

The Boundary Between Hypochondriasis and Obsessive-Compulsive Disorder: A Cross-Sectional Study From the Netherlands

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Objective: To investigate similarities and differences between the symptom profiles of patients with hypochondriasis and those of patients with obsessive-compulsive disorder (OCD) and to compare the contamination/cleaning OCD subtype to other OCD subtypes.

Method: Between January 1998 and July 2002, 76 patients diagnosed with hypochondriasis (N = 31) or OCD (N = 45) (DSM-IV criteria) and 25 subjects with no formal DSM-IV diagnosis were compared with regard to the extent of diagnosis-specific symptoms, the number and nature of physical symptoms, and whether these symptoms evoked fear. The analyses were repeated after subdividing the OCD patients into the contamination/cleaning and other OCD subgroups.

Results: Patients with hypochondriasis and OCD differed significantly from each other on the extent of diagnosis-specific symptoms (all $p < .001$). Patients with hypochondriasis reported significantly more obsessive-compulsive symptoms and patients with OCD reported significantly more hypochondriacal symptoms than did the healthy control-group members (all $p < .05$). Neither group differed significantly from the other on the number and nature of feared physical symptoms. The contamination/cleaning OCD subtype did not differ significantly from other OCD subtypes in either the severity of hypochondriacal symptoms or the number of feared physical symptoms.

Conclusion: Hypochondriasis and OCD can be distinguished on the basis of diagnosis-specific symptoms, although they share a number of similarities. In addition, although patients with the contamination/cleaning OCD subtype tend to be afraid of contracting diseases, the differences between the symptom profiles of these patients and those of patients with hypochondriasis exceed the similarities. Our results confirm that the 2 conditions are separable and valid diagnoses.

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According to the DSM-IV,¹ the essential feature of hypochondriasis is the presence of innocuous physical sensations that are interpreted as serious threats to health. Patients who suffer from hypochondriasis frequently resort to anxiety-reducing behaviors in order to relieve their fears. Examples of anxiety-reducing behaviors are checking the body for feared symptoms or seeking reassurance from physicians and family members. Unfortunately, however, these feelings of reassurance are only temporary for patients with hypochondriasis. Once they experience physical symptoms again, the fear returns, resulting in a renewed irresistible drive to be reassured.

Because of their inability to delay or inhibit repetitive thoughts and anxiety-reducing behavior, patients with hypochondriasis bear a phenomenological resemblance to patients with obsessive-compulsive disorder (OCD), as noted by several authors (e.g., Barsky² and Fallon et al.³). Furthermore, patients with hypochondriasis and OCD respond to the same kind of treatments (i.e., cognitive-behavioral therapy^{4–7} and pharmacologic treatment with selective serotonin reuptake inhibitors [SSRIs]^{8–10}). For these reasons, hypochondriasis has been traditionally considered to belong to the obsessive-compulsive spectrum.¹¹ To date, research on this topic has been scarce. One study¹² found equivalent levels of obsessionality among patients with hypochondriasis and those with OCD. Patients with OCD, however, exhibited higher levels of compulsivity (unrelated to a serious disease). Unfortu-

nately, because no control group was included in that study, it remains unknown whether the symptoms exceeded the subclinical level.¹² Another study¹³ found that patients with OCD scored significantly higher on the Illness Attitude Scales (IAS) than did healthy control-group subjects who were matched for socio-demographic variables, thereby providing some evidence for a clinical overlap between the 2 disorders. To date, no studies have examined whether patients with the contamination/cleaning subtype of OCD have more hypochondriacal symptoms than do OCD patients who do not have these specific obsessions.

In addition to the similarities discussed above, patients with hypochondriasis differ from OCD patients on at least one important aspect. Patients with hypochondriasis have a tendency to overestimate the likelihood that ambiguous symptoms are indicative of serious disease, a fear that is unique to this disorder.¹⁴⁻¹⁸ Although patients with anxiety disorders also frequently express a heightened alertness to somatic sensations,¹⁹ it can be argued that the nature of the physical symptoms of patients with anxiety disorders, like OCD, differs from that of patients with hypochondriasis. It is possible that OCD patients initially suffer from recurrent and intrusive thoughts about contracting a serious disease (or similar fears), which subsequently cause marked anxiety and somatic distress. In contrast, patients with hypochondriasis may initially experience physical sensations that subsequently provoke thoughts about a serious illness. It is therefore conceivable that patients with hypochondriasis suffer from different physical symptoms (diffuse and vague symptoms that are associated with a serious disease) than do patients with OCD (who primarily experience such anxiety symptoms as tachycardia and sweating) (c.f., Cote et al.²⁰). At present, however, which types of physical symptoms are reported by patients with hypochondriasis and which symptoms evoke fear remain unknown.

