Hypochondriacal concerns in a community population

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ABSTRACT

Background. Hypochondriasis is recognized as an important disorder in clinical populations, associated with increased health care utilization, disability and psychiatric co-morbidity. Few studies have investigated hypochondriasis in the community. We report on the broader concept of illness worry in a community population.

Methods. Five hundred and seventy-six subjects from an ethnically diverse urban setting were surveyed. Information was gathered on sociodemographic variables, medical and psychiatric status, health care utilization and disability. Bivariate and multivariate regression analyses were used to compare groups with illness worry (with and without the medical condition) to those without illness worry.

Results. Only one subject of 533 (0·2%) met criteria for hypochondriasis and seven (1·3%) fulfilled abridged criteria. However, 33 (6%) of the sample had illness worry. Of these, 17 had the illness about which they worried. Compared with controls, both illness worry groups had elevated levels of medical illness, psychiatric symptoms, help-seeking, health care use and disability. In multiple regression analyses, illness worry was an independent predictor of somatic symptoms, help-seeking, and disability, when sociodemographic and medical variables were controlled.

Conclusions. Hypochondriasis appears to be a rare disorder in the community while illness worry is relatively common. Illness worry was present in equal numbers of subjects with the illness of concern, as those without. Illness worry was an independent factor contributing to increased levels of distress, health care utilization, and disability, even when medical status was controlled, suggesting that it is an important issue for further research.

INTRODUCTION

Hypochondriasis is characterized by the fear or conviction that one has a serious disease based on the misinterpretation of bodily signs or symptoms. This worry and bodily preoccupation persists despite appropriate medical evaluation and reassurance, and causes significant distress or impairment for a period greater than 6 months (World Health Organization, 1990; American Psychiatric Association, 1994). Earlier studies found that the prevalence of hypo-

chondriasis in primary care ranges from 3 to 8% (Barsky *et al.* 1990; Kirmayer & Robbins, 1991; Escobar *et al.* 1998; Garcia-Campayo *et al.* 1998), while the World Health Organization's cross-national study in primary care reported a prevalence of 0·8% for the full diagnosis and 2·2% when less stringent criteria were applied. The authors attributed this comparatively low prevalence to referral bias in other studies, which were conducted in tertiary care teaching facilities (Gureje *et al.* 1997). The only community-based study to date reports a 1-year prevalence rate of 4·5% (Faravelli *et al.* 1997).

No sociodemographic characteristics have been consistently found to be associated with hypochondriasis in primary care. Medical mor-

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bidity is generally increased (Barsky *et al*. 1990; Robbins & Kirmayer, 1996; Gureje *et al*. 1997), and elevated levels of psychiatric co-morbidity including major depression, anxiety and somatization disorders are reported in most studies of hypochondriasis (Barsky *et al*. 1990; Noyes *et al*. 1994; Robbins & Kirmayer, 1996; Gureje *et al*. 1997). Hypochondriacal concerns are also associated with high levels of the personality trait of neuroticism or negative affectivity (Pennebaker & Watson, 1991).

Functional ability is diminished among patients with hypochondriasis, including impairment in social activities, activities of daily living (Barsky *et al*. 1990; Robbins & Kirmayer, 1996) and increased days unable to work (Barsky *et al*. 1990; Gureje *et al*. 1997). Hypochondriasis is also associated with more frequent visits to primary care physicians and mental health practitioners (Kirmayer & Robbins, 1991; Barsky *et al*. 1993).

We studied hypochondriasis in a community population. Our first objective was to establish the prevalence of various degrees of hypochondriasis: (1) the full DSM-IV or ICD-10 syndrome; (2) an abridged diagnosis as in the WHO study (Gureje *et al*. 1997); and (3) the single symptom of illness worry. Our second aim was to compare the sociodemographic, medical and psychiatric characteristics of subjects with and without illness worry. Finally, we compared levels of disability and health care use, and used multiple regression analysis to determine the independent contribution of illness worry to these outcomes.

