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Assessment of Psychiatric Complications in Parkinson's Disease: The SCOPA-PC

Martine Visser, PhD,[1] Dagmar Verbaan, MSc,[1] Stephanie M. van Rooden, MSc,[1] Anne M. Stiggelbout, PhD,[2] Johan Marinus, PhD,[1] and Jacobus J. van Hilten, MD, PhD[1]

[1]*Department of Neurology, Leiden University Medical Center, Leiden, the Netherlands*
[2]*Department of Medical Decision Making, Leiden University Medical Center, Leiden, the Netherlands*

Abstract: The objective of this study was to develop a clinimetric sound scale that addresses both psychotic and compulsive complications in Parkinson's disease (PD). The SCales for Outcomes in PArkinson's disease-Psychiatric Complications (SCOPA-PC) was developed by modifying the items of the Parkinson Psychosis Rating Scale (PPRS) and including an item on compulsive behavior in PD. To evaluate the validity of the SCOPA-PC, 106 PD patients were assessed. A subsample of 43 patients was assessed for interrater and test–retest reliability. Construct validity was evaluated using the Neuropsychiatric Inventory (NPI) and the South Oaks Gambling Scale (SOGS). Interrater and test–retest reliability for the total score was 0.95 and 0.91 (intraclass correlation coefficient), respectively. For the items, the interrater reliability ranged from 0.62 to 0.96 (weighted kappa) and the test–retest reliability ranged from 0.54 to 0.88 (weighted kappa). Cronbach's alpha was 0.68. The correlation between the SCOPA-PC total score and the NPI was 0.41. The correlation between SCOPA-PC items and NPI items that addressed similar constructs ranged from 0.34 to 0.68, whereas the correlation between the item on compulsive behavior and the SOGS was 0.49. In conclusion, the SCOPA-PC is a reliable, valid, and easily-administered semistructured questionnaire for both psychotic and compulsive complications in PD. © 2007 Movement Disorder Society

Key words: Parkinson's disease; psychosis; compulsive behavior; validity; reliability.

Although Parkinson's disease (PD) is predominantly characterized by motor features, psychiatric symptoms are highly prevalent (20–40%).[1] They may be inherent to the disease itself, or occur as a complication of dopaminergic medication.[2] Psychiatric complications of therapy are important determinants of mortality, and of quality of life of both patients and their caregivers.[3] Although drug therapies are available for psychiatric complications, a review of the literature highlighted the need for a validated instrument to assess psychiatric complications of therapy in PD.[4]

Most studies on psychiatric complications in PD have used generic instruments as the Neuropsychiatric Inventory (NPI)[5] or the Brief Psychiatric Rating Scale (BPRS).[6] These instruments do not cover all potentially important psychiatric aspects in PD and also include a number of less prevalent items (e.g., euphoria or disinhibition).[2,7] Furthermore, the NPI is administered to the caregiver, which excludes patients without a caregiver from an assessment. The Parkinson Psychosis Rating Scale (PPRS) is a disease-specific instrument for the assessment of the severity of psychotic symptoms.[8] This instrument has good interrater reliability and internal consistency. However, the evaluation of the validity and reliability of the PPRS in this study was limited to psychotic patients and based on a small sample (n = 29). Furthermore, clinical experience of the authors with the PPRS revealed clinimetric shortcomings that required modification.

New insights showed that the range of psychiatric problems that may arise from dopaminergic therapy is broader, encompassing compulsive symptoms as hypersexuality, pathological gambling, or shopping.[9–12] In 3–4% of PD patients, these symptoms evolve into a Hedonistic Homeostatic Dysregulation syndrome, in which these symptoms have a prominent role and pa-

*Correspondence to: M. Visser, Department of Neurology, K5 Q 92, Leiden University Medical Center, P.O. Box 9600, NL-2300 RC Leiden, The Netherlands. E-mail: m.visser@lumc.nl
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tients use higher doses of dopaminergic medication than required to relieve motor symptoms.[13,14] One compulsive symptom, hypersexuality, is already addressed in the PPRS, but other aspects are lacking.

