

Validation of the University of São Paulo Sensory Phenomena Scale: Initial Psychometric Properties

Maria Conceição Rosario, MD, PhD, Helena Silva Prado, BA, MS, Sonia Borcato, BA, Juliana Belo Diniz, MD, Roseli Gedanki Shavitt, MD, PhD, Ana Gabriela Hounie, MD, PhD, Maria Eugênia Mathis, BA, MS, Rosana Savio Mastrorosa, BA, Patricia Velloso, BA, Eduardo Allende Perin, MD, Victor Fossaluzza, BA, Carlos Alberto Pereira, PhD, Daniel Geller, MD, James Leckman, MD, and Euripedes Miguel, MD, PhD

ABSTRACT

Introduction: Although obsessions and compulsions comprise the main features of obsessive-compulsive disorder (OCD), many patients report that their compulsions are preceded by a sense of “incompleteness” or other unpleasant feelings such as premonitory urges or a need perform actions until feeling “just right.” These manifestations have been characterized as Sensory Phenomena (SP). The current study presents initial psychometric data for a new scale designed to measure SP.

Methods: Seventy-six adult OCD subjects were probed twice. Patients were assessed with an open clinical interview (considered as the “gold standard”) and with the following standardized instruments: Structured Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition Axis I Disorders, Yale-Brown Obsessive-

FOCUS POINTS

- Obsessive-compulsive disorder patients frequently describe compulsions as accompanied by uncomfortable or unpleasant sensations, feelings, and/or perceptions, also called Sensory Phenomena (SP).
- Examples of SP include a sense of “incompleteness” and other unpleasant feelings such as premonitory urges or a need perform actions until “just-right”.
- SP may be useful to identify more homogeneous subgroups of OCD patients and the USP-SPS is a valid and reliable instrument to assess the presence and severity of SP in OCD patients.

Compulsive Scale, Dimensional Yale-Brown Obsessive-Compulsive Scale, Yale Global Tic Severity Scale, Beck Anxiety Inventory, and Beck Depression Inventory.

Results: SP were present in 51 OCD patients (67.1%). Tics were present in 16 (21.1%) of the overall sample. The presence of SP was signifi-

Dr. Rosario is an associate professor in the Department of Psychiatry at Federal University of São Paulo, Brazil. Ms. Prado is a researcher in the Department of Psychiatry at Federal University of São Paulo. Ms. Borcato is a researcher, Dr. Diniz is a psychiatrist, Dr. Shavitt is a psychiatrist, Dr. Hounie is a psychiatrist, and Ms. Mathis is a psychologist in the Department & Institute of Psychiatry at the Clinical Hospital at the University of São Paulo Medical School in Brazil. Ms. Mastrorosa, Ms. Velloso, and Dr. Perin are researchers, and Mr. Fossaluzza is a statistician in the Department of Psychiatry at Federal University of São Paulo. Dr. Pereira is an associate professor in the Department & Institute of Psychiatry at the Clinical Hospital at the University of São Paulo Medical School. Dr. Geller is an associate professor of psychiatry at Harvard Medical School in Boston, MA. Dr. Leckman is professor of Child psychiatry, psychology and pediatrics in the Child Study Center at Yale University School of Medicine in New Haven, CT. Dr. Miguel is professor of psychiatry in the Department & Institute of Psychiatry at the Clinical Hospital at the University of São Paulo Medical School.

Faculty Disclosures: Dr. Rosario is a member of the speaker's bureaus of Janssen and Novartis. Dr. Diniz has received grant/research support from Novartis (São Paulo, Brazil). All other authors do not have an affiliation with or financial interest in any organization that might pose a conflict of interest.

Funding/Support: This study was supported by grants from CNPq, Process number 133339/2004-1 and FAPESP, grant number 06/61459-7.

Submitted for publication: August 31, 2008; Accepted for publication: May 11, 2009.

Please direct all correspondence to: Maria Conceição do Rosário, Federal University of São Paulo, R. Borges Lagao, 570, Zip 04038-031; Tel/Fax: 55-11-5579-2828; E-mail: mariaceica.rosario@gmail.com.

cantly higher in early-onset OCD patients. There were no significant differences in the presence of SP according to comorbidity with tics or gender. The comparison between the results from the open clinical interviews and the University of São Paulo Sensory Phenomena Scale (USP-SPS) showed an excellent concordance between them, with no significant differences between interviewers. The inter-rater reliability between the expert raters for the USP-SPS was high, with $K=.92$. The Pearson correlation coefficient between the SP severity scores given by the two raters was $.89$.

Conclusion: Preliminary results suggest that the USP-SPS is a valid and reliable instrument for assessing the presence and severity of SP in OCD subjects.