METHOD

Subjects

The data for this report were drawn from a larger study of distress and health care utilization in a multicultural inner-city area of Montreal (Kirmayer *et al*. 1996). Subjects were included if they were at least 18-years-old, were born in Canada or in countries of origin of three major immigrant populations of the community (Vietnam, Philippines, Caribbean) and were able to communicate in English, French or Vietnamese. Data were collected in two telephone interviews. For the first interview, 5% of telephone numbers from each of eight postal

code areas of the Côte des Neiges neighbourhood of Montreal were taken at random from a computerized directory. Non-Canadian born subjects were over-selected by including 100% of telephone numbers in census tracts having higher concentrations of immigrants. A respondent was selected from the household by asking to speak to the person in the household who met the inclusion criteria and who had the most recent birthday.

In all, 8451 people were contacted, 3808 were eligible for the study, 1531 refused to participate and 78 did not complete the interview. The first interview was completed by 2199 subjects, 58% of those eligible to participate. Of those who completed the first interview, 798 were contacted to participate in the second stage of the survey. The second interview was completed by 576 subjects, while 222 refused, giving a response rate of 72% of subjects contacted for the second interview. This group consisted of approximately equal numbers of five major ethnocultural groups residing in the area: Anglophone Canadian-born, Francophone Canadian-born, Vietnamese, Caribbean and Filipino. Due to this stratification by ethnicity, the sample may not reflect the full diversity of the general population in the community. Because of the complex sampling strategy, it was not feasible to weight the groups to produce a more accurate prevalence rate, consequently, only unadjusted rates are reported.

Measures

The stage 1 interview assessed sociodemographic and ethnic identity, recent life events, levels of distress and health care utilization. Life events were ascertained with a list of 14 questions based on categories identified by Paykel *et al*. in studies of illness and depression (Paykel *et al*. 1969, 1971), as well as events likely to impact on the lives of immigrants or ethnocultural minorities. Somatic symptoms were assessed with 12 items from the Diagnostic Interview Schedule Somatization Disorder section (Swartz *et al*. 1986). The 12-item version of the General Health Questionnaire (GHQ) (Goldberg, 1972; Goldberg & Hillier, 1979) was used to measure general distress, and health care utilization was assessed by a questionnaire based on the DIS used in the Edmonton Health Survey (Bland *et al*. 1988). The second interview, collected in-

formation on psychiatric diagnoses using modules of the Composite International Diagnostic Interview (CIDI) for mood disorders, anxiety disorders, and hypochondriacal disorders (Wittchen *et al.* 1991). Interviews were conducted over the telephone by trained interviewers.

Data analysis

Data were analysed using SPSS PC 6.0 software. Frequencies and means were computed for sociodemographic, medical, and psychiatric variables including rates of hypochondriacal symptoms. Rates and frequencies were also calculated for number of days unable to function in the past 3 months, help seeking, and health care use (visits to A and E departments, physicians, specialists and alternative treatments).

The diagnosis of hypochondriasis on the CIDI depends on six questions that correspond to three criteria of the ICD-10 (WHO, 1990, 1993). These are: a persistent belief of 6 months duration of the presence of a serious physical illness (criterion A); persistent distress that interferes with daily functioning and leads to medical investigations or treatment (criterion B); and, a persistent refusal to accept medical reassurance (criterion C). Given the low rates of hypochondriasis found in this community sample, three groups were compared with respect to illness worry as identified by the CIDI probe question for criterion A: 'In the past 12 months, have you had a period of 6 months or more when you worried about having a serious physical illness most of the time?'. Subjects reporting illness worry in response to this question were further divided into two groups on the basis of having or not having an illness that could account for their level of concern based on a review of the interview protocols by a clinician (K.L.).

The three groups were compared using contingency tables for categorical variables and analysis of variance for continuous variables. Multiple regression analyses were performed on the whole sample to identify the correlates of three dependent self-reported variables: (1) total number of somatic symptoms; (2) help-seeking using the single question 'In the last 3 months, have you sought help from any person, place or agency for these problems?', and (3) disability,

assessed with the single question 'In the last 3 months, how many days have you been unable to do usual activities due to these problems?'.