The objective of this study was to develop a clinimetric sound scale [the SCales for Outcomes in PArkinson's disease-Psychiatric Complications (SCOPA-PC)] that addresses both psychotic and compulsive behavior in PD. With permission of the developers of the PPRS, the items of the PPRS are modified and an extra item on compulsive behavior in PD is included. The development of the SCOPA-PC is part of a larger research project, the SCOPA, in which practical and clinimetric sound instruments for all relevant domains in PD are selected or developed.[15]

PATIENTS AND METHODS

Development of the SCOPA-PC

Following a period in which we tested the feasibility of the PPRS in patients with PD, the following modifications were carried out:

1. the item "visual hallucinations" was changed into "hallucinations" because hallucinations in PD can also be auditory, tactile, olfactory, or gustatory[16];
2. in the response options of the items "hallucinations" and "illusions" the frequency was removed to improve the scoring;
3. in the item "paranoid ideation," the response option "accusations of family members," was changed into "accusations of persons";
4. the item "sleep disturbance" was changed into "altered dream phenomena" and "night terrors" and "nightmares" in the response options were changed into: associated with "feeling of danger" and "agitation";
5. the response options of the item "confusion" were extended with problems of impaired awareness, attention, memory, orientation, and incoherence of speech;
6. in the first response option of the item "sexual preoccupation," the worry of sexual competence was removed because this could also relate to erectile dysfunction, a prevalent feature of autonomic dysfunction in PD,[17] instead of hypersexuality.

A new item was developed that addresses compulsive behaviors such as shopping and gambling. Item content and response options were formulated based on a review of generic assessment instruments that addressed this behavior. The item was tested for comprehensibility in 20 PD patients.

The SCOPA-PC consists of seven items: "Hallucinations," "Illusions," "Paranoid ideation," "Altered dream phenomena," "Confusion," "Sexual preoccupation," and "Compulsive behavior" (see Appendix). To simplify assessment of the SCOPA-PC, guidelines for the practical application of the interview were provided. In line with all other SCOPA scales,[15] each item is rated on a scale from 0 (no symptoms) to 3 (severe symptoms). The SCOPA-PC total score has a range from 0 to 21, with higher scores reflecting more psychiatric complications.

Patients

Patients who fulfilled the United Kingdom Parkinson's Disease Society Brain Bank criteria for idiopathic PD[18] and used anti-Parkinsonian medication (levodopa, dopamine agonists (DA), or other medication) were included. For the construct validity with the NPI, only patients who had a partner were included. Furthermore, patients who were not able to understand Dutch or suffered from other diseases of the central nervous system that could account for the psychiatric phenomena were excluded. This study was approved by the medical ethics committee of the Leiden University Medical Center.

Recruitment

Consecutive PD patients who visited the outpatient movement disorders clinic of the Leiden University Medical Center from May 2005 to June 2006 were contacted by telephone and were asked to participate in this study. A subsample was asked to participate together with their partner. All patients gave informed consent.

Evaluation of the SCOPA-PC

The SCOPA-PC was administered to the patients by one of the four trained research associates. Additionally, all patients were evaluated concerning disease duration, age at onset, use of medication, cognitive function as assessed by the Mini Mental State Examination (MMSE),[19] and disease severity as assessed by the Hoehn and Yahr (H&Y) scale.[20] The interrater reliability was determined in a subsample, in which the SCOPA-PC was administered by one examiner, while a second rater rated the SCOPA-PC simultaneously. The raters were blind to each other's scores. The SCOPA-PC was administered in the same subsample a second time, 2 weeks later by the same examiner, to assess the test–retest reliability, whereby the examiner was blind to the first ratings. In addition, these patients completed the South Oaks Gambling Scale (SOGS),[21] a questionnaire based on the DSM-III criteria for pathological gambling, whereas the NPI,[5] an instrument that evaluates the frequency and severity of 10 behavioral disturbances in

TABLE 1. *Patient characteristics*

	Total PD group	Test-retest/validity group
N	106	43
Sex, male/female, N (% male)	72/34 (68)	28/15 (65)
Age, mean (SD) years	64.5 (9.7)	64.5 (9.0)
Age onset, mean (SD) years	51.8 (10.7)	52.1 (9.9)
Disease duration, mean (SD) years	12.8 (6.2)	12.4 (6.4)
Patients on levodopa, N (%)	86 (81)	35 (81)
Patients on dopamine agonist, N (%)	82 (77)	33 (77)
Patients on antipsychotic medication, N (%)	11 (9)	2 (5)
MMSE	26.4 (3.5)	26.8 (2.6)
Patients in H&Y stages 1/2/3/4/5, N	1/35/35/28/7	1/19/9/12/2

SD, standard deviation; MMSE, Mini Mental State Examination; H&Y, Hoehn and Yahr. All *P*-values >0.05.

dementia, was administered by interviewing the partner. Changes in medication between the two assessments were recorded. Patients and partners were asked before the start of the second assessment whether the patient had significantly changed with respect to the psychiatric symptoms. Patients who had changed were removed from the test–retest reliability analysis.

