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The syndrome of hypochondriasis: a cross-national study in primary care

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ABSTRACT

Background. The nature and correlates of hypochondriasis are still poorly understood, especially in settings other than those in North America and Western Europe.

Methods. A total of 25916 consecutive patients making ambulatory visits to primary care clinics at 15 sites in 14 countries were screened using the 12-item General Health Questionnaire (GHQ-12). Based on the screen-score performance, a stratified sample of 5447 of respondents was evaluated at the second-stage (response rate: 62%). Evaluation consisted of physician-rated physical and psychological health status and self-ratings of overall health, physical disability and GHQ-28. Interviewers conducted assessment of psychiatric status, using the Composite International Diagnostic Interview (CIDI) and occupational disability.

Results. Across the sites, the occurrence of ICD-10 hypochondriasis was 0·8% (95% Confidence Interval, 0·5–1·0%) and over 1·5% at only two sites. A less restrictively-defined form of the disorder had a pooled frequency of 2·2% (95% Confidence Interval, 1·8–2·6%) across the sites. Patients with this abridged hypochondriasis were more likely than those without to have co-morbid major depression and generalized anxiety disorder. They had a poorer perception of their health, were more physically disabled, were more impaired in the performance of occupational role, and were above-average utilizers of health service. Patients with ICD-10 hypochondriasis were no more impaired than those with abridged hypochondriasis.

Conclusion. Even though the ICD-10-defined hypochondriasis is rare, a form consisting of the triad of disease conviction, associated distress and medical help-seeking is present in primary-care settings in different cultures. This syndrome is associated with considerable psychiatric ill-health and functional disability.

INTRODUCTION

Our understanding of hypochondriasis has improved considerably in the last two decades. Renewed scientific interests have led to reports on its prevalence, association with age, gender, social position, ethnicity and with other psychiatric disorders, in particular depression and anxiety disorders (Pilowsky, 1970; Kenyon, 1976; Sternback *et al.* 1978; Brink *et al.* 1981; Bearber & Rodney, 1984; Kellner, 1985; Swartz *et al.* 1989; Barsky *et al.* 1990*a*; Noyes *et al.* 1994). A recent report examined the validity of the DSM-III-R construct of the disorder in the diagnostic screening clinic of a tertiary-care medical centre (Noyes *et al.* 1993). In spite of the high quality of recent data, there are still important gaps in our knowledge with regard to the nature of the disorder, its applicability across cultures and its public health impact.

Persons with hypochondriasis are more likely to be found among patients presenting to physicians in general medical clinics. In such settings, the true nature of their problems is likely to be missed by busy physicians whose common task is the identification and treatment of physical illness. On the other hand, hypo-

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chondriacal patients presenting in psychiatric clinics are likely to represent the more extreme end of what may be a spectrum of problems. Thus, while physicians in the former setting are rarely interested in the problem, those in the latter are presented with a rather atypical form of it. Generally, what is known about hypochondriasis, including its definition in the more commonly used classificatory systems (World Health Organization, 1993; American Psychiatric Association, 1994), are largely derived from the study of this atypical group. Indeed, such definitions have been based largely on data derived from studies in North America and Europe (Kenyon, 1964, 1965; Pilowsky, 1967; Bianchi, 1973; Kellner, 1986; Barsky *et al.* 1992). There is little evidence that such definitions are appropriate to primary-care settings where the majority of patients with psychopathology of various kinds are seen (Regier *et al.* 1993) or to other cultures where the phenomenon of illness behaviour, help-seeking and attitude towards physicians and healers may be different (Kleinman & Kleinman, 1985).