CNS Spectr. 2009;14(6):315-323

INTRODUCTION

Obsessive-compulsive disorder (OCD) is a frequent condition affecting 1% to 3% of the population, independent of age, ethnicity, socioeconomic status, or religion.¹ According to the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision, OCD is defined by the presence of either obsessions or compulsions that are time consuming and/or cause significant distress or dysfunction.²

In addition to the commonly accepted notion that compulsions are performed to relieve the anxiety or discomfort caused by the intrusive obsessive thoughts or images, many patients report that other kinds of subjective experiences (SEs) may precede or accompany their compulsions. These SEs are perceived by the patient as uncomfortable, unpleasant, or aversive sensations, feelings, or perceptions. In fact, some patients report that these SEs cause even more distress than the traditional obsessive-compulsive symptoms themselves.^{3,4}

Initially described in the literature on Tourette syndrome (TS) patients, some studies have reported SE to be present in almost 70% of OCD subjects.^{5,6,7} In addition, it has been suggested that a better recognition of the presence of these SE

may increase the patients' ability to redirect their attention or suppress their symptoms;⁴ that pharmacological treatment may alter such SE⁸; and that it is possible that the presence of these SE may be a predictive factor of treatment response.^{7,9}

Furthermore, it has been hypothesized that these SE may also be useful to identify more homogeneous subgroups of OCD and TS patients. Miguel and colleagues^{10,11} hypothesized that there is a phenomenological continuum between obsessive compulsive symptoms and tics, and that the SE would be more frequent in OCD+TS and TS-only subjects, whereas obsessions (cognitive phenomena) would be more frequent in OCD-only subjects.^{11,12}

Previous studies investigating these SE have been limited by the fact that there has been no clear consensus on how they are best defined and measured.¹³ This lack of consensus may obscure the research findings and limit the possibility of including them in the search for etiological factors associated with OCD and TS.

Recently, our group conducted a comprehensive review of the literature and compiled all previous descriptions of these SE.¹³ Briefly, some examples of these SE include: physical sensations: uncomfortable sensations in the skin, muscles, or other body parts, like an itch or a burning sensation that drives the patient to do the compulsion until feeling a relief from this sensation; "just right" perceptions: some patients describe perceptions of not feeling well, balanced, or "just right," which make them perform the repetitive behaviors until they feel "just right." In most cases, these sensations are associated with visual, tactile, and auditory sensory stimuli. Such perceptions have been reported by up to 81% of OCD patients with a TS comorbid diagnosis^{8,14,15}; feelings of incompleteness: an inner feeling and/or perception of discomfort that makes the patient do things until feeling relieved or "just right"; energy: generalized inner tension or energy that builds up and needs to be released by doing some repeated movement or action; premonitory urges: a drive to perform the repetitive behavior without any obsession, fear, worry, or bodily sensations. This review concluded that the term "sensory phenomena" (SP) encompasses all previous descriptions of these SE and proposed that it could be used as a consensus.

Another major limitation to a better understanding of SP is the lack of scales developed for expert raters to assess SP in OCD, TS, and

other related impulse control disorders. So far, the three scales used to assess SP^{10,16,17} all have some limitations. For example, the “Premonitory Urge for Tics Scale” (PUTS)¹⁷ was developed to assess only premonitory urges in TS patients. The “Not Just Right Experiences Questionnaire” (NJREs-Q)¹⁶ was designed to assess feelings of not being “just right” and was used in college students only, without validation in clinical samples. The University of São Paulo and Harvard Repetitive Behavior Interview (USP-Harvard) was developed by our group and is a precursor of the University of São Paulo Sensory Phenomena Scale (USP-SPS).¹⁰ Although the USP-Harvard has been successfully used to assess SP in patients with OCD, TS, and related behaviors,^{5,7,10,11,12} it requires an extensive training and expertise in SP. It can also be very time consuming (up to 5 hours). In an effort to create a more practical instrument, we developed a new scale, the USP-SPS. The main objective of the present study was to test the initial psychometric properties of the UPS-SPS in a group of well-characterized OCD patients.

METHODS

The project was approved by institutional review boards at each of the sites. After a thorough description of the study and the assurance that their decision to participate would not interfere with their clinical treatment, all patients were asked to sign an informed consent document.

Subjects

The recruitment for this study was divided into three phases. Initially, 10 adult subjects from the private practice clinic of Dr. Prado were interviewed with a pilot version of the USP-SPS. During this phase, the items were thoroughly discussed and refinements were made in the wording of the items and the descriptive anchor points for assessing severity. These subjects were not included in the statistical analyses.