Statistical Analysis

Data were entered and analyzed with SPSS for Windows 12.0. Both interrater and test–retest reliability for individual items was assessed with a weighted kappa (κ_w; quadratic weights), whereas an intraclass correlation coefficient (ICC) was used for total scores. We used the strength of agreement classification as proposed by Landis and Koch.[22] Internal consistency was evaluated using Cronbach's alpha. As an indicator of the precision of the scale, the smallest real difference (SRD) (the smallest measurement change that can be interpreted as a real difference) was calculated using the following formula: $\text{SRD} = 1.96 \times \sqrt{2} \times \text{SEM}$.[23] (SEM is standard error of measurement: $\text{SD} \times \sqrt{(1 - \text{ICC})}$) (SD is standard deviation). Convergent validity of the SCOPA-PC was assessed by calculating Spearman's rho between the SCOPA-PC total score and the NPI total score, and between items of the SCOPA-PC and similar items from the NPI and the SOGS total score. Group comparisons were made with Mann–Whitney *U* test and Kruskal Wallis test. Groups were classified, by Dopamine Replacement Therapy (DRT) (no DRT, only DA, only levodopa, and levodopa and DA combination therapy), by disease severity (mild PD: H&Y stage 1 and 2, moderate PD: H&Y stage 3, severe PD: H&Y stage 4 and 5), and by cut-off values of the SOGS (no, possible, and probable gamblers) and the MMSE (no cognitive impairment, cognitive impairment).

RESULTS

Patients

One hundred seventeen patients who fulfilled the inclusion criteria were contacted, of which 106 patients agreed to participate in this study. Eleven patients refused to participate for the following reasons: lack of time (n = 7), too much burden of the examination (n = 2), not interested to participate (n = 2). A subgroup of 54 patients was asked to participate for the test–retest evaluation together with their partner, of which 43 patients agreed to participate. The mean (SD) age of the patients was 64.5 (9.7) years with a mean disease duration of 12.8 (6.2) years (Table 1).

In the subgroup used for the convergent validity and test–retest reliability, five partners did not accompany the patient during the first SCOPA-PC assessment. These partners did also not attend the second SCOPA-PC assessment, but did complete the NPI. A total of 42% of these patients had a change in medication between the two SCOPA-PC assessments. One patient indicated a significant change between the two assessments regarding his psychiatric symptoms, and was therefore excluded from the test–retest reliability analysis. The time necessary to administer the SCOPA-PC depends on the number and severity of psychiatric symptoms, but varied from 5 to 10 min.

Data Quality and Score Distribution

The quality of the data was good; only one missing value occurred, in the item "Altered dream phenomena" (Table 2). No item showed ceiling effects, defined as 80% response option "3."[24] The mean (SD) SCOPA-PC total score was 3.2 (2.7) with a range of 0–11.

Reliability

Interrater reliability for the individual items was at least substantial: κ_w ranged from 0.62 to 0.96 (Table 3).

TABLE 2. *Score distribution (%) of the SCOPA-PC (N=106)*

Items	MV	0	1	2	3
Hallucinations	0 (0)	77 (73)	10 (9)	17 (16)	2 (2)
Illusions	0 (0)	84 (80)	10 (9)	11 (10)	1 (1)
Paranoid ideation	0 (0)	92 (87)	10 (9)	1 (1)	3 (3)
Altered dream phenomena	1 (1)	41 (39)	57 (54)	6 (6)	1 (1)
Confusion	0 (0)	23 (22)	56 (53)	25 (24)	2 (2)
Sexual preoccupation	0 (0)	90 (85)	3 (3)	12 (11)	1 (1)
Compulsive behavior	0 (0)	95 (90)	8 (8)	3 (3)	0 (0)

MV, missing values.

The mean time interval between the test and retest assessment was 14.5 (2.4) days. For most items, test–retest reliability was somewhat lower than the interrater reliability, κ_w ranged from 0.54 to 0.88. Only the item "Altered dream phenomena" had moderate agreement. Both the interrater reliability and the test–retest reliability for the SCOPA-PC total score were almost perfect, 0.95 and 0.91, respectively. Internal consistency of the SCOPA-PC was 0.68. The SEM for the SCOPA-PC total score was 0.6 and the SRD was 1.7.