The foregoing discussion suggests that current knowledge about the phenomenological boundaries between hypochondriasis and OCD is based largely on clinical experience and requires further empirical examination. We therefore decided to compare hypochondriacs, OCD patients, and healthy individuals on (1) the presence and severity of diagnosis-specific symptoms and (2) the number and nature of physical symptoms and whether they evoke fear. Finally, we investigated (3) whether patients with the contamination/cleaning subtype of OCD experience more hypochondriacal symptoms and physical sensations than do patients who suffer from other OCD subtypes.

METHOD

Study Population

All patients who participated in this study were selected within the framework of 2 randomized controlled

trials. A convenience sample of normal control-group members, with no formal DSM-IV diagnosis, who were matched with patients as closely as possible for gender and age, was recruited among psychology students and relatives of students, all of whom were unaware of the purpose of the study. Subjects who reported having received any psychological or psychiatric help in the past were excluded. We chose to include a healthy control group instead of a control group of psychiatric patients in order to investigate whether the severity of hypochondriacal symptoms in OCD patients and, conversely, the severity of OCD symptoms in patients with hypochondriasis are higher than the severity of either among normal control-group members.

Patients

Patients who were at least 18 years of age and who met the DSM-IV criteria for hypochondriasis or OCD¹ (established by means of the Structured Clinical Interview for DSM-IV Axis I Disorders²¹ [SCID]) were selected within a framework of 2 separate randomized controlled trials (RCTs) conducted at 2 outpatient clinics for anxiety disorders in Leiden and Amsterdam. Exclusion criteria in both RCTs were as follows: comorbid diagnoses of psychotic disorders, substance use disorders, organic mental disorders, an allergy to SSRIs, and having received psychotherapy elsewhere. Pregnant and lactating women and patients using concomitant antidepressants, mood stabilizers, antipsychotics, and anticoagulants were also excluded. Patients with comorbid diagnoses of mood disorders, anxiety disorders, and other somatoform disorders were included if they indicated that hypochondriasis or OCD was the psychiatric disorder from which they suffered the most. Medical records were reviewed to ensure that hypochondriacal complaints could not be explained by somatic illness. No patients were excluded because of a medical diagnosis.

Thirty-one of the 112 consecutive hypochondriasis patients in the RCT and 45 of the 125 consecutive OCD patients in the RCT participated in the present substudy, for which no special eligibility criteria were required. Of the patients with hypochondriasis, 66% had been referred by their general practitioners and 34% had responded to articles in newspapers. The corresponding percentages for the OCD patients were 73% and 27%. Written informed consent was obtained from each patient. The study received ethical approval from the participating medical centers, and it was conducted between January 1998 and July 2002.

Measurements

To assess the severity of obsessive-compulsive complaints, we used 2 questionnaires. The first was the Padua Inventory-Revised²² (PI-R), which is a self-report questionnaire consisting of 41 items that are rated on a 5-point

Likert scale ranging from 0 (not at all) to 4 (very much), from which we used the total score. The questions concerned the extent of impulses, washing, checking, rumination, and precision.²² The PI-R does not specify an orienting time frame for responding. In order to identify the content of current obsessions and compulsions, we used the Yale-Brown Obsessive Compulsive Scale (YBOCS) symptom checklist, which is a semistructured, clinician-administered interview that assesses the following 8 types of obsessions: aggressive, contamination, sexual, hoarding/saving, religious, need for symmetry/exactness, somatic, and miscellaneous. The instrument also assesses the following 7 compulsions: cleaning/washing, checking, repeating, counting, ordering/arranging, hoarding/collecting, and miscellaneous.^{23,24} The severity of these obsessive-compulsive symptoms during the past week was assessed using the YBOCS. The interview consists of 2 subscales that measure the severity of obsessions and the severity of compulsions. Each subscale consists of 5 items. Each item is rated from 0 (no symptoms) to 4 (extreme symptoms).^{23,24} To determine the YBOCS severity score, we asked our hypochondriacal patients about the frequency and severity of those obsessions unrelated to serious disease.

To assess the severity of the core features of hypochondriasis, we used the 4-point Likert scale version of the Whiteley Index. The Whiteley Index is a 14-item self-report questionnaire with scores ranging from 0 (almost never) to 4 (almost always).^{25,26} Second, we used 2 subscales of the IAS, which were revealed in a Dutch factor-analytic study: Health Anxiety (11 items) and Illness Behavior (6 items).²⁶ These items are rated on a 5-point Likert scale ranging from 0 (never) to 4 (mostly).²⁶ Because the IAS and the Whiteley Index aim to assess the frequency and intensity of hypochondriacal symptoms in general, they specify no specific time frame for responding. Finally, we used a version of the YBOCS that had been adapted for hypochondriasis.