Between January of 2004 and July of 2006, 47 adult patients from the OCD Spectrum Disorder Program outpatient clinic at the Institute of Psychiatry at the University of Sao Paulo Medical School (PRODOC at IPQ-FMUSP) were invited to participate in the study. Of these, 42 accepted to participate. Five additional subjects were recruited from the Brazilian OCD and TS Patient Association (ASTOC). All together, 47 OCD patients were included in “Study Group 1”

From December 2007 until May 2008, 29 additional patients from two different OCD clinics were invited to participate in the study in order to evaluate the inter-rater reliability properties of the USP-SPS. Subjects were recruited from the PRODOC at IPQ-FMUSP and from the OCD Spectrum Disorder Clinic at the Federal University of São Paulo Medical School (PRODOC/UPIA at UNIFESP). All 29 subjects in “Study Group 2” accepted to participate in the study.

Inclusion criteria included an OCD diagnosis according to *DSM-IV-TR* criteria and a minimum Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) score of 16 for obsessions and compulsions or 10 for only obsessions or compulsions. All OCD diagnoses were determined both by the Structured Clinical Interview for *DSM-IV*-Axis I Disorders (SCID-I)²⁰ and a clinical evaluation by an OCD expert psychiatrist.

Exclusion criteria included presence of current clinical, neurological, or psychiatric disorder that could interfere with an individual’s ability to report accurately on their symptoms, such as: head trauma resulting in loss of consciousness, moderate or severe mental retardation, current substance dependence, presence of psychotic symptoms, and pervasive developmental disorders.

Assessment

Open Clinical Interview

As there is no gold-standard for the evaluation of SP, the USP-SPS data were compared to information collected in an open clinical interview by Dr. Prado, an expert in SP. In these interviews, patients were asked to talk freely about their symptoms and what phenomena preceded and/or accompanied them.

The University of São Paulo’s Sensory Phenomena Scale (USP-SPS)

This is a semi-structured scale developed to investigate the presence and severity of different types of SP occurring before or during the performance of repetitive behaviors. The USP-SPS is divided in two parts, a checklist and a severity scale. To access the full USP-SPS, please review the online version of this article at www.cnsspectrums.com.

The USP-SPS checklist is composed of items assessing past and current examples of different types of SP, and encompasses all previous descriptions of SP in the literature. If symptoms were endorsed, patients were also asked to provide their age of onset. Subtypes of SP included:

1. Physical sensations (tactile and/or muscle-joint): uncomfortable sensations localized in a specific region of the body (skin, muscles, or joints) which precede or occur along with repetitive behaviors. Subjects also frequently report that there is a momentary sense of relief once the repetitive behaviors have been performed.

2. "Just right" perceptions triggered by tactile, visual, or auditory sensations including the need for things to: feel "just right" - a need to touch objects or people until it feels "just right"; look "just right" - a need for objects to look a certain way (eg, perfectly symmetrical); and/or to sound "just right" - a need for a person's voice or an audio recording to sound "just right" or have the "just right" pitch.

3. Feeling of incompleteness/need to feel "just right" internally: an inner feeling and/or perception of discomfort that makes the patient do things until feeling relieved. To have an inner sense of not being "just right" and a necessity to repeat a behavior until getting the "just right" feeling.

4. Energy: a generalized inner tension or energy that builds up and needs to be released by doing a movement or action.

5. Urge only: no sensations or feelings, just an urge to do the repetitive behavior.

The USP-SPS severity scale measures the severity of the SP by three ordinal scales with six anchor points that focus on the frequency of the SP (0–5), the amount of distress they cause (0–5), and the degree to which they interfere with the patient's functioning (0–5). The total score is obtained by combining the scores for frequency, distress, and interference, ranging from 0–15. Scores are obtained both for current severity and the time when the SP were at their worst severity.

The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS)

A semi-structured clinical instrument that assesses presence and severity of obsessive-compulsive symptoms. The Y-BOCS is widely used and it has established psychometric characteristics in children and adults.^{21,22,23} The Y-BOCS scores range from 0–20 (obsessions), from 0–20 (compulsions), and a total score ranging from 0–40.

The Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS)

The DY-BOCS evaluates obsessive-compulsive symptoms according to six different dimensions, which include: obsessions about harm due to injury/violence/aggression/natural disasters, and related compulsions; obsessions con-

cerning sexual/moral/religious obsessions, and related compulsions; obsessions about symmetry and compulsions to count or order/arrange; contamination obsessions and cleaning compulsions; obsessions and compulsions related to hoarding; and miscellaneous obsessions and compulsions that relate to somatic concerns and superstitions, among other symptoms. The checklist also investigates avoidance behaviors, mental rituals, repetitive and checking rituals for each one of the dimensions.