Validity

Correlations of the SCOPA-PC items and items that address similar constructs were significant and ranged from 0.34 to 0.68 (Table 4). Correlation between the SCOPA-PC total score and NPI total score was 0.41 (Table 4). Known-groups analyses based on DRT showed that the levodopa and DA combination therapy group had the highest scores on the SCOPA-PC total score compared to the other groups, but this was not significant ($P = 0.09$). Only patients who received combination therapy showed compulsive behavior. Eleven patients who were treated for psychotic symptoms (quetiapine, clozapine, rivastigmine) had significantly higher SCOPA-PC total scores than those who were not using this medication ($P = 0.05$). Two of these patients scored, despite treatment, still a "3" on one or more of the items. Known-groups analyses based on disease severity showed significant higher SCOPA-PC scores in patients with severe PD compared to patients with moderate PD ($P = 0.02$). In the subsample used for the construct validity, 6 of the 43 patients fulfilled the SOGS criteria for possible pathological gambling and one patient fulfilled the criteria for probable pathological gambling. Possible and probable pathological gamblers scored significantly higher on the SCOPA-PC item "Compulsive behavior" ($P = 0.05$). Of the patients who scored positively on compulsive behavior, two patients reported compulsive shopping, seven patients compulsive gambling, and two patients both compulsive shopping and gambling. Correlation between the SCOPA-PC total score and the MMSE was −0.31. Fifteen patients scored below the MMSE cut-off of 24, which indicates cognitive impairment. These patients had a significant higher SCOPA-PC total score compared to the patients with a MMSE score of 24 or more [mean (SD) SCOPA-PC: 4.5 (3.2) versus 2.9 (2.4); $P = 0.03$].

TABLE 3. *Reliability of the SCOPA-PC (N=43)*

Items	Interrater reliability	Test-retest reliability
Hallucinations	0.68[a]	0.71[a]
Illusions	0.88[a]	0.61[a]
Paranoid ideation	0.92[a]	0.80[a]
Altered dream phenomena	0.62[a]	0.54[a]
Confusion	0.84[a]	0.70[a]
Sexual preoccupation	0.87[a]	0.88[a]
Compulsive behavior	0.96[a]	0.73[a]
SCOPA-PC-total (7)	0.95[b]	0.91[b]

[a]Weighted kappa.
[b]Intraclass correlation coefficient.

DISCUSSION

To obtain an instrument that evaluates the severity of a broad spectrum of psychiatric complications of therapy in PD, we first modified the items of the PPRS, and subsequently added an item on compulsive behavior. Consequently, the SCOPA-PC consists of two sections, addressing psychotic (5 items) and compulsive behavior (2 items). Both the interrater and test–retest reliability of the SCOPA-PC were high. With respect to concurrent validity, the correlation between the total SCOPA-PC and the NPI was moderate, whereas correlations between individual items of the SCOPA-PC and the SOGS and NPI items that address similar constructs were moderate to high. These findings should be interpreted with respect to the different methods by which each scale is applied: the SCOPA-PC is administered by a researcher and incorporates information from the patient and, if present, the partner, whereas the NPI uses information only from the partner, and the SOGS is self-administered. Besides the fact that "Compulsive behavior" in the SCOPA-PC encompasses more than only gambling, the SOGS assesses gambling in the last year, whereas the SCOPA-PC

TABLE 4. *Correlation among (items of) different scales*

SCOPA-PC (items)	(Items from) other scales	Spearman's rho
Hallucinations	NPI: hallucinations	0.68**
Illusions	NPI: hallucinations	0.64**
Paranoid ideation	NPI: delusions	0.34*
Compulsive behavior	SOGS	0.49**
SCOPA-PC total	NPI-total	0.41**

*$P < 0.05$, **$P < 0.001$.

assesses only the last month. Compared to the SCOPA-PC, the NPI has the potential disadvantage that information is only obtained from the partner. In our study it was not unusual to note that patients did not communicate mild problems to their partner, rendering the NPI susceptible to underestimation of the prevalence of psychiatric symptoms. However, for both patient management and research it is important that even mild symptoms are identified. On the other hand, in case of dementia or psychosis, reliable information can only be obtained from the caregiver. For the SCOPA-PC, it is therefore recommended that information is used from both patient and caregiver.

The SRD of the SCOPA-PC is 1.7. This implies that the SCOPA-PC has a potential sensitivity to change, where a change of more than 1.7 (8% of the total possible range) on the SCOPA-PC total score, is considered a real difference. To evaluate the actual sensitivity to change, a study is required in which patients with psychiatric complications are assessed before and after a treatment with known efficacy.