The hypochondriasis YBOCS is an unpublished, semi-structured, clinician-administered interview designed to assess the severity of hypochondriacal symptoms during the past week. The interview consists of 3 subscales, which measure the severity of obsessions (preoccupation with thoughts of having a serious disease), compulsions (active safety-seeking behavior), and avoidance (passive safety-seeking behavior). The first subscale has 6 items; each of the other scales has 5 items. Each item is rated from 0 (no symptoms) to 4 (extreme symptoms). For all items, a higher numerical score corresponds to greater illness severity. The total of the first subscale is the sum of items 1 through 6 (range, 0–24). The total of the second and the third subscale is the sum of items 7 through 11 (range, 0–20) and items 12 through 16 (range, 0–20), respectively. The total hypochondriasis YBOCS score is the sum of items 1 through 16 (range, 0–64). Except for

an extra item assessing “insight” (item 6) that was added to the first subscale, the items of the hypochondriasis YBOCS are identical for each subscale. The severity of obsessions, compulsions, and avoidance is assessed with regard to (1) the amount of time a patient is occupied by them, (2) their interference with daily functioning, (3) the distress they cause, (4) the amount of resistance a patient can offer to them, and (5) the actual amount of control a patient experiences.

The number and the nature of the physical symptoms during the past week were assessed by the Physical Symptom Checklist (PSC), a checklist of 55 physical symptoms that form part of the different diagnoses in the DSM-III.²⁷ It included a broad array of symptoms, including most organ symptoms. The PSC includes 51 non-gender-specific items and 4 gender-specific items, 1 for men and 3 for women. We excluded the gender-specific items to rule out bias. There are 11 general/neurologic items, 10 autonomic items, 8 musculoskeletal/pain items, 13 gastrointestinal items, 5 urological/genital items, and 4 items concerning warm/cold. Items in the list are dichotomous (i.e., they are scored as either present or absent with a range between 0 and 51), and symptoms are scored for the previous week. In addition, patients were asked to note any complaints that they feared (also on a dichotomous answering format with a range between 0 and 51).

Statistical Analysis

Differences between 2 groups according to demographic and clinical variables were analyzed with independent t tests and between 3 groups with 1-way analysis of variance (ANOVA). For categorical variables, χ^2 tests were used. Post hoc comparisons were made using a Scheffé test, as the sample sizes of the 3 groups were unequal. In case of unequal variances, we used the Games-Howell test, which also takes into account unequal sample sizes. Although this study involved a number of comparisons, we chose not to apply a Bonferroni correction, because of the explorative and descriptive nature of this study. All tests were 2-tailed with α set at .05. For cases that failed to meet the assumptions of the 1-way ANOVA or independent t test, we used their nonparametric equivalents (Kruskal-Wallis test and Mann-Whitney U test). The relative magnitude of the differences between the 2 disorders and the control group was calculated by means of effect sizes (Cohen's *d*) by subtracting the group means and dividing the difference by the pooled standard deviation.

RESULTS

The study included a total of 101 subjects. Thirty-one of these patients had received a diagnosis of current DSM-IV hypochondriasis and 45 patients met the criteria for current DSM-IV obsessive-compulsive disorder.¹ Twenty-five healthy subjects served as control-group

members. Hypochondriacs with comorbid OCD ($N = 3$, 10%) and OCD patients with comorbid hypochondriasis ($N = 3$, 7%) were not included in these analyses. The number and proportion of female subjects in the 3 groups were as follows: hypochondriasis, 17 (61%); OCD, 22 (52%); and control group, 15 (60%) ($\chi^2 = 1.026$, $df = 2$, $p = .60$). The mean (\pm SD) age in years was 43.2 (11.2) for patients with hypochondriasis, 35.5 (8.3) for patients with OCD, and 44.7 (11.6) for the members of the control group ($F = 8.147$, $df = 2,92$; $p = .001$). When the Games-Howell post hoc comparison was conducted, patients with OCD appeared to be significantly younger than the other 2 groups ($p = .01$). A significant interaction effect between age and group made it impossible to repeat the analyses with statistical adjustment for group differences in age. We therefore decided to divide age, for the OCD group, into aliquots below and above the median. There appeared to be no differences between the responses of younger participants and those of older participants on any of the questionnaires. We can therefore conclude that age was not a confounding factor.

When we studied the number of current comorbid diagnoses, significantly more hypochondriacal patients appeared to have comorbid diagnoses than did patients with OCD. Only 4 patients (14%) suffered from hypochondriasis without comorbid diagnoses. In contrast, 23 patients (55%) from the OCD group had no comorbid diagnoses ($\chi^2 = 16.000$, $df = 1$, $p < .001$). For both groups, the most frequently reported diagnoses were major depressive episode (hypochondriasis, 39%; OCD, 10%) and panic disorder (hypochondriasis, 50%; OCD, 7%).

In order to rule out the possibility that hypochondriacal symptoms in patients with OCD and, conversely, that OCD symptoms in patients with hypochondriasis could be explained by the presence of additional diagnoses, we also compared subgroups with or without comorbidity and found no significant differences. The hypochondriacal symptoms of OCD patients and the OCD symptoms of hypochondriacal patients, therefore, seem to be independent of comorbidity.

