ELSEVIER

Anxiety Disorders
19 (2005) 29–49

JOURNAL OF Anxiety Disorders

Differentiating hypochondriasis from panic disorder

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Received 7 April 2003; received in revised form 22 October 2003; accepted 28 October 2003

Abstract

Hypochondriasis and panic disorder are both characterized by prevalent health anxieties and illness beliefs. Therefore, the question as to whether they represent distinct nosological entities has been raised. This study examines how clinical characteristics can be used to differentiate both disorders, taking the possibility of mixed symptomatologies (comorbidity) into account. We compared 46 patients with hypochondriasis, 45 with panic disorder, and 21 with comorbid hypochondriasis plus panic disorder. While panic patients had more comorbidity with agoraphobia, hypochondriasis was more closely associated with somatization. Patients with panic disorder were less pathological than hypochondriacal patients on all subscales of the Whiteley Index (WI) and the Illness Attitude Scales (IAS) except for illness behavior. These differences were independent of somatization. Patients with hypochondriasis plus panic had higher levels of anxiety, more somatization, more general psychopathology and a trend towards increased health care utilization. Clinicians were able to distinguish between patient groups based upon the tendency of hypochondriacal patients to demand unnecessary medical treatments. These results confirm that hypochondriasis and panic disorder are distinguishable

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doi:10.1016/j.janxdis.2003.10.006

clinical conditions, characterized by generally more psychopathology and distress in hypochondriasis.

Keywords: Hypochondriasis; Panic disorder; Health anxieties; Comorbidity; Somatization; Illness behavior

1. Introduction

Health anxieties are frequently experienced by patients with medical illness or mental disorders. They are perceived as plausible emotional reactions if a serious or life-threatening disease exists. In other cases, health anxieties may develop despite absence of organic pathology, especially when patients tend to misinterpret minor bodily sensations as signs of a serious disease or mistrust their doctors. If strong health anxieties persist over long periods of time and have negative consequences for the psychosocial functioning of the person, the diagnosis of hypochondriasis can be made. This diagnosis is included in categorical classification systems such as DSM-IV (American Psychiatric Association, 1994) and can be quantified by worldwide used hypochondriasis scales such as the Whiteley Index or the Illness Attitude Scales (Hiller, Rief, & Fichter, 2002).

However, hypochondriacal disorder is not the only clinical condition defined by predominant health anxieties. Patients with panic disorder usually report many intense somatic symptoms during their panic attacks such as palpitations and accelerated heart rate, shortness of breath, chest pain, nausea, paresthesia or dizziness. They also tend to attribute these symptoms to organic causes, such as heart or pulmonary disease. As a consequence, panic patients frequently demand extensive medical examinations or consult numerous specialists in the hope that the organic causes of their symptoms can be detected. Thus, the emotional, cognitive, and behavioral reactions of panic patients are very similar to those typically described for hypochondriacal disorder.

Despite these similarities, hypochondriacal and panic disorder can be well distinguished through use of structured interviews or diagnostic checklists (Barsky, Wyshak, & Klerman, 1992; Fava & Grandi, 1991). The major difference is the episodic nature of the symptoms in panic disorder versus the more or less persisting complaints in hypochondriasis. Panic patients usually experience their symptoms only during discrete periods that have a sudden onset and build to a peak within a few minutes, although worries concerning development of new attacks may persist in the intervals between the attacks. Hypochondriasis, on the other hand, is defined as fears or ideas of having a serious disease for more than 6 months. The exclusion criterion for hypochondriasis in DSM-IV (F) specifies that the disorder is not to be diagnosed if the symptomatology is fully accounted for by panic disorder. However, this does not generally exclude co-existence of hypochondriasis and panic disorder because patients may suffer from both episodic panic attacks

(mostly attributed to cardiac dysfunction) as well as from more chronic fears related to diseases other than those associated with heart dysfunction.

Although DSM-IV provides valuable guidelines for differential diagnosis, overlaps and boundaries of hypochondriasis and panic disorder have rarely been studied. Barsky, Barnett, and Cleary (1994) compared ''pure'' hypochondriasis and panic disorder by selecting only hypochondriacal patients without comorbid panic disorder and panic patients without comorbid hypochondriasis. Patients with hypochondriacal disorder had more symptoms and higher distress on scales measuring health anxieties, disease conviction, bodily preoccupation, somatization and disability, they expressed less satisfaction with medical care, and were rated by their physicians as more demanding and help-rejecting. While patients with panic disorder received more comorbid diagnoses of depression and phobias, patients with hypochondriasis had a higher rate of comorbid generalized anxiety disorder. There was a trend for hypochondriacal patients to use more medical care than patients with panic disorder.

