Pakistan Journal of Neurological Sciences (PJNS)

Volume 18 | Issue 4 Article 11

12-2023

A New Self-Assessment Questionnaire to Assess Parkinsonism: A Cross-Sectional Study

Sohail Khan
Multan Medical & Dental College

Follow this and additional works at: https://ecommons.aku.edu/pjns

Part of the Neurology Commons

Recommended Citation

Khan, Sohail (2023) "A New Self-Assessment Questionnaire to Assess Parkinsonism: A Cross-Sectional Study," *Pakistan Journal of Neurological Sciences (PJNS)*: Vol. 18: Iss. 4, Article 11.
Available at: https://ecommons.aku.edu/pjns/vol18/iss4/11

https://doi.org/10.56310/pjns.v18i04.283

A NEW SELF-ASSESSMENT QUESTIONNAIRE TO ASSESS PARKINSONISM: A CROSS-SECTIONAL STUDY

Sohail Khan[1]
[1]*Multan Medical & Dental College*

Corresponding author: ***Sohail Khan*** *Multan Medical & Dental College* ***Email:*** *caringneurologist@gmail.com*

Date of submission: *September 14, 2023* ***Date of revision:*** *December 12, 2023* ***Date of acceptance:*** *December 25, 2023*

Note: The editors of PJNS are aware that this article contains old data. However, we have decided to publish this article because a) the data is still important as this is a novel scale in assessment of parkinsonism, and b) the authors have written the article well and have mentioned this limitation of their manuscript.

ABSTRACT

Background and objective:

A composite scale for parkinsonism and Parkinson's disease (PD) that incorporates multiple motor system symptoms and systemic complaints and their severity may help the busy clinician in documenting the severity and progression of common and bothersome symptoms. The objective of this study was to study a new scale, Parkinson's Symptoms Questionnaire (PSQ), to assess and track progression of parkinsonism.

Methods:

This was a cross-sectional study that was conducted from August 2004 to December 2009 in a private clinic in State of Iowa, United States. We developed a new scale, PSQ, to assess common symptoms of parkinsonism. It has 14 items and each is graded from 0 to 2, for a score range of 0 (normal) to 28 (most severe symptoms). We compared the scale to Parkinson's disease Questionnaire-8 (PDQ-8).

Results:

The analysis was performed on 42 patients. Of these 42 patients 24 were male (57%), 18 were female (43%). Ages ranged from 55 to 91. Since PDQ-8 measures disability and PSQ measures wellness, we hypothesized that a score of 100% in PDQ-8 should correspond to 0% in PSQ. PSQ showed a strong negative correlation with PDQ-8.

Conclusion:

The new scale showed promise to be used in clinical practice to quickly assess common symptoms in patients with parkinsonism and to document progression over time.

Keywords: PDQ-8, PSQ, Parkinsonism

INTRODUCTION

Parkinson's disease is a slowly progressive neurodegenerative disorder. Parkinsonism refers to a group of neurological disorders that cause motor issues similar to those seen in Parkinson's disease such as tremors, bradykinesia, and stiffness. The cardinal manifestations of Parkinson's disease are tremor, rigidity, and bradykinesia. However, patients are often bothered by many non-motor symptoms.[1] In a busy clinical practice, an assessment of such symptoms can be time-consuming. The research scales like Unified Parkinson's Disease Rating Scale are lengthy and require some level of training.[2] They do not differentiate between impairment and disability. The Parkinson's disease Questionnaire (PDQ-8) measures the quality of life and to a certain extent addresses disabilities as well. [3,4] However, it addresses only a few symptoms of Parkinson's disease like dressing, concentration, and muscle cramps, etc.

A new scale, Parkinson's Symptoms Questionnaire (PSQ) was developed by the author for use in his private practice that consists of 14 common symptoms of Parkinson's disease. After using it for five years and at the suggestion of colleagues, it was decided to publish the findings. The scale was compared to PDQ-8. The scale may be used on the first visit and also on follow-up visits to track disease progression.

METHODS

This was a cross-sectional study that was conducted from August 2004 to December 2009 in a private clinic in State of Iowa, United States. The data was collected as part of routine history and physical examination of patients with Parkinson's disease/parkinsonism. The author developed this scale for his use in private practice. The study consisted of chart reviews of patients seen during the five-year period. The analysis was performed on 42 patients. The protocol was submitted and exempted from further IRB review since it's a retrospective study of the collected data and does not involve any interventions.