The finding that fully half of the patients with hypochondriasis had comorbid panic disorder, however, is of particular concern. As are hypochondriacs, patients with panic disorder are characterized by a tendency to misinterpret physical symptoms as indicative of a serious condition (e.g., chest pain or palpitations as signs of a heart attack). We therefore cannot be sure whether our findings relate to differences between hypochondriasis and OCD or to differences between panic disorder and OCD. To increase confidence in our results, we divided the hypochondriacs into 2 groups; 1 group consisted of patients with comorbid panic disorder, and the other group was comprised of patients without comorbid panic disorder. We repeated the analyses on age, gender, measures of hypochondriasis, and the PSC (number of reported symp-

toms and feared symptoms) within each of these 2 groups. Hypochondriacs with comorbid panic disorder appeared to be significantly younger (38.1 ± 8.4 vs. 48.4 ± 11.6 years; $U = 48.500$, $N_1 = 14$, $N_2 = 14$, $p = .02$) and reported significantly more physical symptoms ($t = -2.968$, $df = 28$, $p < .01$) than did hypochondriacs without panic disorder. Because our main aim was to examine the differences between hypochondriasis and OCD, we present the PSC results only from hypochondriacs without comorbid panic disorder. We must nevertheless be cautious in interpreting the results, given the small sample sizes.

Table 1 summarizes the mean scores on the Whiteley Index, the IAS, the YBOCS for hypochondriasis, the PSC, the PI-R, the YBOCS, and the YBOCS symptom checklist. To gain insight into the magnitude of the differences between hypochondriacs, OCD patients, and healthy control-group members with regard to hypochondriacal and OCD symptoms, we calculated effect sizes, which are also listed in Table 1.

First Objective

Our first objective was to investigate the extent of diagnosis-specific symptoms in patients with OCD and hypochondriasis as compared with healthy individuals. Table 1 indicates that, as expected, patients with hypochondriasis do have significantly more hypochondriacal symptoms (e.g., disease fear, disease conviction, illness behavior, and physical symptoms). Analyses also revealed significant differences between all 3 groups on the Whiteley Index ($F = 93.051$, $df = 2,92$; $p < .001$), the Health Anxiety subscale ($F = 73.716$, $df = 2,90$; $p < .001$), and the Illness Behavior subscale ($F = 23.865$, $df = 2,90$; $p < .001$) of the IAS. Games-Howell post hoc comparisons revealed significant differences between all 3 groups on the Whiteley Index (all $p \leq .001$). On the Health Anxiety subscale and the Illness Behavior subscale of the IAS, patients with hypochondriasis differed significantly from patients with OCD and healthy control-group members (all $p < .001$). Patients with OCD differed from control-group members on these scales as well, but to a lesser degree (all $p < .05$).

The hypochondriasis YBOCS also showed a significant group effect on the scores on the obsessions subscale ($\chi^2 = 65.741$, $df = 2$, $p < .001$), the compulsions subscale ($\chi^2 = 66.951$, $df = 2$, $p < .001$), the avoidance subscale ($\chi^2 = 53.418$, $df = 2$, $p < .001$), and the total scale ($\chi^2 = 67.990$, $df = 2$, $p < .001$). Analyses comparing the different groups separately revealed significant differences across all scales between patients with hypochondriasis and both of the other groups (all $p < .001$). Patients with OCD also differed significantly from the control-group members (all $p < .05$).

The questionnaires that assessed the extent of obsessive-compulsive symptoms revealed opposite re-

Table 1. Mean (SD) Scores on the Whiteley Index, the Illness Attitude Scales, the Yale-Brown Obsessive Compulsive Scale (YBOCS) for Hypochondriasis, the Physical Symptom Checklist, the Padua Inventory-Revised, the YBOCS, and the YBOCS Symptom Checklist

Questionnaire (range)	Hypochondriasis (N = 28)	Obsessive-Compulsive Disorder (N = 42)	Healthy Control Group (N = 25)	Effect Sizes ^a	Effect Sizes ^{b,c}
Whiteley Index (0–56)	24.6 (6.4)	9.9 (6.3)	5.4 (3.4)	2.3	0.9 ^b
Illness Attitude Scales					
Health Anxiety (0–44)	29.5 (7.2)	12.4 (7.8)	8.4 (4.7)	2.3	0.6 ^b
Illness Behavior (0–24)	15.8 (4.3)	10.6 (5.3)	7.4 (2.9)	1.1	0.7 ^b
YBOCS for hypochondriasis					
Obsessions (0–24)	12.4 (3.6)	1.9 (3.7)	0 (0)	2.9	0.7 ^b
Compulsions (0–20)	9.5 (3.3)	0.9 (2.2)	0 (0)	3.1	0.6 ^b
Avoidance (0–20)	7.8 (5.4)	1.1 (3.0)	0 (0)	1.9	0.5 ^b
Total (0–64)	29.6 (9.7)	3.8 (7.6)	0 (0)	3.0	0.7 ^b
Physical Symptom Checklist (0–51)					
Reported symptoms ^d	12.1 (8.0)	11.0 (6.9)	4.5 (2.7)	0.2	1.2 ^b
Reported feared symptoms ^d	2.3 (2.6)	0.9 (1.0)	0 (0)	0.7	1.3 ^b
Padua Inventory-Revised (0–164)	26.3 (14.8)	60.9 (22.8)	12.8 (8.4)	1.8	1.1 ^c
YBOCS					
Obsessions (0–20)	1.9 (3.1)	13.1 (3.0)	0 (0)	4.0	0.9 ^c
Compulsions (0–20)	1.4 (3.1)	13.7 (3.1)	0 (0)	4.0	0.6 ^c
Total (0–40)	3.2 (5.0)	26.7 (5.4)	0 (0)	4.5	0.9 ^c
YBOCS symptom checklist (0–15)					
Obsessions (0–8)	1.7 (0.8)	3.4 (1.7)	0 (0)	1.3	3.0 ^c
Compulsions (0–7)	0.8 (1.3)	3.6 (1.7)	0 (0)	1.9	0.9 ^c