Hypochondriasis is commonly classified with somatoform disorders. There is empirical evidence to suggest that this classification is appropriate and that somatization and hypochondriasis are distinct but overlapping syndromes (Kirmayer & Robbins, 1991). Somatization disorder, as defined in the DSM-III, has been shown to be rare in primary-care settings and in the community (Deighton & Nicol, 1985; Escobar *et al.* 1987*a*; Kirmayer & Robbins, 1991; Gureje & Obikoya, 1992). On the other hand, less restrictively defined forms of the disorder are highly prevalent in such settings and are associated with considerable co-morbidity and disability (Escobar *et al.* 1987*a*, *b*; Katon *et al.* 1991). A suggestion that this may also be true of hypochondriasis is provided by a study of patients with a sub-syndromal form of hypochondriasis (Barsky *et al.* 1990*b*, 1993). Compared with non-hypochondriacal subjects, such patients have been reported to have more Axis I diagnoses, higher levels of disability and to continue to manifest significantly more hypochondriacal symptoms, more somatization and more psychopathological symptoms at follow-up after an average of 22 months. Even so, at follow-up such patients were no more likely to receive a diagnosis of DSM-III-R hypochondriasis than non-hypochondriacal patients (Barsky *et al.* 1993), an observation that suggests the diagnostic threshold is set too high.

Using data from a large WHO collaborative project on Psychological Problems in General Health Care (Üstün & Sartorius, 1995), we have addressed the questions: What is the occurrence in primary care across 14 countries of hypochondriasis as defined by the International Classification of Diseases, Tenth Revision (ICD-10)?; What is the aggregate of symptoms that best define hypochondriasis in this setting?; What are the characteristics of patients with hypochondriasis in primary care in regard to co-occurring psychiatric distress, functional role performance and health care use?

METHOD

The WHO Collaborative Study on Psychological Problems in General Health Care was designed to investigate the form, frequency, course, and outcome of psychological problems commonly seen in primary-care settings in 15 sites drawn from 14 countries around the world (Sartorius *et al.* 1993; Üstün & Sartorius, 1995). Participating centres include Ankara, Turkey; Athens, Greece; Bangalore, India; Berlin and Mainz, Germany; Groningen, the Netherlands; Ibadan, Nigeria; Manchester, UK; Nagasaki, Japan; Paris, France; Rio de Janeiro, Brazil; Santiago, Chile; Seattle, USA; Shanghai, China; and Verona, Italy. The design and methods of the study are described in full elsewhere (Sartorius *et al.* 1993; Ormel *et al.* 1994; Üstün & Sartorius, 1995). We provide only a brief summary here.

Study sites and patients

The 15 sites for the study were selected to represent broad diversity in culture and socio-economic development. Even though the sites were different in socio-economic and health service characteristics, participating clinics were, nevertheless, regarded as representative primary-care centres in the various countries.

Using the 12-item General Health Questionnaire (GHQ-12) (Goldberg & Williams, 1988), consecutive attenders of primary care facilities, aged 15 to 65 years, were screened. Only patients who were consulting for medical reasons, had a fixed address, and provided signed consent were screened. At each site, between 1300 and 2800

screens were completed, representing a total of 25916 across the sites (response rate, 96%; range, 91 to 99%).

Patients were selected for the second-stage diagnostic assessment on the basis of their screen score performance. Thus, GHQ scores were stratified into low (60%), medium (20%), and high (20%) and patients were randomly selected from these bands in the proportions: 10%, 35%, and 100% respectively. Across the sites, 5447 out of 8729 patients who were eligible completed the second-stage evaluations (response rate, 62%). Non-response differed significantly across the sites and were associated with GHQ score.

Primary-care physician rating

Patients who consented to interview were assessed in the primary-care clinic or in their home, within 7 days. On each of such patients, the primary-care physician completed a specially designed encounter form to indicate the patient's reason for contact; level of overall health (excellent, very good, good, fair, or poor); physical health status (completely healthy, some symptoms but subclinical, mildly ill, moderately ill or severely ill); and psychological health status (completely normal, subclinical, mild case, moderate case or severe case). The ratings of both physical and psychological health were global and based on all information available to the physician. The physician also indicated the nature of the patient's physical and/or psychological problems (if any), the treatment given, and/or if further tests were required to establish diagnosis. The clinicians making these ratings were all medical doctors.

Second-stage assessment

Each patient was requested to make a global rating of their overall health (excellent, very good, good, fair or poor). Also, each patient completed a self-rated eight-item scale, the Brief Disability Questionnaire (BDQ), and were asked a question on the number of days in the previous month they had been unable to perform usual activities as a result of illness. The BDQ was adapted from the Medical Outcomes Study disability questionnaire short form (Stewart *et al.* 1988), and is largely a measure of physical disability. It enquires about the ability to perform in the past month activities such as lifting heavy objects, carrying groceries, walking uphill, walking long distance, bending, dressing, or using the toilet. The reliability of the scale, expressed in Cronbach's alpha, ranged from 0·84 to 0·96 across centres, with a pooled estimate of 0·88. Each patient was asked how many weeks ago they last consulted the primary-care clinic. To determine health service utilization, an estimate of weekly clinic visit rate was made by computing the reciprocal of this number.