The SCOPA-PC has been developed for the evaluation of the severity of psychiatric symptoms in patients with PD, and not as a diagnostic instrument. For the latter purpose, a gold standard to calculate cut-off values is required. As this was not the aim of this study, this was not included in the current study design. The anchoring of response options of SCOPA-PC items is such that a range of absence (score "0") to severe (score "3") is covered. In our opinion, mild problems (score "1") of the SCOPA-PC items do not require immediate treatment, but may warrant an increased alertness in the management of patients. Items that have a score of "2" deserve clinical attention and may require treatment, whereas items with a score of "3" require immediate treatment. In our sample, unselected for psychiatric complications, the frequency of at least mild problems (score $\geq$ 1) ranged from 13% for "Paranoid ideation" to 78% for "Confusion" whereas the frequency of at least moderate problems (score $\geq$ 2) ranged from 3% for "Compulsive behavior" to 26% for "Confusion." Fifty-six patients scored "mild" on the item confusion, which likely indicates that this item is somewhat too sensitive. A possible explanation for this finding could be the confounding influence of cognitive decline. To ascertain if for the item "Confusion" a score of "1" could still be regarded as normal, a comparison between patients and age matched controls is required.

The frequency of at least "mild" problems for the new item on compulsive behavior was 10% (4% shopping and 8% gambling), and for hypersexuality 15%. Our study shows a higher prevalence of these items as compared to other studies,[10,11,14] probably because response option "1" includes mild problems. If only moderate or severe problems are taken into account the prevalence of "Compulsive behavior" is indeed 3%. Different patterns of compulsive behavior have been described before, with more gambling among British patients and more shopping among Italian patients.[14] Indeed, in our study only two patients expressed problems with both gambling and shopping. It may be assumed that the expression of compulsive behavior is not only very individual but also culturally determined. Other compulsive behaviors such as compulsive eating, hobbyism, or punding were not included in this study because their nature and relevance were not well established when this study was initiated.[25–27] The patients used in this study were not selected for the presence of psychiatric complications, only for the use of anti-Parkinsonian medication. Despite the relatively high frequency of compulsive behavior, the total range was not covered (highest score was "2" on these items). Extreme compulsive behavior that would be rated a "3" is generally treated immediately and therefore less likely to be encountered in this research setting.

Limitations of this study were the relative small sample size of the subgroup used for the test–retest analysis, and the small percentage of patients with severe psychotic or compulsive behavior. Evaluation of the SCOPA-PC in patients with psychosis or severe compulsive behavior would be recommended for a future study. However, as we wanted to use this scale for the longitudinal evaluation of PD patients, no specific inclusion criteria were applied. Another limitation was the high percentage of patients who had a change in their medication, due to worsening of motor symptoms, between the two assessments for the test–retest reliability. Although a stable situation is preferred for test–retest evaluation, the values of reproducibility are nevertheless good and probably even underestimated.

During our study, we encountered many patients who neither were aware of the fact that the problems they experienced were related to their anti-Parkinsonian medication, nor had discussed them with their neurologist. Therefore, the implementation of the SCOPA-PC in a clinical setting may increase the awareness of these psychiatric side-effects in patients, their partners, and clinicians. This is especially important because pharmacological interventions are now available.[4]

In conclusion, the SCOPA-PC is a reliable, valid, and easily-administered semistructured questionnaire that addresses both psychotic and compulsive complications of therapy in PD.

APPENDIX: SCOPA-PC

The proposed questions are used to introduce the psychiatric complications, ask for more details or examples to clarify whether the problem is present or not, and if so, to what degree.

The following symptoms can occur due to side-effects of anti-Parkinsonian medication. Did any of the following symptoms occur during the last month? (Ask patient and caregiver).

1. Hallucinations:

(Did you perceive (see, hear, feel, smell) things that you knew were not there or that other people didn't perceive? When you perceived it, did you realize it was not real? Did you sometimes act upon these phenomena (for instance tried to touch it)? Did these phenomena scare you? Did you get agitated or aggressive when you noticed these phenomena or when someone tried to convince you they were not real? For the caregiver: do you have the impression the patient perceived phenomena that were not there, for instance, did (s)he talk to people that were not there? Did (s)he know it was not real or could you convince him/her that it was not real? Did (s)he get agitated or aggressive when (s)he perceived these phenomena?)

0. absent
1. mild; complete insight; non-threatening
2. moderate; partial insight; can be convinced; may be threatening
3. severe; no insight; cannot be convinced; may be associated with heightened emotional tone, agitation, aggression.