The DY-BOCS severity scale quantifies each dimension independently, assessing the time spent with the obsessive-compulsive symptoms (0–5), the level of distress caused (0–5), and the level of interference caused by obsessive-compulsive symptoms (0–5), with a maximum score of 15 for each dimension. The negative overall impact of the obsessive-compulsive symptoms in the person's life is also measured (0–15), with a maximum total score of 30. The DY-BOCS was simultaneously validated in Portuguese and English, and has shown very good psychometric properties.²⁴

The Yale Global Tic Severity Scale (YGTSS)

The YGTSS is a semi-structured interview developed for the assessment of the nature and severity of motor and vocal tics. They are evaluated according to their number, frequency, intensity, complexity, and interference, with maximum scores of 50 for tics (25 for motor and 25 for vocal tics) and a score of 50 for the impairment caused by the tics, yielding a total maximum score of 100. The YGTSS is a widely used scale with excellent psychometric properties.²⁵

The Beck Depression Inventory (BECK-D)

The BECK-D is widely used for the identification and quantification of depressive symptoms. It is composed of 21 questions with scores that vary from 0–3, and a maximum total punctuation of 63 points. The BECK-D has well-established psychometric properties.²⁶

The Beck Anxiety Inventory (BECK-A)

The BECK-A was developed to assess presence and severity of anxiety symptoms. It is comprised of 21 questions, varying from 0–3 (0=absent), with maximum punctuation of 63 points. The BECK-A is widely used and has excellent psychometric properties.²⁷

Procedures

Interviews

Each subject was evaluated separately by two different interviewers. Before starting the evalua-

tion, the order of the interviews was decided by a coin toss. In Study Group 1, the first rater always reviewed the consent forms and asked the subjects to sign them. If the coin toss was "heads," the first interviewer also administered the USP-SPS, the DY-BOCS, the Y-BOCS, the YGTSS, and reviewed the answers from the BECK-D and the BECK-A. The second rater did an open clinical interview of the patient inquiring about different types of SP. If the coin toss was "tails," the first interviewer would do the open clinical interview and the second rater would apply the USP-SPS and all other instruments.

For the 29 OCD patients in Study Group 2, both raters only administered the USP-SPS, but the order of raters was also randomly decided.

Training of the Interviewers

All interviewers were trained on the USP-SPS,

YBOCS and DY-BOCS by Dr. Rosario, an OCD expert. All interviewers had at least a bachelor's degree and a minimum of a two-years experience working with OCD patients. Training consisted of watching at least five videotaped interviews, observing five live interviews, and interviewing five patients with another researcher before interviewing patients alone.

Statistical Analysis

Demographic and clinical characteristics were compared using χ^2 test with Yates correction when necessary for categorical data.

The convergent and discriminant validities were calculated in two ways. Initially, a comparison between the results of the open clinical interview (considered as the "gold standard") and the USP-SPS was done using the χ^2 test. Secondly, linear regression was performed in

TABLE 1.
Demographic and Clinical Characteristics of Study Groups 1 and 2

<i>Variables</i>	<i>Study Group 1</i>	<i>Study Group 2</i>	<i>Total Sample</i>
Gender N(%)			
Male	25 (53.2)	11 (38)	36 (47.4)
Female	22 (46.8)	18 (62)	40 (52.6)
Socio-Economic Status (N%)*			
A/B	27 (57.4)	12 (41.4)	39 (51.3)
C/D/E	20 (42.6)	17 (58.6)	37 (48.7)
Mean Current Age (SD)	36.6 (SD=12.1)	33.4 (SD=12.8)	35.4 (SD=12.4)
Mean Age of Onset (SD)	14.1 (SD=8.7)	15.1 (SD=8.3)	14.5 (SD=8.5)
Type of Onset N (%)			
Early (<11 years)	21 (44.7)	12 (41.4)	33 (43.4)
Late (>18 years)	14 (29.8)	12 (41.4)	26 (34.2)
Intermediary (11> and <18 years)	12 (25.5)	7 (17.2)	17 (22.4)
Presence of Sensory Phenomena	31 (66)	20 (69)	51 (67.1)
Male	16 (51.6)	7 (35)	23 (45)
Female	15 (48.4)	13 (65)	28 (55)
USP-SPS total score	4.8 (SD=4.1)	6.7 (SD=5.3)	5.5 (SD=4.6)
Presence of tics	11 (SD=23.4)	5 (SD=17.2)	16 (SD=21.1)
YGTSS total score	21 (SD=22.7)	NA	NA
Y-BOCS total score	23.6 (SD=6.8)	NA	NA
Y-BOCS Obsession	11.6 (SD=3.6)	NA	NA
Y-BOCS Compulsion	12.0 (SD=3.7)	NA	NA

*A, B, C, D, E, describe different levels of socio-economical status. "A" is the highest level (richest) and "E" is the lowest level (poorest).