Psychopathological assessment was conducted by trained interviewers using the Composite International Diagnostic Interview (CIDI) (World Health Organization, 1989), a structured interview developed by the WHO and the 28-item General Health Questionnaire (GHQ-28). Diagnostic assignment was based on ICD-10 and DSM-III-R criteria using computerized CIDI algorithms. In this report, we have focused primarily on ICD-10 diagnoses and criteria. Anxiety, depression and somatization symptom dimensions are derived by using CIDI symptom counts and the subscales of the GHQ-28. The interviewers also completed the Occupational role section of the Social Disability Schedule (SDS) (Wiersma *et al.* 1988), a semi-structured interview on role functioning. The SDS is particularly suited for this cross-cultural study as it allows rating of disability to be made relative to the specific expectations of the culture. Interviewer ratings range from 0 (no disability) through 1 (mild disability) and 2 (moderate disability) to 3 (severe disability). Interviewer-observer reliability of the occupational role module of the SDS is reported to range from Cohen's kappa of 0·63 to 0·93 across a variety of populations (Wiersma *et al.* 1988).

Analysis

Weights have been incorporated into all estimates of prevalence and proportions reported to represent the first-stage population of screened patients. The weights take account of the stratified sampling for the second stage and the differences in the response rates according to GHQ-12 stratum, sex and centre. Other analyses have been conducted on unweighted data. Logistic regression analyses, in which physician-rated physical health status, depression, and anxiety were controlled for, were performed where appropriate. All the analyses were performed using SPSS (1990) software.

RESULTS

Occurrence of ICD-10 hypochondriasis and criteria

ICD-10 defined hypochondriasis was, surprisingly, an uncommon disorder among consecutive attenders at primary-care settings in most of the centres (Table 1). No cases were identified in Athens and in Paris. In seven of the centres, the weighted 12-month prevalence of the disorder was less than 1%. The highest rate of 3·8% (95% Confidence Interval, 1·8–6·6%) was recorded in Santiago. Pooled across the centres, 0·8% (CI, 0·5–1·0%) of the patients met the criteria for ICD-10 hypochondriasis in the previous 12 months. There were no significant gender differences in prevalence rate in any of the centres.

In order to determine whether the relative rarity of ICD-10 hypochondriasis was due to the existence of a bottleneck in its definition (that is, the existence of a single criterion having a disproportionate effect on prevalence), we examined the proportions of patients in each centre meeting the hierarchical criteria of the disorder. Across the centres, 6·7% (CI, 6·0–7·3%) of the patients reported having a persistent belief, of at least 6 months' duration, of the presence of a serious physical disease or a persistent preoccupation with a presumed deformity in the previous 12 months (Table 2). This proportion dropped to 3·0% (CI, 2·6–3·5%) when the requirement that disease worry or preoccupation be associated with persistent distress or with interference with personal functioning in daily living was added. The further addition of the criterion of medical helpseeking produced a relatively minor drop in the occurrence to 2·2% (CI, 1·8–2·6%). However, a significant drop in rate resulted from the addition of the criterion requiring that patients refuse to accept medical reassurance that symptoms had no physical causation. Indeed, pooled across the centres, there was little further change in the proportion of patients meeting this level of definition of hypochondriasis and those meeting the full ICD-10 definition (from 0·9% to 0·8%).

