Development of the Tampa Scale of Kinesiophobia for Parkinson's disease: confirmatory factor analysis, reliability, validity and sensitivity to change

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Introduction

Functional ability in Parkinson's disease (PD) is influenced by various factors, including disease duration, neuromotor impairments (e.g. abnormal posture, freezing of gait, frontal impairment and impaired balance) and behavioural aspects (Franchignoni *et al.*, 2005).

Fear of falling (i.e. low fall-related efficacy) is a widely investigated cognitive-behavioural factor that contributes towards PD-related impairments, restricts activities of daily living (ADL) and leads to social isolation (Robinson *et al.*, 2005). On the basis of Bandura's theory of self-efficacy (Bandura, 1978), the Falls Efficacy Scale was specifically developed to assess the degree of perceived confidence at avoiding a fall in various ADL situations (Tinetti *et al.*, 1990). The Falls Efficacy Scale-International (FES-I) is a recently modified version designed to maximize its suit-ability for translation and use in a wide range of different languages and cultural contexts, and select additional cross-culturally relevant items that assess more demanding and social activities; it has been proven to have good psychometric properties (Yardley *et al.*, 2005). However, although it is now possible to assess the fear of falling in a satisfactory manner, there is still a need to identify additional behavioural factors that may prevent patients from participating in physical exercise so that they can be encouraged to increase their level of physical activity. According to the fear-avoidance model, negative appraisals (e.g. anxiety) because of long-lasting or progressive disease predict fear-avoidance beliefs, which, in turn, may lead to hypervigilance, illness behaviour and subsequent poor physical performance; this induces patients to sacrifice everyday tasks and use adaptive coping strategies (Vlaeyen and Linton, 2000). Within the context of this model, kinesiophobia, which was originally defined as 'an excessive, irrational, and debilitating fear of movement and activity resulting from a feeling of

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vulnerability to painful injury or re-injury' (Kori *et al.*, 1990), has been proven to be a crucial factor affecting the outcome of a number of chronic diseases, including spinal pain, fibromyalgia and osteoarthritis (Leeuw *et al.*, 2007). The Tampa Scale of Kinesiophobia (TSK) was specifically developed to measure the fear of movement in patients with musculoskeletal complaints, and has been found to be reliable and valid in research and clinical settings (Heuts *et al.*, 2004; Jensen *et al.*, 2010).

The Italian adaptation of the TSK has been found to be reliable and valid for patients with chronic low back pain (Monticone *et al.*, 2010), but has never been investigated in patients with PD.

The aim of this study was to assess the psychometric properties (factor structure, reliability, validity and sensitivity to change) of a modified version of the TSK in patients with PD.

Methods

This cross-sectional study was approved by the Institutional Review Board of Salvatore Maugeri Foundation's Scientific Institute in Lissone.

Patients

Inpatients and outpatients attending the Physical Medicine and Rehabilitation Units of two affiliated centres were consecutively recruited between April and December 2012. The inclusion criteria were a diagnosis of idiopathic PD (Hoehn and Yahr stage 1–4), age above 40 years and an ability to read and speak Italian fluently. The exclusion criteria were other neurological diseases (e.g. stroke, muscle disease), systemic illness, psychiatric deficits, a recent myocardial infarction and chronic lung or renal diseases.

The patients' demographic and clinical characteristics were recorded by a research assistant, and the eligible patients provided their written informed consent.

The TSK-PD

Fear-avoidance behaviours were assessed using the Italian 13-item version of the self-report TSK with the reversed items removed (items no. 4, 8, 12, 16); the process of cross-cultural adaptation has been described previously in detail and was carried out in accordance with established guidelines (Monticone *et al.*, 2010). The items from the original version of the TSK were adapted to patients with PD. The TSK-PD has been translated into English by a professional translator (Appendix 1).

The TSK consists of two subscales: harm (items no. 3, 5, 6, 7, 9, 11 and 13) and activity avoidance (items no. 1, 2, 10, 14, 15, 17). Each item is scored using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree), and the total and subscale scores are calculated by adding the scores of the individual items (ranges, respectively, 13–52, 7–28 and 6–24).

Sample size calculation

This was based on the 'rule of 10' patients per item (Terwee *et al.*, 2007), yielding a final sample of 130.

