

Diagnosing social anxiety in Parkinson's disease: characteristics and frequencies according to two diagnostic criteria

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Abstract

Background: Studies found inconsistent frequencies of social anxiety disorder (SAD) in Parkinson's disease (PD) (9.7%-50%). Previous reports did not test the impact of applying DSM-IV restrictive criteria that recommends the exclusion of secondary cases when diagnosing SAD in PD. **Objective:** Our aim is to estimate the frequency of social anxiety according to DSM-IV criteria and according to an inclusive broader approach. **Methods:** One hundred and ten PD patients were assessed for the presence of SAD using SCID-I, diagnosis of social anxiety were determined according to two different criteria: following and not following DSM-IV recommendation for exclusion of cases though to be secondary to a general medical condition. **Results:** SAD was present in 34 (31%) of patients, but 17 (15.5%) were secondary to a general medical condition. Patients with SAD were significantly younger, had earlier disease onset, had more severe PD symptoms, and were more frequently depressed. There was no difference in demographic and clinical features between primary and secondary SAD. **Discussion:** We conclude that the use of different diagnostic criteria may have a massive impact in the estimation of frequency of SAD in PD.

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Introduction

Social anxiety disorder (SAD) is characterized by an abnormal fear and avoidance of scrutiny by others (DSM-IV)¹. It has a point-prevalence of 7.1%, and a life-time prevalence of up to 12.1%². Anxiety disorders are known to be more prevalent in patients with Parkinson's disease (PD) than in age and gender matched controls with similar debilitating diseases³. Despite the fact that anxiety has been largely studied in PD, only a few studies specifically addressed SAD in PD reporting widely variable prevalence of 9.7%⁴, 11.5%⁵, 34%⁶ and 50%⁷.

One reason for this discrepancy is related to the lack on consensus on how to diagnose SAD in PD patients. DSM IV-TR recommends the exclusion of psychiatric symptoms that are likely attributable to a medical condition¹ but it is possible that many clinically relevant cases are missed if the DSM-IV criteria is employed. Researchers who follow this recommendation often point out a lower frequencies of SAD in PD than researchers who does not (9.7%⁴, 11.5%⁵ and 17%⁶ versus 34%⁶ and 50%⁷ respectively), nevertheless, except for a small study including only 24 patients⁶, no work to date has directly compared the frequency of SAD in PD according to the two different criteria in the same PD sample. Although using DSM-IV recommendation may lead to underdiagnosis ignoring such criteria may result in misdiagnosis. Some PD symptoms overlap with anxiety symptoms (like tremor and dysautonomia) and the motor symptoms of PD (which include tremor and difficulty to perform motor tasks appropriately) cause worry and embarrassment, and many times withdraw from social situations. According to DSM-IV diagnosis of primary SAD should be made only for patients presenting all symptoms of social anxiety (criteria A to F) and that are not excluded by the G and H criteria.

Patients whose phobic symptoms started close after a disease onset (criterion G) and those that fears or avoids situations that can be related to the presence of a physical condition (criterion H) should be considered secondary cases of SAD.

We studied a sample of 110 PD patients aiming to compare the frequency of SAD in PD according to the two different criteria (using DSM-IV exclusion criteria and ignoring it) and to compare the clinical differences between primary and secondary SAD. We also tested the psychometric properties of a short screening instrument for SAD in PD.

Methods

Study design

A cross-sectional descriptive study of a clinical sample of patients with PD was performed in a tertiary referral center in Brazil.

Subjects

One hundred and ten PD patients who fulfilled Queen Square Brain Bank diagnostic criteria⁸ were screened for the presence of SAD. Patients were recruited from Movement Disorders Clinic of the Ribeirão Preto School of Medicine, Brazil. PD patients with dementia were not invited to participate. The presence of dementia was determined by direct interview with the patient and caregiver according to the DSM-IV diagnostic criteria.

The local ethics committees of the three institutions involved in the study approved this study and all patients provided informed consent.

Clinical evaluation

An experienced psychiatrist (MHNC) conducted the psychiatric evaluation using a structured clinical interview (SCID-I)⁹ to diagnose current prevalence of SAD according to DSM IV-TR criteria. To fulfill criteria for SAD patients needed to present (1) persistent fear of one or more social or performance situations; (2) exposure to the feared situation almost invariably provokes anxiety; (3) the person recognizes that this fear is unreasonable or excessive; (4) the feared situations are avoided or endured with intense anxiety and distress; (5) symptoms interfere significantly with the person's life or there is marked distress. All participants fulfilling such criteria were coded as SAD cases. Then SAD cases were coded in primary or secondary based on criteria G and H of the SCID. Following strictly DSM-IV criteria the diagnosis of primary SAD was made only in patients fulfilling G and H criteria. All other SAD cases were considered secondary SAD.