Table 1. *Occurrence of ICD-10 hypochondriasis by centre* (*weighted*)

Centre	No. interviewed	Patients with hypochondriasis: Estimated no.	Patients with hypochondriasis: Weighted % (95% CI)
Ankara	400	1	0·2 (0·006–1·4)
Athens	196	—	—
Bangalore	398	1	0·2 (0·006–1·4)
Berlin	400	2	0·4 (0·05–1·8)
Groningen	340	4	1·0 (0·3–3·0)
Ibadan	269	5	1·9 (0·6–4·3)
Mainz	400	5	1·2 (0·4–3·0)
Manchester	428	2	0·5 (0·05–1·7)
Nagasaki	336	1	0·4 (0·006–1·6)
Paris	405	—	—
Rio de Janeiro	393	4	1·1 (0·3–2·6)
Santiago	274	10	3·8 (1·8–6·6)
Seattle	373	2	0·6 (0·07–1·9)
Shanghai	576	2	0·4 (0·04–1·3)
Verona	259	1	0·3 (0·006–2·1)
Entire sample	5447	41*	0·8 (0·5–1·0)

* The estimated number for the entire sample is not the exact total of the values for the centres because of the effect of weighting.

Table 2. *Proportion of patients meeting hierarchical criteria of hypochondriasis* (*weighted*)

Centre	A	A+B	A+B+C	A+B+C+D*
Ankara	1·9	0·8	0·7	0·2
Athens	3·1	2·2	1·3	0·2
Bangalore	1·2	0·2	0·2	0·2
Berlin	13·1	6·9	5·4	2·4
Groningen	4·6	2·4	1·5	1·0
Ibadan	6·5	4·2	3·1	1·5
Mainz	10·2	5·7	5·3	1·6
Manchester	1·1	0·9	0·7	0·5
Nagasaki	12·2	2·3	2·3	0·4
Paris	9·6	2·1	0·7	0·1
Rio de Janeiro	5·6	3·4	2·4	1·1
Santiago	14·8	12·6	9·5	4·5
Seattle	9·7	1·4	0·9	0·6
Shanghai	3·4	0·9	0·7	0·5
Verona	5·5	3·0	0·7	0·3
Entire sample	6·7	3·0	2·2	0·9

* A, indicates disease conviction; B, persistent distress or interference with functioning; C, medical help-seeking; and D, refusal to accept medical reassurance.

Validity of abridged hypochondriasis

We next examined the validity of hypochondriasis in primary care settings when defined as the triad of disease conviction, associated distress or interference with functioning, and medical help-seeking.

Across the sites, patients with the abridged hypochondriasis were older than those without (mean, 43·8 ± 12·4 years *v.* 40·0 ± 13·6 years; $P < 0·001$). Other than in Ibadan where men were more likely to meet the disorder than women

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Table 3. *Association of abridged hypochondriasis with indices of psychiatric distress*

	Patients with abridged hypochondriasis	Patients without hypochondriasis	Statistic
Weighted proportion, %			
With ICD-10 GAD†	21·5	7·5	$\chi^2 = 31{\cdot}75$***
With ICD-10 Depression	36·9	9·8	$\chi^2 = 93{\cdot}28$***
Identified as a psychiatric case by clinic physicians	57·4	23·5	$\chi^2 = 70{\cdot}48$***
Mean (S.D.) GHQ scores			
Anxiety	3·4 (2·4)	2·4 (2·3)	$t = -4{\cdot}71$***
Depression	2·1 (2·4)	1·0 (1·8)	$t = -4{\cdot}85$***
Somatization	4·0 (2·1)	2·6 (2·1)	$t = -7{\cdot}65$***

† GAD indicates generalized anxiety disorder.
*** $P < 0{\cdot}0001$.

Table 4. *Association of abridged hypochondriasis with indices of well-being and disability*

	Patient with abridged hypochondriasis, % ($N = 121$)	Patients without hypochondriasis, % ($N = 5326$)	χ^2
Physician-rated poor/fair overall health	38·5	23·7	13·6**
Self-rated poor/fair overall health	76·5	39·7	65·2***
Disagreed with physician about overall health status†	70·0	34·0	37·6***
Referred for further diagnostic examination	20·6	7·2	15·3***
Above average clinic attendance	61·3	48·9	6·4*
One or more disability days in previous month	59·7	36·3	27·4***
Interviewer-rated moderate/severe occupational disability	38·1	16·6	37·6***

† Physician-rated good/excellent health *v.* self-rated poor/fair health.
* $P < 0{\cdot}01$; ** $P < 0{\cdot}001$; *** $P < 0{\cdot}0001$.