Scale properties

All of the methodological criteria for investigating psychometric properties suggested by Terwee *et al.* (2007) were followed, except for 'responsiveness' (because this was not a longitudinal study).

Acceptability

The time needed to answer the questionnaire was recorded. All of the data were checked for missing or multiple responses.

Factor analysis

Confirmatory factor analysis was used, with each item being specified to load on its subscale as originally found (Monticone *et al.*, 2010). Model fit was assessed using the ratio between the χ^2-test and degrees of freedom ($\chi^2/d.f.$), the comparative fit index, the normed fit index and the root-mean square error of approximation and its 90% confidence intervals (Browne and Cudeck, 1992). The following thresholds were considered to represent a good fit: $\chi^2/d.f. < 3$, comparative fit index ≥ 0.90, normed fit index ≥ 0.90 and root-mean square error of approximation ≤ 0.08 (Hu and Bentler, 1999).

Floor/ceiling effects

Descriptive statistics were calculated to identify any floor/ceiling effects, which were considered to be present when more than 15% of the patients obtained the lowest or the highest possible scores (Terwee *et al.*, 2007).

Reliability

This was tested by means of internal consistency, which reflects the interrelatedness of the items (Cronbach's α, with a value of greater than 0.70 being considered acceptable), and test–retest stability, which measures reliability over time by means of the intraclass correlation coefficient, with good and excellent reliability being, respectively, indicated by values of 0.70–0.85 and greater than 0.85 (Terwee *et al.*, 2007). Test–retest reliability was investigated by readministering the TSK-PD to all of the patients after 7 days to avoid the natural fluctuations in symptoms associated with possible memory effects. A paired *t*-test was used to compare the test–retest sessions to ensure the absence of any systematic error.

Content validity

This assessment was based on the patients' answers to specific questions designed to assess the aim of the measurement (Question: 'Do you think kinesiophobia constitutes the aim of this questionnaire?'; answer options: Yes/No), the target population (Question: 'Do you think the items described here may be related to subjects with PD?'; Yes/No) and the concepts being

measured, with special attention to their relevance (Question: 'Do you think these items are relevant to an evaluation of your kinesiophobia?'; Yes/No) and completeness (Question: 'Do you think that the items presented comprehensively reflect your kinesiophobia?'; Yes/No). The hypotheses were considered acceptable if the percentage rate of correct/affirmative answers was greater than 90% (Terwee *et al.*, 2007).

Construct validity

This was investigated by testing the a-priori hypothesis that the correlation of the TSK-PD (i.e. the extent to which its score relates to the score of the theoretical construct of another instrument as expected) (Terwee *et al.*, 2007) with the FES-I would be positive and moderate to close; its correlation with part III of the Movement Disorder Society – Unified Parkinson's Disease Rating Scale (MDS-UPDRS) would be positive and moderate; its correlation with the Hospital Anxiety and Depression Score (HADS) would be positive and moderate to close (closer with the anxiety than with the depression subscale); its correlation with the mental subscales of the Short-Form Health Survey (SF-36) would be negative and moderate; and its correlation with the physical subscales would be negative and poor (Pearson correlation $r < 0.30$ = poor; $0.30 < r < 0.60$ = moderate; $r > 0.60$ = close). A *P*-value of less than 0.05 was considered statistically significant.

Sensitivity to change (Terwee *et al.*, 2007) reflects the smallest change in score that is likely to reflect a true change rather than a measurement error, and is estimated by means of the smallest detectable change calculated by multiplying the standard error of prediction (SEP) by the z score associated with the desired level of confidence (95% in the case of this study) and the square root of 2, which reflects the additional uncertainty introduced by using difference scores on the basis of measurements made at two time points (in this case, on days 1 and 7) (Tesio, 2012). The SEP was estimated using the formula: $\text{SEP} = \text{SD}\ [(1 - R^2)]^{1/2}$, where SD is the joint standard deviation computed as the square root of the mean of the variances of the two series of measurements and R is the test–retest reliability coefficient.

Outcome measures

FES-I

The FES-I assesses the fear of falling: the total score is calculated by adding the scores of the 16 individual items (1 = not at all concerned to 4 = very concerned), and therefore ranges from 16 (no fear of falling) to 64 (a strong fear of falling). The Italian version was used, which has been proved to be reliable and valid (Ruggiero *et al.*, 2009).

