*.
Results: The study subjects were 15 PD patients, range age between 51 and 75 years (63.0 ± 8.95). Consist of 11 men and four women. The validity test value on the two examinations showed 9 of 15 items (60% validity) and 7 of 15 items (46.6% validity). The second reliability test was declared reliable with each value of Cronbach alpha 0.833 and 0.644 (r table value = 0.60), with inter-rater reliability value is 0.706.
Conclusion: The PDSS-2 score is reliable in assessing sleep disorders in Parkinson's disease with internal consistency 0.706, and the validity value is 80%.

Introduction

Parkinson's disease (PD) is the second most common neurodegenerative disorder in the world. In China, approximately 48–89% of Chinese patients with PD are affected by sleep disorders. In recent decades, there have been significant advances in our understanding of the relationship between sleep disorders and PD, yet many questions remain unanswered.[1]

Sleep disorder is a non-motor symptom often found in Parkinson's disease, with a prevalence of about 40–90%. It can occur at an advanced stage of Parkinson's disease also precede motor symptoms.[2] Sleep disorders often occur in PD patients but often undetected due to historical identification incomplete due to focus on motor manifestations, as well as lack of self-reporting. Sleep disorders have a severe impact on health, general well-being, and quality of life. Sleep problems in PD have many potential causes including the direct effects of PD itself, side effects of anti-Parkinson's drugs, sleep disorder during the day, age-related, and other comorbidities.[3]

Clinical evaluation not accurate enough to diagnose sleep disorders. Some assessment tools have been developed to help detect and manage sleep problems in PD patients. Polysomnography (PSG) is considered a gold standard to diagnose and evaluate the severity of nocturnal sleep disorders. The symptoms of nocturnal psychosis and nocturia are PDSS items that have been reported to correlate with several PSG parameters in patients with PD.[4]

Several scales have been proposed to assess sleep disorders in PD patients. More recently, the Movement Disorder Society has assigned a special division to examine some sleep disturbance assessment scales and evaluate their application in PD patients.[5] Only a few scales are appropriate for the PD population. Specifically, Parkinson's Disease Sleep Scale (PDSS) has been proposed as a sleep disorder screening tool and measures the severity of sleep disorders in PD. However, PDSS has been found inadequate as a screening tool for specific sleep disorders in PD, such as sleep apnea, REM behavior disorder (RBD), and restless leg syndrome (RLS). Based on these limitations and the need for sleep disorder measurement tools in PD, a modified version of PDSS (PDSS-2) was established and published in 2011. PDSS-2 was developed to assess nocturnal disorders.[6]

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