(6·8% *v.* 1·5%; $\chi^2 = 5{\cdot}06$, df = 1, $P < 0{\cdot}03$), there were no gender differences in rate in any of the other sites. Subjects with abridged hypochondriasis were significantly more psychologically impaired than non-hypochondriacal subjects (Table 3). Hypochondriacal subjects were more likely to receive an ICD-10 diagnosis of generalized anxiety disorder (GAD) and of major depression. They were also more likely to be recognized as having a psychiatric disorder by the clinic physicians. These patients also reported significantly more symptoms of anxiety, depression, and of somatization on the respective subscales of the GHQ-28.

Table 4 shows that more hypochondriacal patients were rated by clinic physicians as having moderate to severe physical illness (28·7% *v.* 17·1%; $\chi^2 = 16{\cdot}92$, df = 1, $P < 0{\cdot}001$). However, these patients were also more likely to be referred for further physical investigation (20·6% *v.* 7·2%; $\chi^2 = 15{\cdot}3$, df = 1, $P < 0{\cdot}0001$), suggesting that the nature of the physical illness was often unclear to the physicians. Physicians rated more patients with abridged hypochondriasis to be of poor or just fair overall health. However, this rating was influenced by the physicians' perception of the patients' physical health status: patients with abridged hypochondriasis were no more likely to be so rated than those without when physical health status as

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Table 5. *Abridged* v. *ICD-10 hypochondriasis*

	Patients with abridged hypochondriasis†, % ($N = 83$)	Patients with full ICD-10 hypochondriasis, % ($N = 41$)	χ^2
Females	62·7	75·6	2·08
Physician-rated moderate/severe physical illness	37·0	31·6	0·34
Physician-recognized psychiatric 'cases'	53·1	67·6	2·18
ICD-10 Major Depression	31·3	46·3	2·67
ICD-10 GAD‡	31·3	0	16·25***
Self-rated poor/fair overall health	74·4	82·1	0·87
Physician-rated poor/fair overall health	40·2	36·8	0·13
One or more disability days in previous month	61·0	57·5	0·14
Interviewer-rated moderate/severe occupational disability	39·0	38·5	0·003

† Excludes patients meeting ICD-10 criteria.
‡ GAD indicates generalized anxiety disorder.
*** $P < 0{\cdot}0001$; other values are not significant.

rated by the clinic physicians was controlled for (OR = 1·2, NS). On the other hand, patients with abridged hypochondriasis were more likely to rate themselves of poor or just fair overall health (39·7% *v.* 76·5%; $\chi^2 = 65{\cdot}2$, df = 1, $P < 0{\cdot}0001$). This difference remained significant after controlling for physician-rated physical health status, ICD-10 diagnosis of depression, and of anxiety (OR = 2·92, $P < 0{\cdot}0001$). Significantly more hypochondriacal patients disagreed with their physicians in respect of their overall health (i.e. rated self of poor/fair overall health while rated by physicians as of at least good overall health). In view of the skewed distribution of the index of health care utilization (range, 0·01–1·0; median, 0·20), we used the median score to divide the population to high utilizers (score at or above median) and low utilizers (score below median). Hypochondriacal patients were more likely to be high utilizers of health care service than non-hypochondriacal subjects (63·1% *v.* 53·6%; $\chi^2 = 5{\cdot}8$, df = 1, $P < 0{\cdot}01$). This difference just fell below statistical significance when physician-rated physical health status was controlled for (OR = 1·4, $P = 0{\cdot}06$).

The abridged hypochondriasis was associated with functional disability defined in three different ways. Patients with this disorder had a higher mean score on a measure of self-rated physical disability than those without (BDQ mean, $1{\cdot}87 \pm 5{\cdot}6$ *v.* $5{\cdot}6 \pm 5{\cdot}1$; $P < 0{\cdot}001$). They were more likely to report one or more days of impaired role functioning in the previous month. As assessed by interviewer-rated SDS, hypochondriacal patients were also more likely to have moderate to severe occupational disability (38·1% *v.* 16·6%; $\chi^2 = 37{\cdot}6$, df = 1, $P < 0{\cdot}0001$). This difference remained significant after controlling for physician-rated physical health status, and for ICD-10 diagnosis of depression and anxiety (OR = 1·72, $P < 0{\cdot}0001$). Interviewers were requested to determine the cause of disability using every information collected during the SDS interview. For patients with occupational disability (rated moderate or severe), physical problems were identified by the interviewers as the presumed cause of disability in 35·3% of hypochondriacal patients and in 37·9% of non-hypochondriacal patients ($\chi^2 = 0{\cdot}23$, df = 1, NS). On the other hand, psychological problems were the presumed cause in 50% of the former and 24·1% of the latter ($\chi^2 = 29{\cdot}95$, df = 1, $P < 0{\cdot}0001$).