Other studies evaluated how often the specific comorbidity between hypochondriasis and panic disorder occurs and whether patients with and without this comorbidity can be distinguished. Only studies using reliable and valid diagnostic interviews will be cited here. Bach, Nutzinger, and Hartl (1996) examined panic disorder patients of a psychiatric outpatient department and diagnosed additional hypochondriasis in 51%. They also demonstrated that hypochondriasis is more closely linked to panic disorder than to agoraphobia. Of patients with primary panic disorder, more than 50% later developed hypochondriasis, in contrast to only 28.5% of patients with primary agoraphobia. Furer, Walker, Chartier, and Stein (1997) reported a similarly high rate of 48% for co-existing hypochondriasis in panic patients seen in an anxiety disorder clinic. Co-existence of both diagnoses was associated with increased hypochondriacal fears and concerns, anxiety, somatization and general psychopathology. In the samples recruited by Barsky et al. (1994) from a general medical clinic, 25% of the patients with panic disorder also fulfilled criteria of hypochondriasis, and 13% of the patients diagnosed with hypochondriasis had an additional panic disorder. Patients with this specific pattern of comorbidity showed generally more symptomatology and disability on a variety of measures. Somewhat contrary to these findings, Benedetti et al. (1997) found no marked differences between panic patients with and without hypochondriasis, although there was evidence that illness phobia before the onset of panic disorder increased the likelihood of developing the full clinical picture of hypochondriasis.

In the present study, we attempted to clarify in more detail the similarities and differences between hypochondriasis and panic disorder. Although we built on previous research, some methodological improvements were introduced. These improvements include (a) evaluation of different psychometric dimensions describing health anxieties and associated affective, cognitive and behavioral components, and (b) control of somatization as a crucial variable that could account for group differences. A comorbid group consisting of patients fulfilling the diagnostic criteria of both hypochondriasis and panic disorder was included

to examine whether this ''mixed condition'' represents something like a third diagnostic group in addition to both ''pure'' groups.

2. Methods and procedures

2.1. Clinical setting and sample selection

Patients fulfilling criteria for either hypochondriacal or panic disorder were identified among patients consecutively admitted to the Roseneck Center for Behavioral Medicine, a research-oriented hospital affiliated with the Medical Faculty of the University of Munich. As a regular tertiary care hospital, the Roseneck Center is representative of common inpatient mental health treatment in Germany. It is accessible to the general population, irrespective of social and vocational status. Treatment indications cover all mental and psychophysiological disorders except schizophrenia and related psychotic disorders, acute manic episodes, and severe disorders due to psychoactive substances. Behavioral medicine hospitals are usually chosen when patients suffer from combined physiological and psychological symptoms or when appropriate outpatient treatment is not available. Treatment goals are to avoid chronicity and reduce costs in the long term. Methods and contents are consequently derived from current principles of cognitive-behavioral therapy.

2.2. Procedure

In a first step, we selected 324 patients who had reported medically unclear somatic symptoms on a screening questionnaire prior to admission. All agreed to participate in the diagnostic interviews and gave informed consent that their data were to be used for scientific purposes. All patients also received a thorough physical examination, and their medical charts were carefully reviewed to identify those with symptoms due to known medical disease. To assess DSM-IV diagnostic profiles, we performed detailed, standardized face-to-face interviews using the *Structured Clinical Interview for DSM-IV* (*SCID*, see First, Spitzer, Gibbon, & Williams, 1997) and the *International Diagnostic Checklists* (IDCL; see Hiller, Zaudig, & Mombour, 1990, 1996). A high level of interrater reliability was achieved through systematic training prior to the study.

Based on the diagnostic results, 112 patients fulfilling criteria for either hypochondriasis or panic disorder were selected and the following groups were defined: (a) 46 patients with current hypochondriacal disorder, (b) 45 patients with current panic disorder (of these, 28 were with and 17 without agoraphobia), and (c) 21 patients fulfilling the criteria for both hypochondriasis and panic disorder (comorbidity). The female proportion of the sample was 60.7% and the mean age was 46.6 years (S.D. = 10.7). All patients were white and fluent in German. A more detailed description of the sample will be given below.

2.3. Self-rating scales

To examine the psychopathology and disorder-related clinical characteristics in greater detail, a battery of self-rating scales was administered shortly after the patients had been admitted to the hospital. We chose only instruments with previously known high psychometric standards. The following were included.

2.3.1. Whiteley Index (WI)

This is a ''classic'' internationally established short hypochondriasis scale developed by Pilowsky (1967). All items are coded dichotomously (true-false). We used a 10-item version which has demonstrated maximum specificity and sensitivity against the clinical DSM-IV-diagnosis of hypochondriasis (Hiller et al., 2002). Two subscales, ''disease phobia'' with six items and ''disease conviction'' with three items, can be constructed to represent affective and cognitive components of hypochondriasis.

2.3.2. Illness Attitude Scales (IAS)

This 29-item questionnaire was originally developed by Kellner (1986) for the assessment of health anxieties and related characteristics. Items are rated on 5-point Likert scales ranging from ''no'' to ''most of the time.'' Although Kellner had originally defined nine a-priori scales with three items per scale, re-analyses reported by Speckens, van Hemert, Spinhoven, and Bolk (1996) and confirmed by us (Hiller et al., 2002) suggest that two main dimensions labeled ''health anxieties'' and ''illness behavior'' can be differentiated.

2.3.3. Cognitions About Body and Health Questionnaire (CABAH)

To assess problematic cognitions and attitudes associated with bodily complaints, this instrument was developed and validated our group (Rief, Hiller, & Margraf, 1998). The CABAH represents an extension and elaboration of the 10-item Somatosensory Amplification Scale proposed by Barsky, Wyshak, and Klerman (1990). The version used in this study consists of 31 statements which define the following five subscales: catastrophizing interpretation of bodily complaints, autonomic sensations, bodily weakness, intolerance of bodily complaints, and health habits.