Forty-two patients with Parkinson's disease filled out both PDQ-8 and PSQ during their 113 visits to the same neurology clinic during a period of five years. The new scale, PSQ, has 14 items and each is graded from 0 to 2, for a score range of 0 (normal) to 28 (most severe symptoms). The index score is then converted into percentage and a lower score is better (Table 1).

Table 1: Parkinson's Symptoms Questionnaire PSQ

FUNCTION	NO PROBLEM (0)	SOME PROBLEM (1)	SEVERE PROBLEM (2)
MEMORY			
HALLUCINATIONS			
SPEECH			
DROOLING			
HANDWRITING			
CUTTING			
DRESSING			
TURNING IN BED			
FALLING			
FREEZING			
WALKING			
TREMOR			
CONSTIPATION			
SEXUAL DYSFUNCTION			

The PDQ-8 is derived from a more elaborate PDQ-39 scale and consists of eight items and each is graded from 0 to 4, for a score range of 0 (totally disabled) to 32 (normal). The index score is then converted into percentage and higher score is better.

Since PDQ-8 measures disability and PSQ measures wellness, we hypothesized that a score of 100% in PDQ-8 should correspond to 0% in PSQ. Similarly, a 30% score in PDQ-8 should correspond to 70% score in PSQ. All analysis was performed using SPSS version 21 for Windows.

RESULTS

The analysis was performed on 42 patients. Of these 42 patients 24 were male (57%), 18 were female (43%). Ages ranged from 55 to 91.

Internal consistency was checked by Cronbach's alpha coefficient (Table 2). Cronbach's alpha of PSQ was 0.87. The scalability of each item is shown in Table 2.

Table 2: PSQ Reliability Scale Alpha

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.812	.879	7

The Table 3 shows the mean and standard deviation of and scalability of PSQ

Table 3: Scale Statistics

Mean	Variance	Std. Deviation	N of Items
175.55	4045.777	63.606	7

The statistical analysis of validity of PSQ was as follows:

The relationship between Parkinson's Disease Questionnaire (PDQ) and Parkinson's Symptom Questionnaire (PSQ) was investigated using Pearson product moment correlation (Table 4).

Table 4: Pearson Product Moment Correlation Coefficient (r)

Correlations

		PDQ	PSQ
PDQ	Pearson Correlation	1	-.717**
	Sig. (2-tailed)		.000
	N	116	116
PSQ	Pearson Correlation	-.717**	1
	Sig. (2-tailed)	.000	
	N	116	116

**. Correlation is significant at the 0.01 level (2-tailed).

Preliminary analysis was performed to ensure no violation of assumption of normality and linearity. There was a strong negative correlation between PDQ & PSQ . The correlation (r =-0.71) was noted. A coefficient of 0.7 or higher indicates a high association. Internal consistency was also confirmed by using reliability rho, which was (ρ =-.706) (Table 5).

Table 5: Nonparametric Correlations (Rho)

Correlations

			PDQ	PSQ
Spearman's rho	PDQ	Correlation Coefficient	1.000	-.706**
		Sig. (2-tailed)	.	.000
		N	116	116
	PSQ	Correlation Coefficient	-.706**	1.000
		Sig. (2-tailed)	.000	.
		N	116	116

**. Correlation is significant at the 0.01 level (2-tailed).

Parkinson's Symptom Questionnaire (PSQ) ;

Cronbach's Alpha Coefficient = 0.879

r = -0.71 Reliability rho, ρ = - 0.706

DISCUSSION

The PSQ has shown strong negative correlation with PDQ-8 as hypothesized along with excellent internal consistency. The questionnaire is helpful in assessing both motor and non-motor symptoms of the patient with Parkinson's disease. The questionnaire may be filled by the patient or the caregivers. A composite score is generated, which can be tracked over time. It will help the physician save time and is useful to document the progression of the disease.

There are already several rating scales available for Parkinson's disease.[5] Schwab and England Scale rates a patient globally from 0% (bedridden) to 100% (completely independent) but does not rate individual symptoms.[6] Hoehn and Yahr Scale was published in 1967 by Melvin Yahr and Margaret Hoehn. It ranged from stages 1 to 5. Afterwards, stage 0 was added and stages 1.5 and 2.5 have been proposed. However, it also does not grade individual symptoms.[7] The Parkinson's disease Composite Scale combines six motor, six non-motor symptoms, and five treatment related complications questions (including disability) which are all graded from 0 to 4 with a score range of 0 to 68. However, it does not include everyday items like dressing and cutting etc. [8,9]

The Part I and Part II of UPDRS and its modified version MDS-UPDRS have questions similar to PSQ but they are graded from 0 to 4 instead of 0 to 2 grades as in PSQ.[10-12] Thus, PSQ should be easier to grade by patients and their caregivers. In addition, discussion about sexual dysfunction is usually skipped in a busy clinical practice but PSQ highlights such issues.