We next compared patients who met the full ICD-10 criteria of hypochondriasis with those who met only the abridged definition (estimated numbers: 41 *v.* 83). Patients with abridged hypochondriasis were significantly older than those with full ICD-10 hypochondriasis (mean

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age, 45·5 ± 12·2 years *v.* 40·0 ± 12·1 years; $P < 0{\cdot}01$). Both groups had identical gender distribution with 62·7% and 75·6% being female, respectively. None of the health or disability measures differentiated the groups (Table 5). Both groups were identical in all but one feature: patients with abridged hypochondriasis were more likely to receive a diagnosis of generalized anxiety disorder than those with the ICD-10 defined disorder.

DISCUSSION

Occurrence of ICD-10 hypochondriasis

In a large cross-cultural study conducted in 15 primary care settings in 14 countries, we observed that the 12-month occurrence of ICD-10 hypochondriasis was less than 1% in the pooled sample and greater than 1·5% at only two of the sites. Even though we have focused on ICD-10 criteria in this report, the study being a WHO collaborative international project, identical rates were obtained using DSM-III-R criteria (12-month rate of 0·7% in the pooled data; rate greater than 1·5% at one site). Published data on the prevalence of hypochondriasis are sparse and previous estimates are often difficult to use for comparative purposes because of problems with setting, selection, and definition. In a review of the literature, Kellner (1985) suggests that the prevalence of hypochondriasis in the community could be between 3 and 13%. Using a self-administered questionnaire, Kirmayer & Robbins (1991) identified 7·7% of a large primary care sample. On a screening scale for hypochondriasis, Noyes *et al.* (1993) reported a prevalence of 13·8% for hypochondriasis among patients in a general medicine clinic. In a study conducted among out-patients in a general medicine clinic, Barsky and colleagues (1990*a*) estimated the 6-month prevalence of DSM-III-R hypochondriasis to be between 4·2 and 6·3%. These authors speculated that their estimate may have been high because it was conducted in a tertiary academic medical setting to which hypochondriacs may have gravitated and because of their selection procedure. In the present study, the use of identical method of patient selection, case ascertainment, and diagnosis has produced identical rates in primary-care settings from 14 countries with diverse cultures. The observation of a relative rarity in primary-care settings of ICD-10 defined hypochondriasis seems unlikely to have been produced by methodological bias.

Definition of hypochondriasis in primary care

We observed that the proportion of patients meeting the triad of illness worry, associated distress, and medical helpseeking was substantially reduced when the criterion for 'persistent refusal to accept medical reassurance' was added. We suggest that 'persistent refusal to accept medical reassurance' may constitute a bottleneck in the diagnosis of hypochondriasis in primary care and that the triad of illness worry, associated distress, and medical helpseeking may be the minimum and sufficient set of criteria for the disorder in such settings. Our data is in support of this claim. Patients who meet the abridged definition of hypochondriasis were characterized by features previously associated with the disorder. On the other hand, while patients with the abridged hypochondriasis were different from non-hypochondriacal patients, they were however identical to patients meeting the full ICD-10 criteria for hypochondriasis in every respect, except that they were older and were more likely to receive a diagnosis of generalized anxiety disorder.

Our findings suggest that the ICD-10 definition of hypochondriasis is too restrictive for use in primary-care settings. It identifies only a subset of patients who can not be differentiated from those who meet a less restrictively defined form of the disorder. Our data suggests that many patients in primary care who suffer from hypochondriasis do not evidence persistent refusal to accept medical reassurance that their symptoms do not have physical cause. We suspect that both the provision of reassurance by physicians and patients' acceptance of same may be determined, in part, by factors other than the level of patients' worry or morbidity. It is likely that personality, attitudes, and expectations may be involved and that the stability of this criterion would be, at most, tenuous. What is clear is that the use of this criterion in primary care has the effect of misclassifying significant proportions of hypochondriacal patients in diverse cultural settings as non-hypochondriacal.