SD=standard deviation; USP-SPS=University of São Paulo Sensory Phenomena Scale; YGTSS=Yale Global Tic Severity Scale; Y-BOCS=Yale-Brown Obsessive-Compulsive Scale.

Rosario MC, Prado HS, Borcato S, et al. *CNS Spectr*. Vol 14, No 6. 2009.

order to analyze the association between the scores in the USP-SPS and all other instruments.

The inter-rater reliability was calculated for the interviews of subjects from Study Group 2. Kappa coefficient was calculated to analyze the inter-rater reliability and Pearson correlation coefficients were used to analyze the association between the two ratings of the USP-SPS severity scales.

All tests were two-tailed and the significance level adopted was 5%.

RESULTS

At the end of the study, 86 OCD patients had been interviewed. From these, only 76 (47 patients in Study Group 1 and 29 in Study Group 2) were included in the analyses since the initial 10 subjects were part of the pilot study and were not interviewed independently by two different raters. Patients interviewed for the inter-rater reliability analysis (Study Group 2) were not interviewed with the other scales. Socio-demographic and clinical features are presented in Table 1. There were no statistically significant differences between the two groups with regard to gender, age, or socio-economic status.

TABLE 2.
Convergent Validity between the USP-SPS and the Open Clinical Interview (gold-standard)

USP-SPS	Gold-Standard			χ^2 and P-values
	No	Yes	N	
No SP	15	1	16	$\chi^2=31.15$ $P<.00001$
Presence of SP	2	29	31	
	17	30	47	
Physical SP		Gold-Standard		
USP-SPS	No	Yes	N	
No SP	32	2	34	$\chi^2=14.23$ $P=.0001$
Presence of SP	5	8	13	
	37	10	47	
Mental SP		Gold-Standard		
USP-SPS	No	Yes	N	
No SP	16	7	23	$\chi^2=13.6$ $P<.00001$
Presence of SP	3	21	23	
	19	28	46	

For all χ^2 tests, the degree of freedom was equal to 1.

USP-SPS=University of São Paulo Sensory Phenomena Scale; SP=Sensory Phenomena.

Rosario MC, Prado HS, Borcato S, et al. *CNS Spectr*. Vol 14, No 6. 2009.

SP were present in 51 OCD patients (67.1%), 31 (66%) from Study Group 1 and 20 (69%) from Study Group 2. The mean USP-SPS total severity scores are presented in Table 1 for both groups.

Tics were present in 16 subjects (21.1%) of the total sample, 11 (23.4%) in Study Group 1 and 5 subjects (17.2%) in Study Group 2, respectively. SP were present in 13 (81.3%) patients with tics. Tics were twice as frequent in the patients with SP (25.5% vs. 12%), but this difference did not reach statistical significance. The YGTSS mean score (calculated only for the Study Group 1) was 21.0 (S.D. = 22.7), with a median of 18. There were no statistical differences in the mean SP scores according to the presence of tics.

Patients with an early onset of their obsessive-compulsive symptoms (until 10 years of age) had a significantly higher frequency of SP ($\chi^2=4.2$, $df=1$, $P=.04$). There were no significant differences in the SP presence according to gender.

Content and Face Validity

A previous literature review demonstrated that all terms and definitions used in the USP-SPS represent real and coherent entities, and that the USP-SPS items contemplate all types of SP reported in the previous literature.¹³

Convergent and Discriminant Validity

The comparison between the results from the open clinical interviews and the USP-SPS showed an optimum concordance between them (Table 2).

The prevalence of SP was significantly higher in OCD patients who had symptoms in the "symmetry/order/arranging" dimension ($P=.0001$). As presented in Table 3, the linear regressions analyzing the association between the scores of the USP-SPS and those of DY-BOCS, Y-BOCS, YGTSS, BECK-D, and BECK-A showed that the higher the scores on the USP-SPS severity scale, the higher the severity of the "symmetry/order/arranging" dimension.

Inter-rater reliability

The inter-rater reliability for the USP-SPS was calculated for the 29 OCD patients from the Study group 2. It was high, with Kappa=.92. The Pearson correlation coefficient between the SP severity scores given by the two different raters was .89.