2. Illusions and Misidentification of persons:

(Did you perceive (see, hear) things differently then they really were (for instance a person instead of a tree, a bug instead of a crumb)? When you perceived them, did you realize it was not real? Did you sometimes act upon these phenomena (for instance tried to touch them)? Did these phenomena scare you? Did you get agitated or aggressive when you noticed these phenomena or when someone tried to convince you they were not real? For the caregiver: do you have the impression the patient perceived phenomena differently, for instance, did (s)he wave to a tree or picked up a crumb saying it is bug? Did (s)he know it was not real or could you convince him/her that it was not real? Did (s)he get agitated or aggressive when he perceived these phenomena?)

0. absent
1. mild; complete insight; non-threatening
2. moderate; partial insight; can be convinced; may be threatening
3. severe; no insight; cannot be convinced; may be associated with heightened emotional tone, agitation, aggression.

3. Paranoid Ideation (persecutory and/or jealous type):

(*Were you more suspicious or jealous then you should be? (For instance were you convinced that people were having "bad thoughts" about you, that people were stealing from you). Did you wrongfully accuse people? Did these thoughts make you more tense or aggressive? For the caregiver: do you have the impression the patient had ideas that were not true, for instance accused you wrongfully of infidelity? Could you convince him/her that the ideas were false? Did (s)he get aggressive or refused to cooperate because of these ideas?)*

0. absent
1. mild; associated with suspiciousness
2. moderate; associated with tension and excitement
3. severe; accusations of persons, aggression and/or lack of cooperation (i.e. refusal to eat and/or take medication).

4. Altered dream phenomena:

Did you dream more then you used to? Do you recall vivid or unpleasant dreams? Has someone told you that you moved, talked or screamed while sleeping? Were you aware of having had a dream when you woke up, were you afraid, agitated or confused? For the caregiver: have you noticed that the patient was dreaming? Did (s)he move, talk or scream while sleeping? Was (s)he afraid, agitated or confused when waking up?

0. absent
1. mild; vivid dreams; restless sleep (moving or talking in sleep); may be associated with anxiety
2. moderate; associated with feeling of danger
3. severe; associated with agitation and confusion.

5. Confusion (impaired attention, memory, orientation in time, place or person, or incoherence of speech):

Were you able to think as clearly as you used to? Were you able to concentrate? (on a book or a conversation?) How was your memory? (Did you forget what you were doing?) How was your orientation? (Did you always know where you were, could you find your way; did you know what day/month it was or whether it was morning or evening; did you always know who a familiar person was). How coherent was your speech (Did you sometimes stop when talking because you couldn't focus on

the topic or made an illogical switch to another subject?) For the caregiver: do you have the impression the patient had difficulties with concentration, memory, orientation or speech?

0. absent
1. mild; mildly impaired awareness of environment or mildly impaired attention; may have some problems with memory, orientation, or incoherence of speech
2. moderate; considerably impaired awareness of environment; impaired attention; may have considerable problems with memory, orientation, or incoherence of speech
3. severe; unaware of environment, unable to focus, sustain, or shift attention; may have severe problems with memory, orientation, or incoherence of speech.

6. Sexual Preoccupation:

Did you dream or think more about sex or did your sex drive increase? Did you get angry or aggressive when your desires couldn't be fulfilled? For the caregiver: do you have the impression the patient is more occupied by sexual thoughts or that his/her sex drive has increased? Did (s)he get angry or aggressive when his/her desires couldn't be fulfilled?

0. absent
1. mild; increased sexual thoughts, dreams
2. moderate; increased demand for sexual activity
3. severe; violent sexual impulsiveness.

7. Compulsive behavior (shopping/gambling):

Are your thoughts more occupied by a desire to shop or gamble? Did you spend more time or money on shopping or gambling? Was it difficult to control your thoughts or behavior? Did this behavior lead to financial problems or problems in daily life? For the caregiver: Do you have the impression the patient thought more about shopping or gambling? Did (s)he spend more time or money on shopping or gambling? Was it difficult for him/her to control the thoughts or behavior? Did this behavior lead to financial problems or problems in daily life?

0. absent
1. mild; mildly increased thoughts or time spent shopping or gambling, some control over thoughts and behavior, no financial problems
2. moderate; increased time or money spent by shopping or gambling, hard to resist, disturbs daily life
3. severe, extreme time and money spent by shopping or gambling/financial problems, unsuccessful to control, severe problems in daily life.

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