MDS-UPDRS, part III

This acts as a motor examination of PD patients. Each question has five responses related to widely used clinical terms: 0 = normal, 1 = slight, 2 = mild, 3 = moderate and 4 = severe. Each clinical descriptor is followed by a short text that describes the criteria for each response. Part III has 33 scores based on 18 items, a number of which have right, left or other body distribution scores; the total score is calculated by adding the scores of the individual items, and ranges from 0 (normal motor ability) to 132 (severe motor impairment). The Italian version was used, which has been proven to be reliable and valid (Antonini *et al.*, 2013).

HADS

This assesses anxiety and depression disorders, and consists of 14 items that create subscale scores for anxiety (seven items) and depression (seven items). The total score for each subscale is calculated by adding the scores of the individual items (0–3), and ranges from 0 (good) to 21 (poor). The Italian version was used, which has been proven to be reliable and valid (Costantini *et al.*, 1999).

SF-36

This is a general health questionnaire consisting of eight domains: physical functioning, physical role, bodily pain, general health, vitality, social functioning, emotional role and mental health. The scores for each domain range from 0 (poor health) to 100 (good health). The Italian version was used, which has been proven to be reliable and valid (Apolone and Mosconi, 1998).

Statistical analyses

The analyses were carried out using IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp., Armonk, New York). CFA was performed using IBM SPSS Amos.

Results

Patients

A total of 150 patients were invited to participate, of whom 132 (88%) fulfilled the inclusion criteria: 49 women (37.1%) and 83 men (62.9%), mean age 73.1 ± 6.3 years (range 54–86 years); in terms of age, no differences were found between women (72.5 ± 5.9) and men (73.5 ± 6.7) ($P = 0.381$). The median disease duration was 7 years (range 2–24 years); the median Hoehn and Yahr stage was 2.5 (1.5–4); and the mean BMI was 26.2 ± 3.7. Table 1 shows the patients' sociodemographic characteristics.

Moreover, TSK-PD scores were also assigned across subcategories of patients and on the basis of sex (men/women), age (≤ 65/> 65 years old), disease duration (≤ 5/5 years) and Hoehn and Yahr stage (≤ 2.5/> 2.5). Table 2 shows the estimates on the basis of these subcategories, and no significant differences were found.

Table 1 Sociodemographic characteristics of the population ($n = 132$)

Variables	*n* (%)
Marital status	
Unmarried	6 (4.5)
Married	126 (95.4)
Employment	
Employee	7 (5.3)
Self-employed	2 (1.5)
Housewife	11 (8.3)
Pensioner	112 (84.8)
Education	
Primary school	61 (46.2)
Middle school	24 (18.1)
High school	33 (25)
University	14 (10.6)
Smoking	
Yes	10 (7.5)
No	122 (92.4)
Comorbidities (principal)	
Hypertension	47 (35.6)
Non-insulin-dependent diabetes mellitus	14 (10.6)
Heart disease	37 (28.1)
Enteric disease	11 (8.3)
Liver disease	9 (6.8)
None	14 (10.6)

Table 2 TSK-PD scores on the basis of subcategories of sex, age, disease duration and Hoehn and Yahr stage

	Total score	*P*-value
Overall ($n = 132$)	37.7 ± 9.8	
Men ($n = 83$)	37.3 ± 8.5	0.74
Women ($n = 49$)	38.4 ± 11.8	
Age ≤ 65 ($n = 19$)	36.4 ± 11.8	0.41
Age > 65 ($n = 113$)	37.4 ± 9.5	
Disease duration > 5 ($n = 90$)	38.7 ± 8.9	0.06
Disease duration ≤ 5 ($n = 42$)	35.5 ± 11.4	
Hoehn and Yahr > 2.5 ($n = 26$)	38.6 ± 10.2	0.59
Hoehn and Yahr ≤ 2.5 ($n = 106$)	37.5 ± 9.8	

TSK-PD, Tampa Scale of Kinesiophobia for Parkinson's disease.

Psychometric scale properties

Acceptability

All of the questions were well accepted. The questionnaire was completed in 7.1 ± 2.8 min. There were no missing responses or multiple answers.