Use of the USP-SPS as a self-report instrument

To evaluate if the USP-SPS could be used as a self-report scale, all 47 patients from Study group 1 were invited to fulfill the scale by themselves before the interviews. The concordance between these self-reports and the expert USP-SPS ratings was compared and is presented in Table 4. From the total of 47 patients, only 33 accepted to answer

the USP-SPS by themselves. The concordance between the scales for the presence of any kind of SP was high, with a Kappa=.84. However, the concordance for subtypes of SP was low (Table 4).

DISCUSSION

There has been substantial work supporting the idea that SP is an integral part of the OCD spectrum phenomenology.¹³ It has also been

hypothesized that these SP may be useful to determine treatment strategies and to identify more homogeneous subgroups of OCD and TS patients.¹² Therefore, the development of instruments capable of assessing SP in OCD spectrum disorders is extremely important.

This study was designed in order to test the initial psychometric properties of a new scale for the assessment of presence and severity of SP,

TABLE 3.
Association between the USP-SPS severity scores and the severity scores in the DYBOCS, YBOCS, YGTSS, BECK-D, and BECK-A scales

<i>DY-BOCS</i>	<i>Explanatory Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>P-value</i>
Dimension I	Intercept	7.014	1.078	0
Contamination/Cleaning (Severity)	SP (Severity)	-.034	.172	.844
Dimension II	Intercept	2.857	.956	.005
Hoarding (Severity)	SP (Severity)	-.01	.152	.947
Dimension III	Intercept	5.096	1.007	0
Symmetry/Ordering, Arranging, Counting (Severity)	SP (Severity)	.393	.171	.026
Dimension IV	Intercept	4.342	1.191	.001
Aggression/Violence, Natural Disasters (Severity)	SP (Severity)	.186	.189	.33
Dimension V	Intercept	4.01	1.075	.001
Sexual, Religious (Severity)	SP (Severity)	-.113	.171	.511
Dimension VI	Intercept	6.545	1.025	0
Miscellaneous (Severity)	SP (Severity)	.215	.163	0.194
D-YBOCS - Total score	Intercept	19.173	1.27	0
	SP (Severity)	.029	.202	.887
Y-GTSS	Intercept	25	.097	.013
	SP (Severity)	-.003	.015	.827
Y-BOCS				
Y-BOCS compulsions	Intercept	12.112	0.844	0
	SP (Severity)	-.019	.134	.888
Y-BOCS obsessions	Intercept	11.136	.821	0.
	SP (Severity)	.096	.131	0.465
Y-BOCS Total score	Intercept	23.24	1.54	0
	SP (Severity)	.074	.245	.763
Beck Depression Inventory	Intercept	18.032	3.169	0
	SP (Severity)	.012	.51	.981
Beck Anxiety Inventory	Intercept	13.742	2.897	0
	SP (Severity)	.522	.466	.269

DY-BOCS=Dimensional Yale-Brown Obsessive-Compulsive Scale; Y-BOCS=Yale-Brown Obsessive-Compulsive Scale; Y-GTSS=Yale Global Tic Severity Scale; SP=Sensory Phenomena.

Rosario MC, Prado HS, Borcato S, et al. *CNS Spectr*. Vol 14, No 6. 2009.

the USP-SPS. The current results showed that the USP-SPS is a valid and reliable instrument for assessing SP in OCD patients.

The definitions used in the USP-SPS incorporate all previous descriptions of SP in the litera-

ture, as reported in a recent systematic literature review.¹³ It is important to mention that SP were highly frequent in both samples assessed, similar to findings of previous studies that investigated SP in OCD and OCD+TS subjects and reported rates as high as 80%.^{5,7,10,12,28} The rates of SP were significantly higher in subjects with an early onset of the OC symptoms, also in accordance with previous studies.⁵ Moreover, the presence of SP was not restricted to subjects with tic comorbidity. These results suggest that SP is highly prevalent in OCD patients and that it would be important to include their investigation in the clinical and research routine evaluations of OCD patients.

The concordance between the USP-SPS and the open clinical interview was excellent. When compared to the anxiety, depression, and tic severity scales, the linear regression showed that the USP-SPS had very good discriminant validity. The exception was the finding that the "symmetry/ordering/arranging" DY-BOCS dimension was convergent with presence and severity of SP. These results reinforce the idea that OCD is a heterogeneous disorder,²⁹ with overlapping obsessive compulsive symptoms dimensions,^{24,30} and that there is a close relationship between SP and the symmetry/ordering/arranging dimension, frequently described as a component of the tic-related OCD phenotype.