^aEffect sizes for hypochondriasis versus OCD comparisons.

^bEffect sizes for OCD versus healthy control-group members comparisons.

^cEffect sizes for hypochondriasis versus healthy control-group members comparisons.

^dFourteen patients with hypochondriasis were included in these analyses.

Abbreviations: OCD = obsessive-compulsive disorder, YBOCS = Yale-Brown Obsessive Compulsive Scale.

sults; the scores of OCD patients were higher than those of either the hypochondriacal patients or the members of the control group (Table 1). An ANOVA on the PI-R revealed that the difference between all 3 groups was significant ($F = 66.568$, $df = 2,92$; $p < .001$). The Games-Howell post hoc procedure showed all 3 groups to differ significantly from each other (all $p < .001$). For the YBOCS, there was also a significant group effect on the scores on the obsessions subscale ($\chi^2 = 76.372$, $df = 2$, $p < .001$), the compulsions subscale ($\chi^2 = 77.104$, $df = 2$, $p < .001$), and the total scale ($\chi^2 = 76.112$, $df = 2$, $p < .001$). Analyses comparing the groups separately on these 3 scales revealed significant differences between the OCD group and the other 2 groups (all $p < .001$). The scores of hypochondriacal patients also differed significantly from those of the control group (all $p < .05$). On the YBOCS symptom checklist, an overall analysis appeared to be significant for obsessions ($\chi^2 = 60.177$, $df = 2$, $p < .001$), as well as for compulsions ($\chi^2 = 65.764$, $df = 2$, $p < .001$). With regard to 2-group comparisons, both patient groups appeared to have more obsessions and compulsions than did the control group (all $p \leq .001$). Patients with OCD had significantly more obsessions and compulsions than did patients with hypochondriasis ($p < .001$).

Second Objective

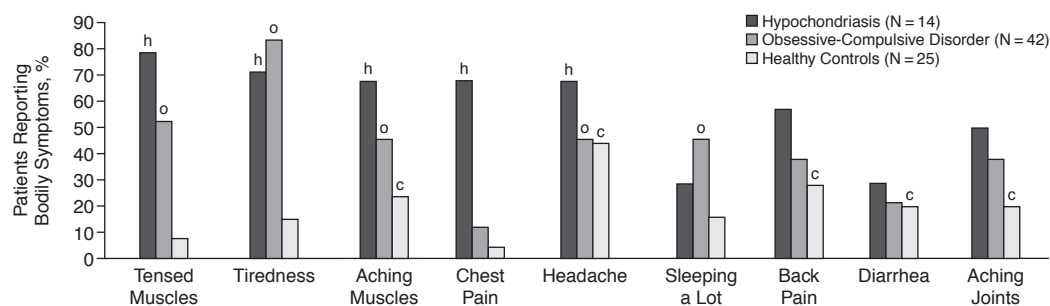
Our second objective was to investigate the number and nature of physical symptoms in patients with hypo-

chondriasis, patients with OCD, and control-group members and to investigate which symptoms evoked fear. For this analysis, we included only those hypochondriacs who had no comorbid panic disorder. On the PSC, patients with hypochondriasis and OCD reported significantly more symptoms than did the members of the control group (Table 1). The ANOVA revealed a significant main effect between the 3 groups ($F = 10.699$, $df = 2,78$; $p < .001$) and significant differences between both psychiatric groups and the control group (both $p < .05$). Hypochondriacs did not differ significantly from OCD patients in the number of physical symptoms (calculated according to the Games-Howell procedure). Figure 1 illustrates the 5 most frequently reported physical symptoms for each group.