Participants were also assessed using the previously validated Brazilian version of the Mini Social Phobia Inventory (Mini-SPIN), which is a self-report instrument to measure social anxiety symptoms¹⁰. Mini-SPIN is a very brief and easy to use instrument, it comprises only 3 items derived from the Social Phobia Inventory. The respondent is asked to rate from 0 to 4 depending on how much they disagree or agree with the following 3 sentences: "Fear of embarrassment causes me to avoid doing things or speaking to people"; "I avoid activities in which I am the center of attention"; "Being embarrassed or looking stupid are among my worse fears". The total score is the sum of scores in each of the three items, varying from 0 to 12.

The presence of depressive symptoms was characterized using the 15-item shortened version of the Geriatric Depression Scale (GDS15) previously validated in Brazil¹¹.

Clinical data including disease duration, PD treatment and PD severity according to the Hoehn and Yahr scale (H&Y)¹², the Schwab and England scale (S&E)¹³, and a shortened version of the Unified Parkinson's Disease Rating Scale (UPDRS) previously validated in Brazil¹⁴ was collected on the same day by a movement disorder specialist.

Statistical analysis

Frequency of SAD (overall, primary and secondary) was calculated. Student *t*-test, Mann Whitney, chi-square and Fisher's exact tests

were used to compare the continuous and nominal variables between patients without SAD versus SAD, and also between patients with primary SAD versus secondary SAD.

Receiver Operating Characteristic (ROC) curves were used to determine the best cut-off points in the Mini-SPIN to discriminate between subjects with and without SAD according to SCID-I.

Analysis were performed using the Statistical Package for Social Sciences (SPSS for Mac OS X, version 17.0). Normality requirements for data distribution were confirmed using Shapiro-Wilk test. A significance level of 0.05 was used through.

Results

Thirty-four (31%) of the 110 PD patients fulfilled criteria for SAD. Half fulfilled criteria for primary SAD (N = 17, 15.5%) and the other half fulfilled criteria for secondary SAD. A comparison of clinical data of patients without SAD and with SAD and between primary and secondary SAD is presented in Table 1. Patients with SAD were significantly younger, more frequently in a stable relationship, had significantly younger age at PD onset, had worse motor symptoms, more depressive symptoms and were more frequently depressed. Mini-SPIN score was higher for patients with SAD, as expected. No significant differences were found among primary and secondary SAD.

A ROC curve analysis of Mini-SPIN using diagnosis of SAD according to SCID-I as gold-standard suggested that a cutoff score of 4/5 provided the best balance between sensitivity and specificity. This cutoff score provided a sensitivity of 78.8%, a specificity of 70.6%, a positive predictive value of 56.5%, and a negative predictive value of 87.2%, with an area under the curve of 0.829.

Discussion

It is regularly recommended not to exclude secondary cases of mental disorders in PD. The impact of such recommendation in clinical practice has been largely studied for depression¹⁵ but few data exists to support the extension of this recommendation for SAD in PD. We found SAD to be more common in PD than what is expected in the general population² when using either the stricter or the more general criteria. The frequency of strictly diagnosed primary SAD was (15.5%), which is twice higher than that found

Table 1. Demographic and clinical characteristics of Parkinson's Disease (PD) patients evaluated for the presence of SAD

	Without SAD (WS)	SAD	p values (WS vs SAD)	Primary SAD (SAD ₁)	Secondary SAD (SAD ₂)	p values (SAD ₁ vs SAD ₂)
Number (%) of patients	76 (69.0%)	34 (31%)		17 (15.5%)	17 (15.5%)	
Gender % of female	42 (55.3%)	16 (47%)	p = 0.43	9 (52.9%)	7 (41.17%)	p = 0.49
Age (years), mean ± SD	63.8 ± 11.3	55 ± 13.5	p = 0.001*	56.2 ± 16.1	53.8 ± 10.5	p = 0.61
Marital status, N (%) of married or in a stable relationship	48 (63.2%)	28 (82.4%)	p = 0.04*	14 (82.4%)	14 (82.4%)	p > 0.999
Employment status, N (%) with paid (formal or informal) work	16 (21.1%)	10 (29.4%)	p = 0.34	4 (23.5%)	6 (35.3%)	p = 0.45
Years of schooling, mean ± SD	5.8 ± 4.7	5.4 ± 3.1	p = 0.66	4.7 ± 3.2	6.2 ± 2.9	p = 0.12
Disease duration (years), mean ± SD	7.8 ± 5.5	7.4 ± 3.9	p = 0.75	6.2 ± 3.5	8.6 ± 3.9	p = 0.11
Age of disease onset (years), mean ± SD	56.0 ± 12.6	48 ± 13.5	p = 0.002*	49.9 ± 16.6	45.2 ± 9.4	p = 0.62
Most affected side, N (%)						
Right	31 (40.7%)	13 (38.2%)	p = 0.97	9 (52.9%)	4 (23.5%)	p = 0.07
Left	28 (36.8%)	13 (38.2%)		3 (17.6%)	10 (58.8%)	
Both	17 (22.3%)	8 (23.5%)		5 (29.4%)	3 (17.6%)	
Scores on the UPDRS modified motor scale, mean ± SD	8.3 ± 5.4	12.5 ± 7.3	p = 0.003*	10.7 ± 6.7	14.2 ± 7.6	p = 0.16
Schwab and England, mean ± SD	81.5 ± 14.6	78 ± 16.7	p = 0.32	79.4 ± 17.3	76.4 ± 16.5	p = 0.48
Hoehn and Yahr, mean ± SD	2.0 ± 1.0	2.2 ± 1.1	p = 0.53	2.1 ± 1.1	2.5 ± 1.2	p = 0.39
Presence of motor fluctuation, N (%)	21 (27.6%)	6 (17.6%)	p = 0.34	4 (23.5%)	2 (11.7%)	p = 0.65
GDS15 total score, mean ± SD	5.0 ± 3.6	8.0 ± 3.8	p < 0.0005*	7.6 ± 3.5	6.6 ± 2.6	p = 0.85
Current depressive episode, N (%)	10 (13.2%)	18 (52.9%)	p < 0.0005*	8 (47.1%)	10 (58.8%)	p = 0.49
Mini SPIN score, mean ± SD	3.0 ± 2.8	7.1 ± 3.1	p < 0.0005*	7.6 ± 3.5	6.6 ± 2.6	p = 0.32