RESULTS

Prevalence

Of 533 respondents to the initial probe question for illness worry, only one subject (0·2%) met the full criteria for ICD-10 and DSM-IV hypochondriasis, including preoccupation with fears of having a serious disease that persists despite appropriate medical evaluation and reassurance, and is associated with significant distress or disability. When the abridged criteria suggested by the WHO cross-national study (Gureje *et al.* 1997) were used (fear or conviction of disease resulting in distress and help-seeking), seven of the 533 (1·3%) qualified for the diagnosis. When the CIDI probe question for hypochondriasis was used alone ('In the past 12 months, have you had a period of 6 months or more when you worried about having a serious physical illness most of the time?'), 33 subjects (6·2%) answered affirmatively. Seventeen cases were considered to have a degree of illness worry consistent with their existing medical problems, and 16 cases (3% of the total sample) had illness worry in the absence of the underlying medical condition.

The most commonly feared illnesses in those who did not have the medical problem were cancer (five of 16 cases), HIV/AIDS (three cases), neuropsychiatric problems such as 'something inside my head might break' and the fear of 'going crazy' (five cases), and gastrointestinal disorder (two cases). The illnesses of concern in those who did have the medical diagnosis included: arthritis (four cases of 17); diabetes (two cases); and various other problems such as asthma, ulcer, vertebral fracture, viral cough, multiple sclerosis, and Raynaud's disease (one case each).

The three groups were compared on sociodemographic, medical and psychiatric variables (Table 1). The only significant sociodemographic difference was that subjects in the illness worry with medical illness group were on average older than the control group. The prevalence of illness worry among Canadian-born subjects was 11 of 245 (4·5%) and among non-Canadian-born subjects was 22 of 342 (6·4%), which was a non-

Table 1. *Sociodemographic characteristics, physical and psychiatric conditions of study groups*

Variables	A Illness worry without medical illness, $N = 16$	B Illness worry with medical illness, $N = 17$	C Control $N = 554$	Test statistic
Sociodemographic				
Age, mean (S.D.)	42·2 (14)	50 (17·5)	41·8 (16·3)	$F = 2·11$ (2, 582)* B > C
Female sex, N (%)	8 (50)	11 (64·7)	351 (63·4)	$\chi^2 = 1·2$
Single, N (%)	13 (81·3)	11 (64·7)	320 (58·4)	$\chi^2 = 3·6$
Education < high school, N (%)	6 (40)	8 (50)	183 (33·2)	$\chi^2 = 2·2$
Unemployed, N (%)	6 (37·5)	10 (62·5)	195 (37·3)	$\chi^2 = 4·2$
Ethnocultural group, N (%)				$\chi^2 = 12·8$
Physical				
Chronic condition, N (%)	8 (50)	13 (81·3)	133 (24·7)	$\chi^2 = 29·6$***
New illness, past year, N (%)	9 (56·3)	10 (58·8)	147 (27·1)	$\chi^2 = 14·1$***
Somatic symptoms, mean (S.D.)	3·7 (2·3)	2·7 (2·5)	0·87 (1·5)	$F = 35·3$ (2, 584)*** A, B > C
Psychological				
Life events, mean (S.D.)	1·4 (2·1)	1·1 (1·3)	0·6 (1·1)	$F = 4·5$ (2, 556)* A > C
GHQ, mean (S.D.)	2·6 (2·2)	4·1 (4·5)	0·9 (1·9)	$F = 22·5$ (2, 533)*** A, B > C, B > A
Depressed mood, N (%)	9 (56·3)	6 (37·5)	163 (29·6)	$\chi^2 = 5·6$ A > C°
Generalized anxiety, N (%)	10 (62·5)	7 (41·2)	71 (12·9)	$\chi^2 = 39·3$***
Panic, N (%)	3 (18·8)	5 (29·4)	31 (5·6)	$\chi^2 = 19·0$***

Significance of the overall comparison: *$P < 0·05$; **$P < 0·01$; ***$P < 0·001$.
Significance between specific groups: °$P < 0·05$.