2.3.4. Screening for somatoform symptoms (SOMS)

This is a validated index of medically unexplained physical symptoms incorporating the symptom lists from DSM-IV and ICD-10 (Rief, Hiller, & Heuser, 1997). While the trait version of the SOMS summarizes number of symptoms during the past 2 years, the state version provides an index of distress considering the number and degree of somatic complaints during the past 7 days. We employed both versions. The number of positively identified symptom (''somatization index'') showed good test–retest reliability (0.85).

We further employed the *Beck Depression Inventory* (*BDI*), a dimensional scale of depressive symptomatology (Beck, Steer, & Garbin, 1988), and the *revised Hopkins Symptom Checklist (SCL-90R)*, a widely used instrument to assess general psychopathology with 90 items on nine dimensions (Derogatis, 1983). Psychosocial impairments were assessed by means of the *Dysfunctional Analysis Questionnaire (DAQ)*, a scale already used in previous studies with somatoform patients (Chadda, Bhatia, Shome, & Thakur, 1993; Hiller, Rief, & Fichter, 1997). The 45 items of the DAQ are divided into five scales describing impairments in the following areas: social, vocational, personal, familial, and cognitive. Each item is rated on a 5-point scale, comparing the present level of functioning with that before the onset of the disorder.

2.4. Ratings of illness behaviors and related characteristics

At the end of treatment, each clinician completed a short rating-scale focusing on illness behaviors and associated clinical characteristics observed during the treatment of his/her patient. These items had face validity and were rated on 5-point ordinal scales ranging between "not present" and "very severely present."

Table 1
Clinician-rated items of illness behavior

Overt illness behavior
When describing his/her symptoms, did the patient seem to complain a lot, for example groaning, speaking in a lamenting tone, grimacing in pain, expressing sounds of pain?
Use of medical services
How often did the patient come to see the doctor?
Did the patient demand additional bodily examinations which were, from a medical point of view, unnecessary or not urgent, for example, consulting a specialist?
Did the patient demand technical medical tests which were, from a medical point of view, not necessary or not urgent, for example, laboratory tests or X-rays?
Did the patient demand medication to treat his physical symptoms which were, from a medical point of view, unnecessary or not urgent?
Illness fears
Did the patient have excessive or inadequate illness fears, for example, unrealistic fears of having a heart disease or cancer?
Symptom tolerance
Was the patient able to tolerate slight body discomfort?
Organic symptom attribution
Did the patient explain his/her symptoms and complaints mainly in terms of organic factors or dysfunctions?
Resignation because of the complaints
Did the patient seem to be helpless or resigned because of the symptoms, for example, said that he/she didn't know what to do, had tried everything, had no hope of getting better?
Unrealistic treatment goals
Did the patient have unrealistic expectations such as complete cure of the physical symptoms?

One item was related to overt illness behavior, four items described the use of medical services, and another five other items covered illness fears, symptom tolerance, organic symptom attribution, resignation because of the complaints, and unrealistic treatment goals (see Table 1 for the exact wording).

2.5. Pre-treatment health care utilization and disability to work

Finally, data were obtained about the patients' pre-treatment use of health services. Based on medical and billing records of a patient's health insurance company, we re-calculated expenditures made for outpatient and inpatient treatments as well as costs for prescribed medication (Hiller, Fichter, & Rief, 2003). These data refer to the 2-year period before treatment. Since not all patients agreed to have us contact their insurance company and not all companies were able to re-construct the costs, these data were not available on all patients. Our data base included 83 cases for inpatient costs, 57 for outpatient costs and 31 for costs due to medication. We also gathered information from the patients concerning length of hospitalization and work disability during the past 12 months.

3. Data analysis

We used analyses of variance and *t*-tests to compare means between the three study groups. Categorical variables were analyzed by χ^2 methods. Whenever variables did not show normal distributions, additional non-parametric Mann–Whitney *U*-tests were performed for pairwise group comparisons. Because these yielded results similar to those of the *t*-tests, only the *t*-values will be reported here. To control for somatization, analyses of co-variance were performed. The α significance level was conventionally set to .05.

4. Results

4.1. Sociodemographic and comorbidity profiles

The three groups did not differ significantly with respect to their sociodemographic characteristics and general comorbidity profiles (Table 2) with two exceptions: more panic disorder patients had additional diagnoses of agoraphobia, while more hypochondriacal patients had somatization (somatization disorder or abridged somatization syndrome). These differences are in line with the DSM-IV nosology of panic as an anxiety disorder and hypochondriasis as a somatoform disorder. The close relationship between hypochondriasis and somatization was also reflected in a greater number of DSM-IV somatization symptoms from the diagnostic interviews in hypochondriacal (mean = 10.6, S.D. = 5.0) and comorbid patients (mean = 11.4; S.D. = 4.9), compared to