Factor analysis

Table 2 shows the results of the two subscales of the TSK-PD. The ratio between the χ^2-test and degrees of freedom and the root-mean square error of approximation value obtained using the two-factor model did not fulfil the criteria for a good fit, and so the model was adjusted on the basis of modification indices that suggested adding covariance between the error terms. This adjusted model improved the fit criteria (Table 3). Figure 1 shows the diagram of the adjusted model with standardized factor loadings, commonalities and correlation values specified.

Floor/ceiling effects

There were no significant floor/ceiling effects (Table 4).

Table 3 Results of CFA testing of factorial validity

Model	$\chi^2/d.f.$	CFI	NFI	RMSEA	90% CI
Two factors	4.00	0.87	0.84	0.15	0.13–0.17
Two factors with covariate error[a]	2.95	0.91	0.90	0.13	0.12–0.16

CFI, comparative fit index; CI, confidence interval; NFI, normed fit index; RMSEA, root-mean square error of approximation; $\chi^2/d.f.$, ratio between the χ^2-test and degrees of freedom.
[a]The model included specified covariance between error terms for items 17–14,15–10 and10–2.

Reliability

Cronbach's α was 0.94. Paired *t*-test showed significant differences between test–retest sessions, suggesting the presence of a small systematic error. Test–retest reliability was excellent: intraclass correlation coefficient (2, 1), considering both random and systematic error, was 0.90 (95% confidence interval: 0.82–0.94). Table 4 shows the full results.

Content validity

The percentage of affirmative answers was always greater than 90%, and the content of the items was considered adequate, appropriate for the target population, comprehensive and relevant for investigating acceptance in this population.

Construct validity

All of the a-priori hypotheses were confirmed. There was a close correlation between the TSK-PD and FES-I ($r = -0.710$); a moderate correlation with the MDS-UPDRS ($r = 0.513$); moderate to close correlations with HADS-D ($r = 0.443$) and HADS-A ($r = 0.626$); moderate correlations with the mental subscales of the SF-36 ($r = -0.327$ to -0.563); and poor correlations with the physical subscales of the SF-36 ($r = -0.236$ to -0.248). Table 5 summarizes the correlations, including those of the TSK-PD subscales.

Sensitivity to change

The smallest detectable change was 10.7. The smallest detectable change in the harm and activity subscales was, respectively, 6.5 and 8.1.

Discussion

This paper describes the validation of the TSK-PD in a sample of previously uninvestigated patients with PD. Analysis of the psychometric properties of an outcome measure is a continuous process that is strongly recommended to strengthen its properties and expand its applicability in specific contexts. Therefore, we decided to investigate the psychometric properties of a scale routinely used in chronic pain patients also in patients with PD before implementing its use in everyday clinical practice.

The questionnaire was highly acceptable to this population, and required less than 10 min to complete; it also