This study has some limitations. It has compared PSQ with only PDQ-8 and not other scales of parkinsonism. Also, the data presented is now old as the plan to publish was made after few years.

CONCLUSION

The new scale PSQ showed promise to be used in clinical practice to quickly assess common symptoms in patients with parkinsonism and to document progression over time.

REFERENCES

1. Parkinson's Foundation. Parkinson's Disease vs. Parkinsonism. Parkinson.org [Internet]. 2018. [cited June 29, 2020]; [about 2 p] Available from: https://www.parkinson.org/sites/default/files/attachments/Parkinsons-Disease-vs-Parkinsonisms.pdf/
2. Fahn S, Elton RL, UPDRS Program Members. Unified Parkinson's disease rating scale. In: Fahn S, Marsden CD, Goldstein M, Calne DB, editors. Recent developments in Parkinson's disease, Vol. 2. Florham Park, NJ: Macmillan Healthcare Information; 1987. p 153–163, 293–304
3. Jenkinson C, Fitzpatrick R, Peto V, Greenhall R, Hyman N. The Parkinson's Disease Questionnaire (PDQ-39): development and validation of a Parkinson's disease summary index score. Age Ageing. 1997;26(5):353-7.
4. Chen K, Yang YJ, Liu FT, Li DK, Bu LL, Yang K, et al. Evaluation of PDQ-8 and its relationship with PDQ-39 in China: a three-year longitudinal study. Health Qual Life Outcomes. 2017;15(1):170.
5. Parkinson's Europe. Parkinson's Disease rating scales. Parkinsonseurope.org [Internet]. 2023 [cited June 29, 2020]; [about 5 p]. Available from https://www.epda.eu.com/about-parkinsons/symptoms/rating-scales/
6. Viartis Parkinson's disease. Schwab and England activities of daily living. Viartis [Intenet] 2006-2017 [cited June 29, 2020] [about 1 p]. Available from: http://viartis.net/parkinsons.disease/schwab.england.pdf
7. Hoehn MM, Yahr MD. Parkinsonism: onset, progression, and mortality. Neurology. 1967 May;17(5):427-.
8. European Parkinson's Disease Association. The Parkinson's Disease Composite Scale. https://www.parkinsonseurope.org [Internet] 2023 [cited June 29,2020]; [about 5 p] Available from: https://www.epda.eu.com/media/2186/parkinson-s-disease-composite-scale-pdcs.pdf
9. Stocchi F, Radicati FG, Chaudhuri KR, Johansson A, Padmakumar C, Falup-Pecurariu C, et al. The Parkinson's Disease Composite Scale: results of the first validation study. Eur J Neurol. 2018;25(3):503-11.
10. Movement Disorder Society Task Force on Rating Scales for Parkinson's Disease. The Unified Parkinson's Disease Rating Scale (UPDRS): status and recommendations. Mov Disord. 2003;18(7):738-750. doi:10.1002/mds.10473
11. Rodríguez-Blázquez C, Alvarez M, Arakaki T, Campos Arillo V, Chaná P, Fernández W, et al. Self-Assessment of Disability in Parkinson's Disease: The MDS-UPDRS Part II Versus Clinician-Based Ratings. Mov Disord Clin Pract. 2017;4(4):529-35. doi:10.1002/mdc3.12462
12. Movement Disorder Society Task Force on Rating Scales for Parkinson's Disease. The Unified Parkinson's Disease Rating Scale (UPDRS): Status and recommendations. Mov Disord. 2003 Jun 13;18(7):738–50.

Acknowledgement:
Ms. Asiyah Ahmad for statistical analysis

Conflict of interest: Author declares no conflict of interest.
Funding disclosure: Nil

Author's contribution:
Sohail Khan; Concept, data collection, data interpretation, manuscript writing, manuscript revision

The author has approved the final version of the article, and agrees to be accountable for all aspects of the work.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-Non Commercial 2.0 Generic License.