Table 2
Sociodemographic characteristics and comorbidity

	Hypochondriasis ($n = 46$)	Panic ($n = 45$)	Hypochondriasis plus panic ($n = 21$)	Test of significance[a]
Sociodemographic				
Female	58.7%	64.4%	57.1%	$\chi^2 = 0.45$
Age	Mean = 47.3 years (S.D. = 9.5)	Mean = 46.8 years (S.D. = 11.9)	Mean = 44.8 years (S.D. = 10.7)	$F = 0.40$
Education ≤9 years	52.2%	48.9%	57.1%	$\chi^2 = 0.40$
Married	71.7%	64.4%	57.1%	$\chi^2 = 1.46$
Divorced	6.5%	8.9%	9.5%	$\chi^2 = 0.25$
Comorbidity				
Major depression (with or without dysthymia)	71.7%	71.1%	71.4%	$\chi^2 < 0.01$
Dysthymia (without major depression)	8.7%	4.4%	4.8%	$\chi^2 = 0.80$
Somatization disorder or abridged somatization disorder[c]	52.2%	33.3%	61.9%	$\chi^2 = 5.74$[b]
Generalized anxiety disorder	15.2%	11.1%	19.0%	$\chi^2 = 0.79$
Agoraphobia (with or without panic disorder)	17.4%	64.4%	76.2%	$\chi^2 = 28.8$**
Social phobia	26.1%	35.6%	33.3%	$\chi^2 = 1.00$
Specific phobia	10.9%	11.1%	23.8%	$\chi^2 = 2.42$
Obsessive-compulsive disorder	4.3%	6.7%	9.5%	$\chi^2 = 0.68$
Alcohol or drug dependence	19.6%	17.8%	19.0%	$\chi^2 = 0.49$

(a) All χ^2 test *df* 2; *F*-test for age *df* 2,109; (b) $P = .057$; (c) abridged somatization disorder was defined as presence of at least eight lifetime somatization symptoms from the DSM-IV symptom list (SSI-8).

** $P < .01$.

the panic disorder group (mean = 8.4, S.D. = 4.5; $F = 3.78$, *df* 2,109, $P < .05$). Table 2 also shows that major depression was the most frequent comorbid diagnosis with rates above 70%, followed by social phobia with rates around 30%.

4.2. Clinical and psychopathological measures

Table 3 shows that all measures related to hypochondriasis and anxiety differentiated between the groups. The comorbid hypochondriasis plus panic group (C) generally had more pathological scores than both "pure" groups (A and B). Significant differences between groups A and B were found only on the hypochondriasis scales but not on the anxiety scales. As compared to panic patients, hypochondriacal patients had higher scores on all WI and IAS scales except IAS illness behavior. Group C was distinguishable from groups A and B not only on the IAS and anxiety scales, but also with respect to their degree of somatization (SOMS), global severity of psychopathology (SCL-90R) and self-rated global health. No differences between the groups were found for chronicity and psychosocial impairment. There was a trend towards higher costs for inpatient treatment and medication in groups A and C. Differences across all three groups did not reach statistical significance mainly because of the high standard deviations and the lower number of patients for whom data were available. However, when only groups B and C were compared with one-tailed tests, the differences in inpatient costs ($t = 1.58$; *df* 50, $P = .06$), medication costs ($t = 2.64$, *df* 18, $P < .01$) and length of hospitalization ($t = 1.98$, *df* 50, $P < .05$) became marginally or fully significant.

Intercorrelations between the different scales and measures are displayed in Table 4. While most of the psychopathological scales had at least moderate associations between each other, the values for chronicity (years since onset) and health care utilization (expenses) were generally lower.

4.3. Controlling for somatization

Analyses of covariance were computed to control for whether somatization instead of hypochondriasis accounted for differences shown in Table 3. We used number of lifetime somatization symptoms from DSM-IV interviews as the covariate. Group differences remained significant for all variables related to hypochondriasis and anxiety ($P < .05$ for IAS-II, CABAH and SCL-90R phobic anxiety; all other variables $P < .01$). The SOMS trait score was primarily accounted for by the covariate with a variance proportion of 41% ($F = 21.2$, *df* 1,108, $P < .01$), leaving only an additional 5% due to membership to the three groups ($F = 2.95$, *df* 3,106, $P = .057$). The SOMS state score, however, remained significantly related to group membership even after controlling for lifetime somatization ($F = 5.8$, *df* 3,106, $P < .01$). The SCL-90R global severity index was mainly due to somatization ($F = 22.9$, *df* 1,103, $P < .01$) and only marginally to group membership after controlling for somatization ($F = 2.6$, *df* 3,101, $P = .078$).