SAD: Social Anxiety Disorder; UPDRS: Unified Parkinson's Disease Rating Scale; GDS15: 15 items Geriatric Depression Scale; mini SPIN: mini Social Phobia Inventory; BSPPS: Brief Social Phobia Scale; SD: standard deviation; *: significant difference (p < 0.05).

in the general population (7.1%)². Primary SAD accounted for half of the patients with SAD (17 out of 34), which is consistent with a previous small study⁶ in which 7 out of 24 PD patients presented SAD (29.2%), of whom 4 (16.6%) had primary SAD. Although our data is consistent with previous works it is prudent to consider that we used a sample of PD patients from a tertiary referral center and that may not be representative of the overall PD population.

Considering the high frequencies of SAD reported and the burden of this condition for patients and careers, a more targeted and systematic screening should be routinely made in clinical practice. Despite being one of the commonest causes of psychological morbidity in the general population SAD frequently goes unrecognized and undertreated¹⁶. Data from the Brazilian population indicates that although SAD is present in 10.2% of university students only 0.8% (n = 2 out of 235) had ever been diagnosed or used medication to treat it¹⁷. A possible approach for increasing the detection of SAD among PD patients is the broad use of self-applicable screening instruments; this can possibly optimize diagnosis without increasing medical appointments length and with no need for referencing patients to psychiatric evaluation. In our sample, using a cut-off score of 4/5, mini-SPIN showed reasonable psychometric properties for the screening of SAD in PD. This scale is realistic within routine clinical setting and could help point-out patients who are suitable for interventions to treat SAD.

The higher frequency of SAD among PD patients may be explained by psychosocial¹⁸ and neurobiological mechanisms¹⁹. SAD may be a psychosocial reaction to the stigmatizing PD symptoms such as tremor and bradykinesia, but abnormal function of the striatum has been pointed as one of the key pathophysiological mechanism implicated in SAD²⁰⁻²³ and it is also plausible that the profound disruption of the main catecholaminergic and serotonergic pathways that occurs in PD²⁴ predispose patients to SAD. In our sample, SAD was associated with the intensity of motor symptoms, younger age and with earlier age at disease onset, all of which imply both in higher psychosocial stress and in more severe nigrostriatal dopaminergic denervation^{25,26}.

Differentiating primary from secondary SAD might be important for clinical practice. It is plausible that primary SAD should benefit from standard treatment for SAD in general population, while patients with secondary SAD may benefit from specific treatment strategies focused on PD symptoms like optimization of antiparkinsonian medications and psychological interventions to help patients to cope with PD symptoms with less distress and anti-stigma intervention.

Another issue to be addressed on the association of SAD and PD is depression, which is often a comorbidity with PD^{27,28}. Depression is known to increase the risk of SAD in general populations and one possible explanation for the higher prevalence of anxiety in PD is the presence of other mental disorders (such as depression and dementia) that might hamper anxiety symptoms evaluation²⁹ or predispose the patients to SAD. The co-occurrence of anxiety and depression is known to be more common in PD patients than in healthy controls or in the general population³⁰. In our sample the PD patients with SAD had higher scores in the GDS15 scale and were more likely to be depressed. Due to the cross-sectional nature of our study it is not possible to explore the nature of the association between SAD and depression.

Conclusion

We conclude that the use of different diagnostic criteria may have a massive impact in the estimation of frequency of SAD in PD, besides we do not find differences between secondary and primary SAD. We also suggest that quick screening questionnaires might help guide clinicians in the diagnosis of SAD.

Conflicts of interest

None.

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