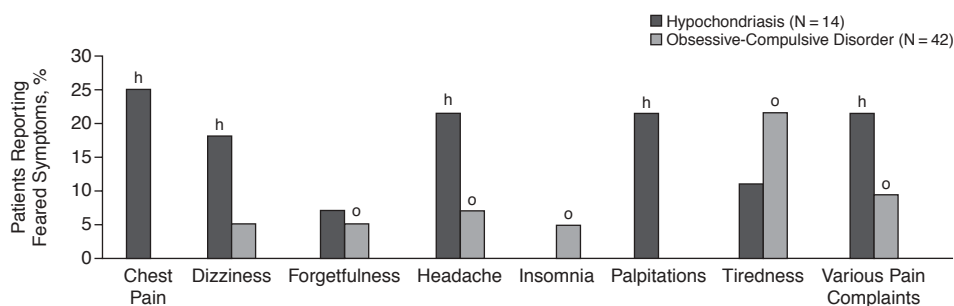
Patients with hypochondriasis did not worry about significantly more complaints than did OCD patients ($U = 208.000$, $N_1 = 14$, $N_2 = 42$, $p = .08$). Figure 2 illustrates the 5 most-reported feared complaints.

Third Objective

Our final objective was to investigate whether OCD patients who suffer from contamination obsessions and cleaning or washing compulsions (i.e., contamination/cleaning subtype) actually have more hypochondriacal symptoms and physical sensations than do OCD patients who do not have these specific obsessions. We therefore subdivided the OCD group into 2 subgroups: OCD contamination/cleaning subtype ($N = 20$; 48%) and other

Figure 1. Most Frequently Reported Bodily Symptoms in All 3 Groups Based on Physical Symptom Checklist Scores^a

^aThe letters above the bars indicate the 5 most frequently reported symptoms among hypochondriacal patients without panic disorder (h), OCD patients (o), and healthy control-group members (c). Comparisons between groups revealed that hypochondriacal patients and OCD patients reported tiredness and tensed muscles significantly more frequently than the control-group members did. Furthermore, hypochondriacal patients reported significantly more bloating and flatulence (not shown) than did either of the other groups. Finally, OCD patients reported sleeping more than the members of the control group did (all $p < .05$).

Figure 2. Most Reported Feared Symptoms in Both Patient Groups Based on Physical Symptom Checklist Scores^a

^aThe letters above the bars indicate the 5 most frequently reported feared physical complaints among hypochondriacal patients without panic disorder (h) and patients with OCD (o). Hypochondriacal patients feared chest pain, tingling, and trembling (not shown) significantly more often than OCD patients did ($p < .05$).

subtypes ($N = 22$; 52%). We compared both subgroups of OCD patients with each other and with patients with hypochondriasis on all measures for hypochondriasis and the number of symptoms and fears (PSC) using Kruskal-Wallis tests. We found a significant main effect on all questionnaires (all $p < .01$). Subgroup analyses with the Mann-Whitney U test revealed that the hypochondriacal symptoms of patients with hypochondriasis were significantly more severe (significant effects on all questionnaires) than were those of patients with either OCD subtype (all $p < .05$). Hypochondriacs did not differ significantly from the contamination/cleaning subtype in the number of physical symptoms. The 2 OCD subtypes did not differ significantly from each other on measures for hypochondriacal and physical symptoms.

DISCUSSION

The first objective of our study was to investigate the extent of diagnosis-specific symptoms in patients with OCD and hypochondriasis, as compared with healthy

control subjects, in order to determine whether the severity of hypochondriacal symptoms in patients with OCD and, conversely, OCD symptoms in patients with hypochondriasis are higher than those that are observed in healthy individuals.

The ANOVA results and the magnitude of the effect sizes demonstrated that each disorder has its own specific symptom presentation; hypochondriacal patients experience significantly more fear of suffering from a serious disease than do OCD patients, and patients with OCD have significantly more OCD symptoms than do patients with hypochondriasis. A certain degree of clinical overlap, however, exists between the 2 disorders. On all questionnaires concerning these disorders, patients with hypochondriasis reported significantly more OCD symptoms and patients with OCD reported significantly more hypochondriacal symptoms than did the members of the control group. Our findings are similar to the results of a former study, which also found that patients with OCD reported significantly higher scores on the Illness Attitude Scales than did healthy control subjects.¹³

The second objective of our study was to examine the number and the nature of physical symptoms in patients with hypochondriasis (without comorbid panic disorder), patients with OCD, and healthy control subjects, and to determine whether these symptoms evoked fear. Both psychiatric groups reported significantly more physical symptoms than did the members of the control group, and they did not differ significantly from each other. Control-group members most frequently reported pain complaints (e.g., aching joints, back, muscles, and head), while both patient groups were particularly likely to mention general complaints (e.g., tensed muscles and tiredness). Our results indicate that somatic symptoms, particularly general complaints, are strongly related to current psychological distress, independent of the kind of disorder. Furthermore, these results are similar to those of several other studies, which revealed that patients with somatoform, mood, or anxiety disorders tend to present more physical complaints than do healthy individuals.^{28,29}

Strikingly, patients with hypochondriasis did not fear significantly more physical symptoms than OCD patients did. This finding can possibly be explained by the fact that the variation in reported symptoms appeared to be too large (with only a few patients mentioning specific complaints) to elicit significant results between the 2 patient groups. Furthermore, the most frequently reported symptoms were not the most frequently feared. It is conceivable that the most-reported symptoms are a consequence of stress brought about by the misinterpretation of the feared physical symptoms. We must be cautious with this suggestion, however, as it implies uninvestigated causality.