Table 3
Clinical characteristics and measures of psychopathology

	Hypochondriasis (A)	Panic (B)	Hypochondriasis plus panic (C)	*F*-value	Group differences[a]
Hypochondriasis-related measures					
WI-I disease phobia	4.67 (1.48)	3.05 (1.93)	4.84 (1.74)	12.1**	A-B, B-C
WI-II disease conviction	1.78 (1.08)	1.14 (1.06)	2.05 (0.97)	6.4**	A-B, B-C
WI total	6.98 (2.37)	4.61 (2.92)	7.66 (2.49)	12.9**	A-B, B-C
IAS-I health anxiety	34.8 (11.6)	24.4 (13.7)	40.9 (13.0)	13.5**	A-B, A-C[b], B-C
IAS-II illness behavior	14.4 (4.1)	14.8 (3.4)	17.4 (4.1)	4.4*	A-C, B-C
IAS total	49.2 (13.7)	39.1 (15.0)	59.0 (15.9)	12.9**	A-B, A-C, B-C
CABAH	45.6 (13.4)	40.2 (14.3)	51.4 (16.2)	4.2*	A-B[c], B-C
Anxiety-related measures					
SCL-90R anxiety	1.52 (0.69)	1.45 (0.65)	2.22 (1.00)	7.7**	A-C, B-C
SCL-90R phobic anxiety	0.99 (0.85)	1.06 (0.84)	1.75 (1.22)	4.8**	A-C, B-C
Measures of somatization and psychopathology					
SOMS-trait	19.0 (8.6)	18.9 (9.3)	25.2 (11.0)	3.8*	A-C, B-C
SOMS-state	37.0 (20.3)	37.7 (21.1)	57.7 (32.5)	6.5**	A-C, B-C
BDI	22.0 (9.8)	21.5 (10.5)	26.7 (11.6)	1.8	
SCL-90R (global severity index)	1.39 (0.58)	1.26 (0.54)	1.80 (0.84)	4.9**	A-C, B-C
SCL-90R (positive symptom total)	61.1 (17.4)	58.4 (14.5)	67.6 (18.7)	2.0	
Self-rated global health	2.49 (0.79)	2.48 (0.67)	3.24 (1.09)	6.2**	A-C, B-C
Chronicity					
No. of years since onset	9.3 (8.9)	9.0 (10.2)	10.2 (11.7)	0.1	

Psychosocial impairment				
DAQ	63.4 (14.5)	63.8 (12.1)	69.5 (13.8)	1.5
No. of weeks not able to work[d]	13.4 (18.0)	8.9 (10.7)	11.9 (12.7)	0.9
Use of health services				
Outpatient treatment expenses[e]	917 (733)	730 (870)	911 (565)	0.4
Inpatient treatment expenses[e]	1901 (3244)	1053 (1581)	2060 (3032)	1.2
Medication expenses[e]	293 (411)	164 (161)	454 (319)	2.1
No. of days in hospital[e]	23.0 (37.2)	11.7 (18.1)	26.9 (37.8)	1.8

(a) The letters indicate significant pairwise comparisons, e.g., "A-B": significant difference between group A (hypochondriasis) and group B (panic); all pairwise tests were two-tailed; (b) $P = .067$; (c) $P = .075$; (d) refers to the 12-month period before admission; (e) refers to the 2-year period before admission; currency values are given in Euro (European currency).

$^{*}P < .05$.

$^{**}P < .01$.

Table 4
Intercorrelations between scales and measures

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 WI total	–																
2 IAS total	*.82*	–															
3 CABAH	*.52*	*.52*	–														
4 SOMS-trait	*.28*	*.34*	*.38*	–													
5 SOMS-state	*.29*	*.37*	*.38*	*.92*	–												
6 SCL-90R anxiety	*.39*	*.46*	*.31*	*.50*	*.55*	–											
7 SCL-90R phobic anxiety	*.26*	*.26*	*.30*	*.33*	*.42*	*.68*	–										
8 SCL-90R (global severity index)	*.41*	*.42*	*.41*	*.54*	*.63*	*.86*	*.71*	–									
9 SCL-90R (positive symptom total)	*.41*	*.40*	*.36*	*.56*	*.55*	*.76*	*.59*	*.87*	–								
10 BDI	*.48*	*.49*	*.42*	*.34*	*.43*	*.55*	*.41*	*.64*	*.52*	–							
11 No. of years since onset	.09	−.01	.19	.17	*.21*	.18	*.20*	.19	.12	.03	–						
12 DAQ	*.29*	*.35*	*.41*	*.25*	*.38*	*.45*	*.51*	*.61*	*.48*	*.60*	.09	–					
13 No. of weeks not able to work	*.25*	*.33*	*.34*	.21	*.23*	*.33*	*.22*	*.40*	*.23*	*.28*	.02	*.34*	–				
14 Outpatient treatment expenses	.22	.21	.20	−.06	.02	.03	.11	.04	−.04	.18	−.10	.15	.09	–			
15 Inpatient treatment expenses	.05	.06	.22	−.03	.02	.17	.17	.15	.05	.10	*.33*	.21	*.45*	.15	–		
16 Medication expenses	.28	*.44*	.26	−.07	−.10	.21	−.09	.06	.05	.26	.05	.05	.05	.31	.27	–	
17 No. of days in hospital	.07	.12	*.29*	.03	.09	.18	.17	.18	.06	.12	*.35*	.21	*.43*	.13	*.96*	*.35*	–

Pearson correlations; values printed in italics are significant at the .05 level.