Fig. 1

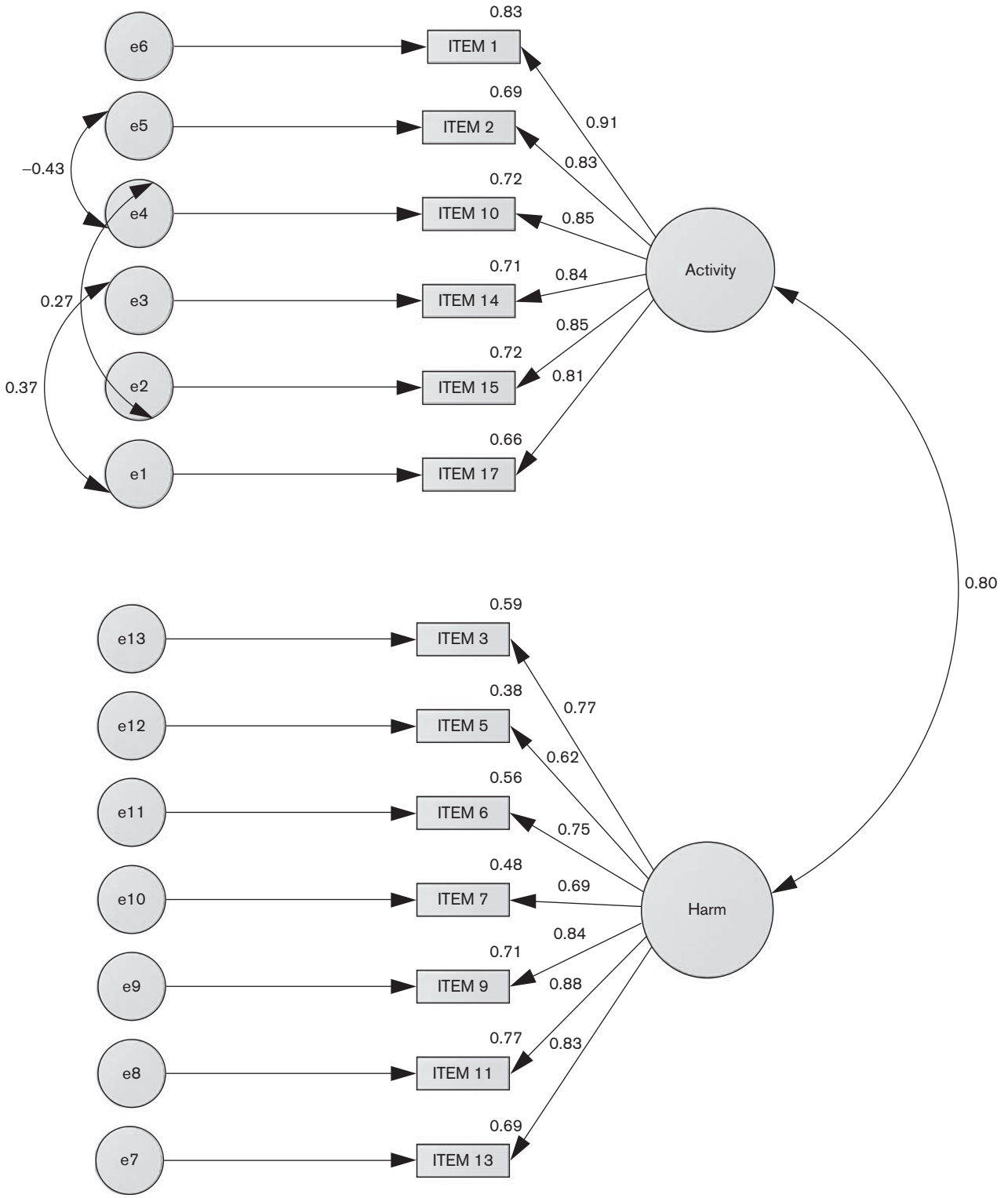

Diagram of the two-factor model with standardized factor loadings, commonalities specified and correlation values specified.

Table 4 Floor/ceiling effects and reliability

Subscales	Test [mean (SD)]	Retest [mean (SD)]	*P*-value	Internal consistency (α)	Test–retest (ICC and 95% CI)	Floor/ceiling effects (%)
Harm (seven items)	21.5 (5.0)	20.9 (4.2)	< 0.001	0.90	0.86 (0.81–0.90)	0/3.03
Activity avoidance (six items)	16.2 (5.5)	15.1 (4.3)	0.004	0.94	0.81 (0.71–0.88)	3.79/0
TSK-PD (13 items)	37.7 (9.8)	36.0 (7.8)	< 0.001	0.94	0.90 (0.82–0.94)	0/0

CI, confidence interval; ICC, intraclass coefficient correlation; TSK-PD, Tampa Scale of Kinesiophobia for Parkinson's disease.

Table 5 Construct validity

Outcome measures	TSK-PD	Harm	Activity avoidance
FES-I	0.710*	0.613*	0.707*
MDS-UPDRS	0.513*	0.447*	0.508*
HADS-Anxiety	0.626*	0.462*	0.694*
HADS-Depression	0.443*	0.449*	0.382*
Physical functioning	−0.248	−0.221	−0.241
Physical role	−0.239	−0.217	−0.227
Bodily pain	−0.236	−0.163	−0.271
General health	−0.472*	−0.465*	−0.417*
Vitality	−0.411*	−0.371*	−0.396*
Social functioning	−0.536*	−0.458*	−0.538*
Emotional role	−0.327*	−0.301*	−0.308*
Mental health	−0.563*	−0.512*	−0.538*