Since access and attitude to health care services may differ across cultures, our study

cannot address the question of cultural differences in the community prevalence of hypochondriasis. Nevertheless, the similarity in the occurrence of the abridged form of the disorder in the cultures is remarkable. Other than in Santiago, Berlin, and Mainz where rates were very high and Bangalore where it was very low, the rates of the disorder do not seem to vary remarkably from one culture to the other.

Correlates of hypochondriasis in primary care

In this study, gender was not a differentiating feature between hypochondriacal and non-hypochondriacal patients. Except in Ibadan, where males were significantly more likely to receive the diagnosis than females, no gender differences in prevalence were observed at any of the 14 other sites. The overall lack of association with gender is consistent with a number of previous reports suggesting that the DSM-III-R variant of the disorder is equally common in both sexes (Baker & Merskey, 1983; Kellner, 1985; Barsky *et al*. 1990*a*). There was an overall age effect: patients with abridged hypochondriasis were significantly older than those without. It is likely that small numbers attenuated this observation at the individual sites as only three (Mainz, Paris and Santiago) showed similar pattern. The literature on age is contradictory with previous authors reporting the disorder to be more common among the young, the old, or to bear no association with age (Brink *et al*. 1981; Kellner 1985; Barsky *et al*. 1990*a*).

It is noteworthy that in primary-care settings, abridged hypochondriasis is associated with a high burden of other psychiatric disorders, specifically, depression, anxiety and somatization. Patients with abridged hypochondriasis drawn from different cultural backgrounds also have a negative perception of their overall health, a perception not explainable on the basis of their physical or psychiatric health status. This subjective feeling of ill health was also emphasized by objective evidence of disability in occupational role functioning and of lost days of productivity. Even at this level of care, their propensity for disproportionate use of health service is also already evident. Many of these correlates have been reported for patients selected from mainly tertiary care settings in North America and Western Europe (Swartz *et al*. 1989; Noyes *et al*. 1993, 1994). Our observation suggests that these associated features occur across different cultures, begin early in the disease process, and are not unique to chronically ill patients that are often seen in tertiary-care settings. These observations underlie the public health impact of the disorder. It is interesting that, as earlier suggested by others (Barsky *et al*. 1986; Noyes *et al*. 1994), we found that hypochondriasis is as likely to be associated with depression as it is with anxiety. Nevertheless, there are hypochondriacs who are neither depressed nor anxious. Also, the impact of hypochondriasis on health and role functioning is not explainable on the basis of co-occurring depression or anxiety.

Physicians treating hypochondriacs are in the dilemma of deciding how much further to pursue a putative lead for a physical illness. This is probably even more so in primary-care settings. In this study, physicians were able to recognize the possible psychological nature of the problems of these patients. This is identical to what other authors have noted (Noyes *et al*. 1993) and to the observation that hypochondriacal worry increases the ability of primary-care physicians to recognize depression or anxiety in their patients (Kirmayer *et al*. 1993). However, physicians in this study also rated many of such patients as having moderate to severe physical disease, even though the nature of such disease appeared often to be unclear to the physicians. This probably explains why physicians are often reluctant to make the diagnosis of hypochondriasis as they are unwilling to foreclose the possibility of a physical disease (Noyes *et al*. 1993). This scenario is likely to set the stage for even more disproportionate use of health facilities by patients with hypochondriasis, as more and more work-ups are ordered and the patients remain ignorant of the true nature of their illness.

Our results should be viewed within the constraints of a cross-cultural study conducted in centres characterized by diversity in the organization of health care services and its associated differences in accessibility and coverage. Also, the various cultures in which our study was conducted may differ in terms of attitude to illness, illness behaviour and common physical diseases (Fabrega, 1972; Kleinman, 1995). These are factors that may have a bearing

on the assessment and presentation of hypochondriasis. In particular, we have no data on the dynamics of doctor–patient contact and communication styles or on the interaction between hypochondriacal patients' and their families. There is evidence that attitude of significant others may have a bearing on the course of hypochondriasis (Robbins & Kirmayer, 1996).

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