4.4. Other characteristics differentiating between hypochondriasis and panic disorder

To evaluate in more depth the differences between hypochondriasis and panic, we analyzed individual items of the WI and IAS which describe specific emotions, cognitions, and behaviors related to health anxieties. All items with significant group differences between both non-comorbid groups are summarized in Table 5. With no exception, hypochondriacal patients were more pathological than panic patients. Items of Table 5 refer mainly to frequent or intense worrying about one's health, fears and ideas of being seriously ill, not feeling sufficiently understood by physicians and other people, and thoughts about death and dying. Interestingly, hypochondriacal and panic patients were not different in their awareness of bodily sensations (such as WI item 3: ''Do you find that your are often aware of various things happening in your body?'') and in their tendency to disbelieve their doctors (such as WI item 10: ''Is it hard for you to believe the doctor when he tells you there is nothing for you to worry about?''). Both groups were also similar in their health behaviors (such as IAS item 8: ''Do you avoid foods that may not be healthy?''), self-checking of their bodies (such as IAS item 9: ''Do you examine your body to find out whether there is something wrong?''), fears of having a heart disease (such as IAS item 17: ''Are you afraid that you may have heart disease?'') and impairments related to the somatic symptoms (such as IAS item 27: ''Do your bodily symptoms stop you from working?'').

4.5. Clinician-rated health anxiety and illness behavior characteristics

Figs. 1 and 2 demonstrate that treating clinicians were able to distinguish hypochondriasis from panic through observable behaviors. Hypochondriacal patients (with or without panic) were rated as medically more demanding and the combined hypochondriasis plus panic group was judged as showing more overt illness behavior (Fig. 1). Hypochondriasis was also associated with higher levels of inappropriate illness fears, organic symptom attributions and unrealistic treatment goals (Fig. 2). Patients with both diagnoses had less tolerance of bodily sensations and expressed more resignation concerning their somatic complaints.

5. Discussion

5.1. Intense health anxieties exist in both disorders

Results of our study demonstrate both similarities and differences between hypochondriasis and panic disorder. The overlap between these clinical syndromes exists on different levels. First, about one third of our patients with either hypochondriasis or panic disorder fulfilled criteria for not just one but *both* disorders. A similar proportion was reported by Barsky et al. (1994) in a sample of

Table 5
Differences between hypochondriasis and panic disorder on item level (only statistically significant items are listed)

	Hypochondriasis	Panic	Test of significance
Whiteley Index (WI)			
Do you often worry about the possibility that you have got a serious illness?	80.4%	51.1%	$\chi^2 = 8.7^{**}$
Do you worry a lot about your health?	93.5%	61.4%	$\chi^2 = 13.4^{**}$
If a disease is brought to your attention (through the radio, television, newspapers or someone you know) do you worry about getting it yourself?	57.8%	31.1%	$\chi^2 = 6.5^{*}$
Is it difficult for you to forget about yourself and think about all sorts of other things?	50.0%	28.9%	$\chi^2 = 4.2^{*}$
Do you get the feeling that people are not taking your illness seriously enough?	68.9%	42.2%	$\chi^2 = 6.5^{*}$
Do you think that you worry about your health more than most people?	58.7%	33.3%	$\chi^2 = 5.9^{*}$
Do you think there is something seriously wrong with your body?	80.0%	56.8%	$\chi^2 = 5.5^{*}$
Are you afraid of illness?	90.9%	66.7%	$\chi^2 = 7.8^{**}$
Illness Attitude Scales (IAS)			
Do you worry about your health?	2.80 (0.81)	2.25 (1.10)	$t = 2.73^{**}$
Are you worried that you may get a serious illness in the future?	2.50 (0.89)	1.53 (1.08)	$t = 4.67^{**}$
If you have a pain, are you concerned that it may be caused by a serious illness?	2.39 (0.98)	1.64 (1.32)	$t = 3.08^{**}$
If a pain lasts a week or more, do you believe that you have a serious illness?	2.34 (0.89)	1.82 (1.40)	$t = 2.08^{*}$
Do you believe that you have a physical disease but the doctors have not diagnosed it correctly?	1.72 (1.22)	1.05 (1.22)	$t = 2.61^{**}$
Are you afraid of news which reminds you of death (such as funerals or obituary notices)?	2.09 (1.35)	1.48 (1.42)	$t = 2.09^{*}$
Does the thought of death scare you?	2.50 (1.46)	1.61 (1.48)	$t = 2.86^{**}$
Are you afraid that you may die soon?	1.98 (1.18)	0.98 (1.08)	$t = 4.22^{**}$
Are you afraid that you may have cancer?	2.02 (1.16)	1.19 (1.10)	$t = 3.48^{**}$
Are you afraid that you may have another serious illness (in addition to cancer or heart disease)?	1.98 (1.02)	0.98 (1.12)	$t = 4.35^{**}$
When you read or hear about an illness, do you get symptoms similar to those of the illness?	0.80 (0.98)	0.39 (0.72)	$t = 2.29^{*}$
When you feel a sensation in your body, do you worry about it?	2.42 (0.94)	1.88 (1.16)	$t = 2.40^{*}$

Endorsement rates are given for the WI, χ^2 tests *df* 1; means and standard deviations (in brackets) are given for the IAS, *t*-tests two tailed with *df* 89.

* $P < .05$.