This study has several limitations. For example, only OCD subjects were assessed. The fact that the USP-SPS was developed to investigate SP in OCD spectrum disorders and that the USP-Harvard, a previous version of the USP-SPS, was used successfully to assess SP in TS subjects, emphasize the need for future studies to include subjects with other diagnoses. Additionally, the number of subjects was small, there were no corrections in the alpha level for multiple analyses, and the convergent validity of the USP-SPS was evaluated by comparison with an open clinical interview. This decision was based on the fact that there is no instrument considered as the "gold standard". Nevertheless, for the test-retest reliability analysis, an additional and independent sample was used, from two different institutions, and both raters used the USP-SPS. Furthermore, the raters were experts in OCD.

A limitation of the USP-SPS is the subjectivity of the definitions used, making it difficult for patients to understand the items. Physical sensations are, a priori, easier for patients to understand and they are capable of pointing out the

TABLE 4.
Concordance Between Self-Reported USP-SPS and USP-SPS by a Rater

<i>Self-report USP-SPS</i>	<i>Clinician Rating for the USP-SPS</i>		χ^2 and P-values
	No	Yes	
<i>Sensory Phenomena</i>			
No	6	2	8
Yes	4	21	25
	10	23	33*
<i>Physical Tactile</i>			
No	6	11	17
Yes	4	12	16
	10	23	33*
<i>Visceral/muscle-skeletal</i>			
No	9	17	26
Yes	1	6	7
	10	23	33*
<i>Just-Right Auditory</i>			
No	7	16	23
Yes	3	7	10
	10	23	33*
<i>Just-Right Visual</i>			
No	7	11	18
Yes	3	12	15
	10	23	33*
<i>Just-Right Tactile</i>			
No	6	11	17
Yes	4	12	16
	10	23	33*
<i>Incompleteness</i>			
No	8	17	25
Yes	2	6	8
	10	23	33*
<i>Energy/Inner Tension</i>			
No	8	18	26
Yes	2	5	7
	10	23	33*
<i>Urge</i>			
No	7	9	16
Yes	3	14	17
	10	23	33*

* Only 33 subjects filled the USP-SPS independently before the interview.

Rosario MC, Prado HS, Borcato S, et al. *CNS Spectr*. Vol 14, No 6. 2009.

locus of their discomfort with relative ease. Other subtypes, however, might be more difficult for patients to understand their meaning. For example, incompleteness is frequently associated with feelings of having an “essential loss” or a need to do things until feeling “just right” internally or even being a perfectionist.³¹ Another potential limitation is that patients were taking medication for their OC symptoms and tics, and we do not know how this would interfere with their responses. Similar investigations with drug naïve patients would be interesting to detect the effect of medications on the SP.

CONCLUSION

Despite these limitations, the current study has some important findings. SP are very frequent in OCD patients and should be systematically investigated. The term SP can be used as a consensus definition for the various descriptions of sensory experiences preceding or accompanying compulsions. And most importantly, the USP-SPS is a valid and reliable instrument to assess the presence and severity of SP in OCD patients. **CNS**