Pearson correlations between TSK-PD (and its subscales) and FES-I, MDS-UPDRS, HADS-Anxiety, HADS-Depression, and the SF-36 subscales.
FES-I, Falls Efficacy Scale-International; HADS-Anxiety, Hospital Anxiety and Depression Score, subscale Anxiety; HADS-Depression, Hospital Anxiety and Depression Score, subscale Depression; MDS-UPDRS, Movement Disorder Society – Unified Parkinson's Disease Rating Scale; SF-36, Short-Form Health Survey; TSK-PD, Tampa Scale of Kinesiophobia for Parkinson's disease.
*$P < 0.001$.

responded satisfactorily to the requirements of relevance and completeness, and seemed to be fully applicable in everyday clinical practice. No significant floor/ceiling effects were found, which suggests that the scale correctly assesses its construct.

No significant differences in TSK-PD were found when the scale scores were dichotomized according to men and women, younger and older patients, shorter and longer disease duration or milder and more heavily impaired patients. This might suggest that the construct of kinesiophobia is not specifically influenced by these variables, but reflects an irrational state of the mind as a consequence of the awareness of a chronic disease. Moreover, kinesiophobia should be addressed since the early stages of PD by means of multidisciplinary rehabilitation programmes that include cognitive-behavioural strategies to reduce the level of disability perceived, negatively influenced by fear of movement.

The findings of this study confirmed the originally proposed 13-item, two-factorial structure of the TSK used to study Italian patients with low back pain (Monticone *et al.*, 2010). After adjustment, this model fitted the data obtained from this sample, which suggests that kinesiophobia can be thoroughly described in PD as a process with two cognitive-behavioural components. Albeit with slight differences in subscale composition, three other studies involving patients with chronic complaints have also confirmed the two-factorial structure (Goubert *et al.*, 2004; Roelofs *et al.*, 2007; Wong *et al.*, 2010).

The TSK-PD was internally consistent, with higher estimates than those of previous studies of patients with spinal complaints (range 0.70–0.84) (Hays *et al.*, 1993; Lundberg *et al.*, 2004; Roelofs *et al.*, 2004; French *et al.*, 2007; Haugen *et al.*, 2008; De Souza *et al.*, 2008; Gómez-Pérez *et al.*, 2011; Bäck *et al.*, 2012). Interestingly, the estimates of this study were also higher than those obtained in a population of patients with coronary artery disease (0.78) (Bäck *et al.*, 2012), probably because of the greater homogeneity of this sample.

Test–retest reliability was satisfactory, with values that were higher than those of Dutch (0.78–0.79) and English studies (0.81–82) (Lundberg *et al.*, 2004; Roelofs *et al.*, 2004; French *et al.*, 2007), but similar to previous Italian, Swedish and Brazilian estimates of 0.91–0.95 (Lundberg *et al.*, 2004; De Souza *et al.*, 2008; Monticone *et al.*, 2010). They were also higher than those obtained in patients with coronary artery disease (0.83) (Bäck *et al.*, 2012).

Construct validity was initially analysed by comparing the TSK-PD with FES-I, and the correlation suggested that the constructs of the two measures were fairly similar; this is not surprising as both scales evaluate fears and indicate that the more harmful the activities are considered, the higher the level of fear of movement/falling. However, it is expected that the TSK-PD can make a distinct contribution towards the analysis and treatment of PD-related fears because it has the advantage of addressing kinesiophobia by means of a more general focus on general physical activities (the activity subscale) and related dysfunctional thoughts (the harm subscale). The FES-I has never been used in previous studies of the TSK, and thus, the findings of this study cannot be compared with those of others.

The moderate associations with the MDS-UPDRS suggest a relationship between kinesiophobia and the level of motor impairment. Persistent functional limitations are likely to reinforce fear-avoidance behaviours, which in turn may contribute towards dangerous vicious circles when performing ADL. Once again, the MDS-UPDRS has never been used in previous studies of the TSK, and so no comparisons can be made.