Table 2. *Comparison of illness worry groups on help-seeking and disability*

Variables	A Illness worry without medical illness $N = 16$		B Illness worry with medical illness $N = 17$		C Control $N = 554$		Test statistic χ^2 (df = 2)
	N	%	N	%	N	%	
Sought help due to somatic symptoms (past 3 months)	13	86·7	11	84·6	151	51·6	12·1**
Used emergency service	2	12·5	4	25	38	6·9	7·9*
Visited a family physician	11	68·8	10	62·5	213	38·6	9·3**
Consulted a specialist	9	56·3	7	43·8	130	23·6	12·0**
	Mean	(S.D.)	Mean	(S.D.)	Mean	(S.D.)	F
Days in the past 3 months unable to do usual activities due to somatic symptoms	8·3	(23·1)	19·0	(25·1)	2·9	(10·9)	11·3 (2, 312)*** B > A, C

*$P < 0·05$; **$P < 0·01$; ***$P < 0·001$.

significant difference (χ^2(df = 1) = 1·0, $P = 0·21$). Both illness worry groups had more chronic conditions, medical problems diagnosed in the past year, and functional somatic symptoms than the control group. Life events were more common in the group with illness worry without medical illness than in the controls, and a similar trend existed for the illness worry with medical illness group. Psychological distress, as measured by the GHQ, was significantly elevated in both illness worry groups compared to the

control groups, and highest in the illness worry with medical illness group. The CIDI probe questions for panic and generalized anxiety were endorsed significantly more frequently in both illness worry groups as compared to the controls, and the CIDI probe for depression was significantly more frequent in the illness worry without medical illness group than in the controls.

Table 2 presents results on help seeking and disability. Health care utilization was elevated in

Table 3. *Multiple linear and logistic regression models for somatic symptoms, help-seeking, and disability*

Dependent variable: somatic symptoms	Model 1			Model 2		
	B	S.E.	T	B	S.E.	T
Constant	−6·5	0·45	−1·36	−1·06	0·48	−2·23
Independent variables						
Age	0·01	0·01	0·41	0·00	0·01	−0·40
Female sex	0·57	0·15	3·88**	0·54	0·15	3·66**
Married	−0·02	0·14	−0·14	0·02	0·15	−017
Education > high school	−0·28	0·16	−1·76	−0·28	0·28	−1·80
Unemployed	0·36	0·15	2·41*	0·34	0·15	2·27*
Immigrant	0·02	0·14	0·14	0·08	0·15	0·52
Illness worry	0·54	0·08	6·97***	0·49	0·08	6·26***
Chronic medical illness and/or new medical diagnosis in past year				0·49	0·15	3·35***
Adjustced R^2	0·17			0·19		

Dependent variable: help-seeking	OR	95% CI		OR	95% CI	
Variables						
Age	1·02	1·00, 1·03		1·01	1·00, 1·03	
Sex	1·20	0·73, 2·00		1·16	0·71, 1·92	
Married	1·16	0·73, 1·85		1·13	0·70, 1·81	
Education	0·65	0·39, 1·11		0·64	0·38, 1·09	
Employed	1·19	0·72, 1·98		1·20	0·72, 1·87	
Immigrant	1·13	0·70, 1·81		1·16	0·72, 1·87	
Illness worry	1·50*	1·10, 2·06		1·46*	1·07, 2·01	
Chronic medical illness and/or new medical diagnosis in past year				1·57	1·00, 2·53	

Dependent variable: days off work due to somatic symptoms in past 3 months	B	S.E.	T	B	S.E.	T
Constant	−7·00	3·90	−1·79	−9·47	4·16	−2·28
Variables						
Age	0·05	0·04	1·25	0·03	0·04	0·84
Sex	0·86	1·26	0·69	0·84	1·27	0·66
Married	2·67	1·18	2·26*	2·71	1·19	2·27*
Education	0·31	1·32	0·24	0·23	1·33	0·17
Employed	2·17	1·29	1·68	2·04	1·30	1·57
Immigrant	−1·58	1·19	−1·33	−1·28	1·20	−1·06
Illness worry	1·49	0·56	2·68**	1·33	0·57	2·35*
Chronic medical illness and/or new medical diagnosis in past year				2·15	1·22	1·76
Adjusted R^2	0·06			0·07		