** $P < .01$.

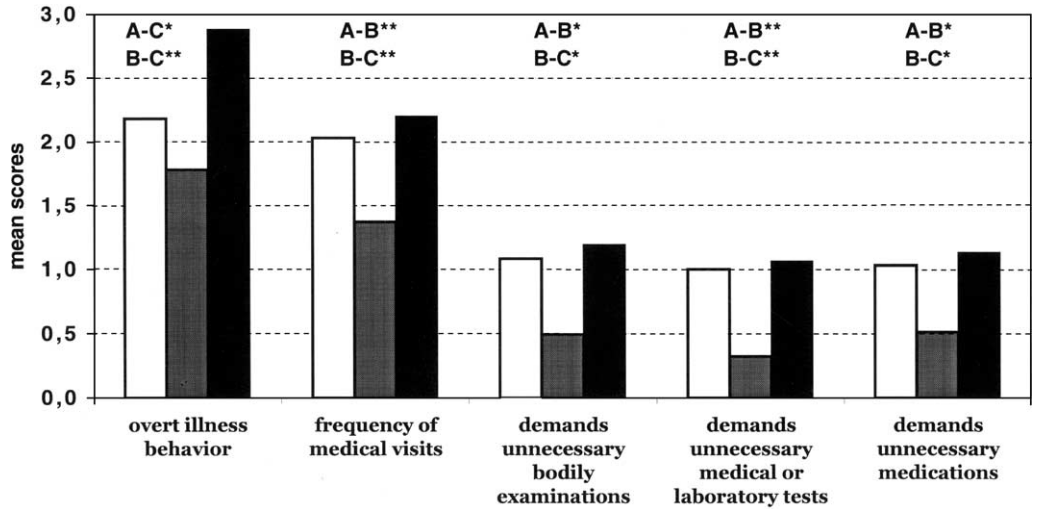

Fig. 1. Ratings of illness behavior-related characteristics. Open bars (A): hypochondriasis; shaded bars (B): panic disorder; dark bars (C): hypochondriacal plus panic; group differences $^{*}P < .05$, $^{**}P < .01$.

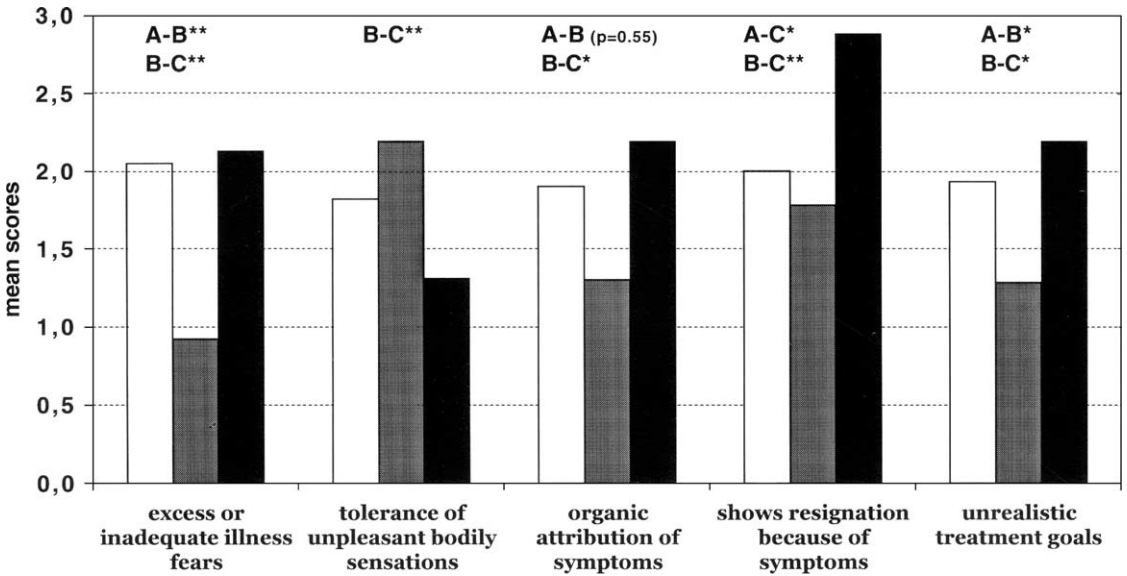

Fig. 2. Ratings of health anxiety-related characteristics. Open bars (A): hypochondriasis; shaded bars (B): panic disorder; dark bars (C): hypochondriacal plus panic; group differences $^{*}P < .05$, $^{**}P < .01$.

general medical patients. Second, health anxieties represented a central feature of both disorders. This was reflected in elevated scores on hypochondriasis scales for both groups, compared to non-hypochondriacal subjects from the general population (Rief, Hessel, & Braehler, 2001). Hypochondriasis and panic disorder were also similar with respect to additional psychopathology, chronicity, use of health care services, impairment at work and general psychosocial disability.

5.2. Health anxieties are more severe in hypochondriasis

Concerning the differences, hypochondriacal patients scored higher on the WI and IAS than did panic patients. This indicates greater severity of hypochondriasis-related characteristics with more intense illness convictions and health anxieties in those with hypochondriasis. We believe that these differences point to a more stable preoccupation of hypochondriacal patients with their bodily functioning. Panic patients have very intense fears during their panic attacks, but their health anxieties in the intervals between the attacks are likely to be less severe than those of hypochondriacal patients who experience enduring physical symptoms. Findings similar to ours were reported by Barsky et al. (1994) who compared hypochondriasis and panic disorder in a general medical setting. Their hypochondriacal patients had more psychological symptoms and distress on scales measuring health anxieties, disease conviction, bodily preoccupation, somatization and disability. They also used more medical care and were less satisfied with that care.