The close association with HADS-A confirms that there is a link between anxiety and activity-related kinesiophobia. Anxiety is currently considered a precursor of

kinesiophobia, and it can therefore be expected that it is likely to lead to a greater fear of movement (Vlaeyen and Linton, 2000). HADS-D was moderately related to TSK-PD, suggesting a role of depression in the development of fear-avoidance beliefs, but, given time covariations, also a role of kinesiophobia in consolidating depressive symptoms, as described in the fear-avoidance model (Vlaeyen and Linton, 2000). Another study investigating chronic complaints has indicated similar estimates in relation to mood disorders (French *et al.*, 2007).

Greater kinesiophobia was associated with a poorer quality of life, and correlated better with the mental than the physical components of the SF-36; this is not surprising as the constructs of the TSK-PD focus more on the cognitive and behavioural aspects of movement. Although the SF-36 has never been used in previous validation studies of the TSK, a study of Dutch patients with musculoskeletal complaints used the RAND-36, which closely resembles the SF-36 (Hays *et al.*, 1993; Houben *et al.*, 2005) and, in agreement with the findings of this study, found poor correlations with physical functioning ($r = -0.27$), pain ($r = -0.22$) and role restrictions due to physical problems ($r = -0.20$), as well as with social functioning ($r = -0.22$) and general health ($r = -0.29$) (Houben *et al.*, 2005).

TSK-PD proved to be sensitive to change in patients with PD. Given the degree of repeatability, the SEP and the smallest detectable change were reduced, thus ensuring that it can identify changes in scores exceeding the threshold of instrument noise. The results indicated that if a patient shows a change of more than 11 points after a given intervention, it would not be a measurement error at a 95% confidence level.

The study has some limitations. First, its cross-sectional design means that significant correlations should not be confused with causal effects. Second, the relationships between kinesiophobia and physical tests were not considered because only questionnaires were used. Third, it was restricted to idiopathic PD patients and it is uncertain whether its findings can be extended to other neurodegenerative complaints, particularly parkinsonism disorders. Fourth, the instrument was tested in Italian patients, and it is uncertain whether the conclusions can be extended to different countries and cultures. Fifth, the presence of a small systematic error between test–retest sessions was observed. Therefore, in the future, a measurement schedule that attenuates systematic error (i.e. more than two trials) should be proposed. Finally, additional studies of the properties of TSK-PD using modern test theory methods such as Rasch measurement theory or item response theory are recommended to evaluate redundancy of items as only classical test theory psychometric properties were evaluated in this study.

Conclusion

The TSK administered in a previously uninvestigated population of patients with PD confirms the originally proposed two-factor, 13-item structure, and is reliable, valid and sensitive to change. It can be recommended for clinical and research purposes in studies of patients with PD.

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The study was approved by our hospital's Institutional Review Board and was conducted in accordance with ethical and humane principles of research.

Conflicts of interest

There are no conflicts of interest.

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Appendix

Table A1 Tampa Scale of Kinesiophobia for Parkinson's disease

1. I'm afraid that I might injury myself if I exercise.
2. If I were to try to overcome it, my movement impairment would increase.
3. My body is telling me I have something dangerously wrong.
5. People aren't taking my medical condition seriously enough.
6. My injury has put my body at risk for the rest of my life.
7. My movement impairment always means I have injured my body.
9. I am afraid that I might injure myself accidentally.
10. Simply being careful that I do not make any unnecessary movements is the safest thing I can do to prevent my movement impairment from worsening.
11. I wouldn't have this much movement impairment if there weren't something potentially dangerous going on in my body.
13. My movement impairment lets me know when to stop exercising so that I don't injure myself.
14. It's really not safe for a person with a condition like mine to be physically active.
15. I can't do all the things normal people do because it's too easy for me to get injured.
17. No one should have to exercise when he/she has movement impairment.

In these days of high-tech medicine, one of the most important sources of information about you is often missing from your medical records: *your own feelings* or intuition about what is happening to your body. We hope that the following information will help to fill the gap. Please answer the following questions according to the scale on the right. Please circle the choice that corresponds to your *true* feelings, not according to what others think you should believe. This is not a test of medical knowledge; we want to know how you see it.

Total score: ___/52.

Harm score (items no. 3, 5, 6, 7, 9, 11 and 13): ___/28.

Activity avoidance score (items no. 1, 2, 10, 14, 15, 17): ___/24.