REFERENCES

- Kessler RC, Chiu WT, Demler O, Merikangas KR, Walters EE. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62:617-627.
- Diagnostic and Statistical Manual of Mental Disorders*. 4th ed, text rev. Washington, DC: American Psychiatric Association; 2000.
- Torres AR, Prince MJ, Bebbington PE, et al. Obsessive-Compulsive Disorder: prevalence, comorbidity, impact, and help-seeking in the British National Psychiatry Morbidity Survey of 2000. *Am J Psychiatry*. 2006;163:1978-1985.
- Cohen AJ, Leckman JF. Sensory phenomena associated with Gilles de la Tourette's Syndrome. *J Clin Psychiatry*. 1992;53:319-323.
- Rosario-Campos MC, Leckman JF, Mercadante MT, et al. Adults with early-onset obsessive-compulsive disorder. *Am J Psychiatry*. 2001;158:1899-1903.
- Ferrão YA, Shavitt RG, Bedin NR, et al. Clinical features associated to refractory obsessive-compulsive disorder. *J Affect Disord*. 2006;94:199-209.
- Shavitt RG, Belotto C, Curi M, et al. Clinical features associated with treatment response in obsessive-compulsive disorder. *Compr Psychiatry*. 2006;47:276-281.
- Leckman JF, Pauls DL, Peterson BS, Riddle MA, Anderson GM, Cohen DJ. Pathogenesis of Tourette syndrome – Clues from the Clinical Phenotype and Natural History. *Adv Neurol*. 1992;58:15-24.
- Shavitt RG. Fatores Preditivos de Resposta ao Tratamento em Pacientes com Transtorno Obsessivo-Compulsivo [PhD thesis] (in Portuguese). São Paulo, Brazil: Universidade de São Paulo; 2002.
- Miguel EC, Coffey BJ, Baer L, Savage CR, Rauch SL, Jenike MA. Phenomenology of Intentional Repetitive Behaviors in Obsessive-Compulsive Disorder and Tourette's syndrome. *J Clin Psychiatry*. 1995;56:420-430.
- Miguel EC, Baer L, Coffey BJ, et al. Phenomenological differences appearing with repetitive behaviors in obsessive-compulsive disorder and Gilles de la Tourette syndrome. *Br J Psychiatry*. 1997;170:140-145.
- Miguel EC, do Rosário-Campos MC, Prado HS, et al. Sensory Phenomena in Obsessive-Compulsive Disorder and Tourette's Disorder. *J Clin Psychiatry*. 2000; 61:150-156.
- Prado HS, Rosario MC, Lee J, Hounie AG, Shavitt RG, Miguel EC. Sensory Phenomena in Obsessive-Compulsive Disorders and Tic Disorders: A Review of the Literature. *CNS Spectr*. 2008;13:425-432.
- Leckman JF, Walker DE, Goodman WK, Pauls DL, Cohen DJ. “Just-Right” perceptions associated with compulsive behaviors in Tourette's syndrome. *Am J Psychiatry*. 1994;151:675-680.
- Leckman JF, Grice DE, Boardman J, et al. Symptoms of obsessive-compulsive disorder. *Am J Psychiatry*. 1997;154:911-917.
- Coles ME, Frost RO, Heimberg RG, Rhéaume J. “Not Just Right Experiences”: perfectionism, obsessive-compulsive features and general psychopathology. *Behav Res Ther*. 2003;41:681-700.
- Woods DW, Piacentini J, Himle MB, Chang S. Premonitory Urge for Tics Scale (PUTS): Initial Psychometric Results and Examination of Premonitory Urge Phenomenon in Youth with Tic Disorders. *J Dev Behav Pediatr*. 2005;26:397-403.
- De Mathis MA, Rosario MC, Diniz JB, et al. Obsessive-compulsive disorder: influence of age at onset on comorbidity patterns. *Eur Psychiatry*. 2008;23:187-194.
- Pauls DL, Towbin KE, Leckman JF, Zahner GE, Cohen DJ. Gilles de la Tourette's syndrome and obsessive-compulsive disorder. Evidence supporting a genetic relationship. *Arch Gen Psychiatry*. 1986;43:1180-1182.
- First MB, Spitzer RL, Gibbon M, Williams JBW. Structured Clinical Interview for DSM-IV Axis I Disorders-Patient Edition (SCID-I/P, Version 2.0). 4th ed. Washington, DC: American Psychiatric Press; 1994.
- Goodman WK, Price LH, Rasmussen SA, et al. The Yale-Brown Obsessive-Compulsive Scale: Development use and reliability. *Arch Gen Psychiatry*. 1989;46:1006-1011.
- Goodman WK, Price LH, Rasmussen SA, et al. The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS): II. Validity. *Arch Gen Psychiatry*. 1989;46:1012-1016.
- Scahill L, Riddle MA, McSwiggan-Hardin M, et al. Children's Yale-Brown Obsessive Compulsive Scale: Reliability and Validity. *J Am Acad Child Adolesc Psychiatry*. 1997;36:844-852.
- Rosario-Campos MC, Miguel EC, Quatran S, et al. The Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS): an instrument for assessing obsessive-compulsive symptom dimensions. *Mol Psychiatry*. 2006;11:495-504.
- Leckman JF, Riddle MA, Hardin MT, et al. The Yale Global Tic Severity Scale: initial testing of a clinician-rated scale of tic severity. *J Am Acad Child Adolesc Psychiatry*. 1989; 28:566-573.
- Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An Inventory for Measuring Depression. *Arch Gen Psychiatry*. 1961;4:561-571.
- Beck AT, Epstein N, Brown G, Steer RA. An Inventory for Measuring Clinical Anxiety: Psychometric Properties. *J Consult Clin Psychol*. 1988;56:893-897.
- Leckman JF, Grice DE, Barr LC, et al. Tic-Related vs. Non-Tic-Related Obsessive-Compulsive Disorder. *Anxiety*. 1994/1995;1:208-215.
- Miguel EC, Leckman JF, Rauch S, et al. Obsessive-compulsive disorder phenotypes: implications for genetic studies. *Mol Psychiatry*. 2005;10:258-275.
- Mataix-Cols D. Deconstructing obsessive-compulsive disorder: a multidimensional perspective. *Curr Opin Psychiatry*. 2006;19:84-89.
- Lee J, Prado HS, Diniz JB, et al. Perfectionism and Sensory Phenomena: Phenotypic Components of Obsessive-Compulsive Disorder. *Compr Psychiatry*. In press.