*$P < 0·05$; **$P < 0·01$; ***$P < 0·001$.

both illness worry groups as compared to controls. This included increased visits to general practitioners, specialists and emergency services, as well as hospitalizations. Disability, as measured by the number of days the subject was unable to perform their usual activities due to somatic symptoms, was highest in the illness worry with medical illness group, and there was a trend for the illness worry without medical illness group to report greater disability than the control group. In the overall group of patients who reported illness worry, 17 of 28 (61%) had at least one day of the past month in which they could not perform their usual activities, compared to 66 of 328 (20%) of the comparison group who did not have illness worry ($\chi^2(df = 1) = 23·8$, $P < 0·001$).

To verify that the greater disability seen in the illness worry with medical illness group was not simply due to the higher rate of medical illness, disability rates were examined more closely by separating the control group into subjects with chronic medical illness or recent medical diagnoses from those without. The same differences were seen, with the illness worry with medical illness group having significantly greater dis-

ability than both of the other groups. As well, the illness worry without medical illness group had greater disability than the medically-well control group.

To determine the impact of illness worry on health and disability in the whole sample, multiple regression models including illness worry were used to predict three dependent variables (Table 3): (1) somatic symptoms; (2) help-seeking due to somatic symptoms; and (3) disability due to somatic symptoms. For each dependent variable, the first model used all of the sociodemographic items, and the illness worry item as independent variables. The second model added a medical illness dummy variable defined as having a value of 1 if chronic medical illness or a new medical diagnosis in the past year were reported, and 0 if neither were reported. The third model added an interaction variable defined as having a value of 1 if a chronic medical illness or new medical diagnosis was reported and illness worry was also present, and 0 if the medical variable and the illness worry variable were not both present together. Illness worry, female sex, being unemployed and having medical illness were all significant predictors of having functional somatic symptoms. Illness worry was a significant predictor of help-seeking and disability, while in both cases medical illness approached significance ($P = 0.07$ and $P = 0.08$ respectively). Being single was the only other significant predictor of disability. The interaction of illness worry and medical illness was not a significant predictor in any of the analyses.

DISCUSSION

The results of this study indicate that the full ICD-10 or DSM-IV diagnosis of hypochondriasis is rare in the community. This may be related to the difficulties in applying criteria designed for use in a clinical setting to epidemiological studies. For example, the criteria that requires that physical causes have been ruled out makes it impossible to give a diagnosis of hypochondriasis when a physician has not been consulted. In addition, it is difficult in a community survey to assess whether the possibility of having a serious illness was sufficiently investigated and that appropriate reassurance was given. The WHO study identified the

reassurance criteria as a 'bottle-neck' in the diagnosis of hypochondriasis, and set it aside, to create an abridged diagnosis (Gureje et al. 1997). Following this recommendation, we found a rate of 1.3 % for abridged hypochondriasis which is lower than that seen in studies of primary care. This may reflect the help-seeking behaviour that is associated with this disorder.

The only other community-based study of hypochondriasis used DSM-III-R criteria and reported a much higher rate of 4.5 % (Faravelli et al. 1997); these results are comparable to the prevalence rates found in studies of clinical populations (Barsky et al. 1990; Kirmayer & Robbins, 1991; Escobar et al. 1998; Garcia-Campayo et al. 1998). This discrepancy may reflect differences in the populations or sampling methods, such as the use of the CIDI in our study and the WHO study, which may be a more stringent diagnostic instrument than those used in other studies of hypochondriasis. While the sample in the present study was stratified by ethnicity, there is no obvious reason why this would significantly lower our rates of hypochondriasis. Illness worry may be influenced by cultural differences in styles of talking about the body, but tests comparing the frequencies of various definitions of illness worry found no significant difference between Canadian-born and non-Canadian born subjects in our sample.