5.3. No influence from somatization

An important finding of our study was that the differences between hypochondriasis and panic were not related to somatization. Although our hypochondriacal patients had more comorbid diagnoses of somatization disorder and abridged somatization syndrome, the group differences remained after controlling statistically for somatization, as indicated by the number of lifetime medically unexplained symptoms. This finding confirms that hypochondriasis is not merely a secondary attribute of somatization. Psychological mechanisms, such as false causal attributions and unrealistic health attitudes, are likely to be more important for the development of hypochondriasis than for medically unexplained somatic symptoms alone.

5.4. Comorbidity predicts the degree of severity

It was further shown that patients with comorbid hypochondriasis plus panic had more specific and general psychopathology than did patients without this comorbidity. Comorbid patients were more anxious, somatized more, and had a generally higher level of psychopathology as indicated by the overall scores on the SCL-90R. There was a tendency for comorbid patients to utilize more health

care. In our sample, their expenses for inpatient treatment and medication were higher and they had spent more days in hospitals before coming to our facility. These indicators of illness behavior are in line with the increased scores on the IAS illness behavior scale obtained by our hypochondriasis plus panic patients. However, such high level of illness behavior was not accompanied by greater chronicity or psychosocial disability. Our comorbidity findings suggest that hypochondriasis and panic disorder are not interchangeable; however, each disorder has components which may add to the psychopathology and severity of the other. Other studies that come to similar conclusions were those of Barsky et al. (1994) and Furer et al. (1997).

5.5. Congruence with cognitive-behavioral models

The similarities between hypochondriasis and panic are not surprising. Current models of these disorders, based on cognitive-behavioral theory (Clark, 1986; Salkovskis & Clark, 1993; Salkovskis & Warwick, 2001), suggest that misinterpretations of bodily symptoms as signs of a serious disease play a central role in the development and maintenance of the clinical conditions. Catastrophic misinterpretations are likely to increase anxiety, which in turn leads to an amplification of the somatic sensations and further development of new symptoms (Barsky, 1992). If this vicious cycle is not interrupted, a long-standing disorder may develop.

The main differences between hypochondriasis and panic have to do with the time pattern and the role of anxiety. While hypochondriasis tends to be characterized by long-standing anxieties and concerns, panic disorder typically consists of episodic attacks of autonomic arousal with a clear onset, a peak within a few minutes and complete recovery. Therefore, patients with panic fear immediate threats, whereas those with hypochondriasis fear delayed consequences (Salkovskis & Clark, 1993). Panic disorder may become chronic when attacks re-occur frequently, when the person fears new attacks or develops avoidance behavior. Hypochondriacal patients, by contrast, experience more enduring illness fears and their symptoms are not necessarily due to autonomic arousal or anxiety. It has also been suggested that, while hypochondriasis is a disturbance of bodily perception and dysfunctional beliefs about illness (Barsky et al., 2001), panic disorder additionally involves a tendency to develop intense negative emotions and excessive alarm reactions (Watt & Stewart, 2000).

5.6. Confirmation of the DSM-IV nosology and clinical implications

The close links between panic disorder and agoraphobia on one hand and hypochondriasis and somatization on the other support the current DSM-IV nosology. Group differences on important variables found in this study show the importance of not confusing these disorders with one another when patients are examined in general medical practice or mental health institutions. We

demonstrated that clinicians are able to distinguish these disorders on the basis of illness behaviors and other observable clinical characteristics. Such differences of clinical judgment may influence the way these patients are clinically managed and treated.

5.7. Limitations

Some shortcomings of the present study should be mentioned. First, we examined an inpatient sample with a rather high degree of comorbidity and chronicity, which may not be representative and may differ from patients in other settings. Second, data for some of the variables related to health care utilization and ''doctor shopping'' were not available for all patients. Therefore, the statistical power for these variables was lower and only a tendency toward higher utilization in hypochondriacal patients was detected. Third, not all clinical features likely to distinguish panic and hypochondriasis were considered in our study. Features such as spontaneous panic attacks, autonomic symptoms included in the panic attack criteria, types of illness threat (i.e., immediate or delayed), or type of illness feared (e.g., heart attacks vs. cancer) were not assessed. Additionally, our data do not address the question why panic plus hypochondriasis patients had more severe symptoms and whether such increased severity was a specific or nonspecific influence of comorbidity. Further studies are needed to evaluate these topics. Another question to be addressed in the future is whether hypochondriacal fears and beliefs accompany other anxiety disorders such as agoraphobia (Fava, Kellner, Zielezny, & Grandi, 1988) or generalized anxiety disorder.

6. Conclusions

This study is consistent with the current view that hypochondriasis and panic disorder should be considered as distinct disorders, as suggested by our current nosology (DSM-IV). Hypochondriasis is associated with more health anxiety-related psychopathology than panic disorder, a finding which cannot be explained by somatization. Special attention should be given to cases with comorbid hypochondriasis plus panic disorder because these patients have a more severe illness than patients who have only one of these disorders. Comorbid patients also showed a trend towards increased health care utilization.

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