Our third and final objective was to investigate whether OCD patients who suffer from contamination obsessions and cleaning or washing compulsions (i.e., contamination/cleaning subtype) have more hypochondriacal symptoms and physical sensations than do patients who suffer from the other subtypes of OCD. We found that, with the exception of the number of physical symptoms, patients with the contamination/cleaning subtype reported significantly fewer hypochondriacal and feared somatic symptoms than did patients with hypochondriasis, and they did not differ significantly from the other OCD patients.

This study has several statistical limitations that should be considered when evaluating the findings. First, the number of subjects for some of the analyses was small, and low statistical power may have therefore influenced the results. In particular, the comparison between hypochondriacs with and without comorbidity must be interpreted with caution, as very few patients had no comorbid diagnoses. The same applies to the results of the PSC. Because we sought to disentangle physical symptoms that are related to hypochondriasis from physical symptoms that are related to panic disorder, we compared only hypochondriacs without comorbid panic disorder to OCD on the number and type of feared physical symptoms. Only

14 (50%) of the hypochondriacal participants, however, had no comorbid panic disorder. The finding of a trend towards significance concerning more feared physical symptoms among hypochondriacs is one indicator of the influence of low statistical power on the results.

With respect to the presence of comorbidity, the high percentage of comorbidity (86%) among the patients in the hypochondriacal group in this study is consistent with percentages (between 62%³⁰ and 88%³¹) that have been found in previous studies. In contrast, the comorbidity rate of the OCD group is 45%. This percentage is lower than percentages that are reported in the literature; between half and three quarters of all OCD patients are particularly likely to suffer from comorbid depressive and anxiety disorders.³² Because the presence of a comorbid depressive, anxiety, or somatoform disorder was not an exclusion criterion for either OCD patients or hypochondriacal patients, we must conclude that our finding that OCD patients have fewer comorbid problems than do hypochondriacs occurred by chance as an unintended consequence of the selection process.

Second, although we tried to correct for a possible confounding role of age, we cannot rule out the possibility that the age difference between the 2 patient groups influenced our results. The finding that the OCD patients were significantly younger than were the members of the other 2 groups must be explained in the same way as the differences in comorbidity rates, as the age at onset is the same for both groups, according to the literature on the OCD spectrum,³³ and because the eligibility for this study from age 18 was the same for both patient groups.

Third, the combination of multiple comparisons and the lack of correction for type I errors (using the Bonferroni adjustment) may have contributed to an overestimation of the effect. Because most of the results were robust, however, it is unlikely that these limitations affected the outcomes severely.

One limitation concerning the content is the absence of a psychiatric control group for comparison. We cannot rule out the possibility that the finding that patients with hypochondriasis had more OCD symptoms and those with OCD had more hypochondriacal symptoms is partially attributable to a nonspecific increase of symptoms found among psychiatric patients in general. In order to be more conclusive, future research should include a psychiatric control group (e.g., major depressive episode) for comparison.

When elaborating on the implications of our findings for the OCD spectrum, we would like to stress that the validity of psychiatric diagnoses does not rely solely on differences in clinical features; it also depends on biological markers, family studies, course of illness, and differences in treatment response. In our opinion, therefore, a serious discussion about the place of hypochondriasis within this spectrum cannot be conducted before all im-

portant aspects have been investigated. To date, the literature provides just as much information supporting the hypothesis that hypochondriasis belongs to the OCD spectrum as it does information that dismisses this hypothesis. Support for placing hypochondriasis within the spectrum can be found in the phenomenological overlap with OCD and amelioration after treatment with cognitive-behavioral therapy or an SSRI. On the other hand, hypochondriasis and OCD differ neurobiologically,³⁴ and the percentages of comorbid hypochondriasis in OCD patients and of comorbid OCD in hypochondriasis are relatively low.^{30,31} As this study has shown, the differences in diagnosis-specific symptoms largely exceed the similarities.

REFERENCES

- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association; 1994
- Barsky AJ. Hypochondriasis and obsessive compulsive disorder. *Psychiatr Clin North Am* 1992;15:791–801
- Fallon BA, Qureshi AI, Laje G, et al. Hypochondriasis and its relationship to obsessive-compulsive disorder. *Psychiatr Clin North Am* 2000;23:605–616
- Clark DM, Salkovskis PM, Hackmann A, et al. Two psychological treatments for hypochondriasis: a randomized controlled trial. *Br J Psychiatry* 1998;173:218–225
- Warwick HMC. A cognitive behavioral approach to hypochondriasis and health anxiety. *J Psychosom Res* 1989;33:705–711
- Visser S, Bouman TK. The treatment of hypochondriasis: exposure plus response prevention vs cognitive therapy. *Behav Res Ther* 2001;39:423–442
- Barsky AJ, Ahem DK. Cognitive behavior therapy for hypochondriasis: a randomized controlled trial. *JAMA* 2004;291:1464–1470
- Fallon BA, Liebowitz MR, Salman E, et al. Fluoxetine for hypochondriacal patients without major depression. *J Clin Psychopharmacol* 1993;13:438–441
- Fallon BA, Schneier FR, Marshall R, et al. The pharmacotherapy of hypochondriasis. *Psychopharmacol Bull* 1996;32:607–611
- Oosterbaan DB, van Balkom AJ, van Boeijen CA, et al. An open study of paroxetine in hypochondriasis. *Prog Neuropsychopharmacol Biol Psychiatry* 2001;25:1023–1033
- Hollander E. *Obsessive-Compulsive-Related Disorders*. Washington, DC: American Psychiatric Press; 1993
- Neziroglu F, McKay D, Yaryura-Tobias JA. Overlapping and distinctive features of hypochondriasis and obsessive-compulsive disorder. *J Anxiety Disord* 2000;14:603–614
- Savron G, Fava GA, Grandi S, et al. Hypochondriacal fears and beliefs in obsessive-compulsive disorder. *Acta Psychiatr Scand* 1996;93:345–348
- Barsky AJ, Coeytaux RR, Sarnie MK, et al. Hypochondriacal patients' beliefs about good health. *Am J Psychiatry* 1993;150:1085–1089
- Haenen MA, de Jong PJ, Schmidt AJM, et al. Hypochondriacs' estimation of negative outcomes: domain-specificity and responsiveness to reassuring and alarming information. *Behav Res Ther* 2000;38:819–833
- Hitchcock PB, Mathews A. Interpretation of bodily symptoms in hypochondriasis. *Behav Res Ther* 1992;30:223–234
- Marcus DK. The cognitive-behavioral model of hypochondriasis: misinformation and triggers. *J Psychosom Res* 1999;47:79–91
- Marcus DK, Church SE. Are dysfunctional beliefs about illness unique to hypochondriasis? *J Psychosom Res* 2003;54:543–547
- Noyes R Jr. The relationship of hypochondriasis to anxiety disorders. *Gen Hosp Psychiatry* 1999;21:8–17
- Cote G, O'Leary T, Barlow DH, et al. Hypochondriasis. In: Widiger TA, Frances AJ, Pincus HA, eds. *DSM-IV Sourcebook*. Washington, DC: American Psychiatric Association; 1996:933–947
- First MB, Spitzer RL, Gibbon M, et al. *Structured Clinical Interview for DSM-IV Axis I Disorders*. Washington, DC: American Psychiatric Press, Inc; 1996
- van Oppen P, Hoekstra RJ, Emmelkamp PMG. The structure of obsessive-compulsive symptoms. *Behav Res Ther* 1995;33:15–23
- Goodman WK, Price LH, Rasmussen SA, et al. The Yale-Brown Obsessive Compulsive Scale 2: validity. *Arch Gen Psychiatry* 1989;46:1012–1016
- Goodman WK, Rasmussen SA, Mazure C, et al. The Yale-Brown Obsessive Compulsive Scale 1: development, use, and reliability. *Arch Gen Psychiatry* 1989;46:1006–1011
- Pilowsky I. Dimensions of hypochondriasis. *Br J Psychiatry* 1967;113:89–93
- Speckens AEM, Spinhoven P, Sloekers PPA, et al. A validation study of the Whitely Index, the Illness Attitude Scales, and the Somatosensory Amplification Scale in general medical and general practice patients. *J Psychosom Res* 1996;40:95–104
- de Waal MW, Arnold IA, Spinhoven P, et al. The reporting of specific physical symptoms for mental distress in general practice. *J Psychosom Res* 2005;59:89–95
- de Waal MW, Arnold IA, Eekhof JAH, et al. Somatoform disorders in general practice: prevalence, functional impairment and comorbidity with anxiety and depressive disorders. *Br J Psychiatry* 2004;184:470–476
- Simon G, Gater R, Kisely S, et al. Somatic symptoms of distress: an international primary care study. *Psychosom Med* 1996;58:481–488
- Noyes R Jr, Kathol RG, Fisher MM, et al. Psychiatric comorbidity among patients with hypochondriasis. *Gen Hosp Psychiatry* 1994;16:78–87
- Barsky AJ, Wyshak G, Klerman GL. Psychiatric comorbidity in DSM-III-R hypochondriasis. *Arch Gen Psychiatry* 1992;49:101–108
- Clark DA. *Cognitive Behavioral Therapy for OCD*. New York, NY: The Guilford Press; 2004
- Hollander E. Introduction. In: Hollander E, ed. *Obsessive-Compulsive Related Disorders*. Washington, DC: American Psychiatric Press; 1993:1–16
- van den Heuvel OA, Merkelbach J, van Dyck R, et al. Disorder-specific neuroanatomical correlates of attentional bias in obsessive-compulsive disorder, panic disorder, and hypochondriasis. *Arch Gen Psychiatry* 2005;62:922–933