Because illness worry may be related to an underlying medical disease, this study compared subjects with and without a medical condition that accounted for the expressed level of concern. These two groups differed qualitatively in the type of illness that concerned them. The majority of subjects with unexplained illness worry feared catastrophic, fatal illnesses such as AIDS and cancer. The subjects with illness worry accounted for by a medical condition, tended to be concerned about common chronic medical illnesses such as coronary artery disease, diabetes and arthritis. This group was somewhat older, which is consistent with their reports of medical problems that present later in life. This marked difference in sources of worry suggests these two groups may differ in cognitive processes regarding illness. The relationship between the two illness worry groups and the clinical diagnosis of hypochondriasis cannot be determined by this study due to the limitations of the CIDI, however, the unexplained illness worry

group is descriptively closer to the ICD-10 and DSM-IV diagnosis.

Both illness worry groups had higher rates of medical problems, functional somatic symptoms, and psychiatric symptoms, than the control group. This replicates the results of studies in clinical populations that found high levels of co-morbid psychiatric disorders (Barsky *et al*. 1990; Noyes *et al*. 1994; Robbins & Kirmayer, 1996; Gureje *et al*. 1997) and medical illness (Barsky *et al*. 1990; Robbins & Kirmayer, 1996; Gureje, 1997). The degree of physical disability in the overall illness worry group is similar to that reported in other studies (Barsky *et al*. 1990; Gureje *et al*. 1997). Both illness worry groups also had increased use of healthcare services. In addition, although both groups had increased distress measured by the GHQ, and increased number of days unable to perform their usual activities, the illness worry with medical illness group had significantly higher scores on both measures. Regression analyses demonstrated that illness worry remained an independent contributor to distress, help-seeking, and disability, when medical illness was included in the model. Although there did not appear to be an interaction between illness worry and medical illness, this may be due to a lack of statistical power to detect an interaction.

This study reveals that although the full diagnosis of hypochondriasis is relatively rare in the community population, illness worry is an important contributor to help-seeking and disability in general. Furthermore, the impact of illness worry was seen in subjects who reported unexplained illness worry, as well as in those who described illness worry that seemed to be accounted for by an existing medical problem. This has clinical implications for possible interventions aimed at reducing illness worry among patients even when it may typically be regarded as a normal response to their condition. A limitation of this study was the use of a single categorical item for the assessment of illness worry. Future work can expand on the results of this study by investigating hypochondriasis beyond the scope of the established diagnostic category. This would include investigating hypochondriacal worry as a dimensional variable in the community setting, examining the relevance of the nature and severity of illness causing the concern, and comparing subjects

with unexplained illness worry to those whose worry seems to be accounted for by an existing medical problem. More careful assessment may reveal that these two groups have different illness cognitions.

REFERENCES

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders*, *4th edn*. American Psychiatric Association: Washington, DC.

Barsky, A. J., Cleary, P. D., Sarrie, M. K. & Klerman, G. L. (1993). The course of transient hypochondriasis. *American Journal of Psychiatry* **150**, 484–488.

Barsky, A. J., Wyshak, G., Klerman, G. L. & Latham, K. S. (1990). The prevalence of hypochondriasis in medical outpatients. *Social Psychiatry and Psychiatric Epidemiology* **25**, 89–94.

Bland, R. C., Orn, H. & Newman, S. C. (1988). Lifetime prevalence of psychiatric disorders in Edmonton. *Acta Psychiatrica Scandinavica* **77** (suppl. 338), 24–32.

Escobar, J. I., Gara, M., Waitzkin, H., Cohen Silver, R., Holman, A. & Comptom, W. (1998). DSM-IV hypochondriasis in primary care. *General Hospital Psychiatry* **20**, 155–159.

Faravelli, C., Salvatori, S., Galassi, F., Aiazzi, L., Drei, C. & Cabras, P. (1997). Epidemiology of somatoform disorders: a community survey in Florence. *Social Psychiatry and Psychiatric Epidemiology* **32**, 24–29.

García-Campayo, J., Lobo, A., Pérez-Echevarría, M. J. & Campos, R. (1998). Three forms of somatization presenting in primary care settings in Spain. *Journal of Nervous and Mental Disease* **186**, 554–560.

Goldberg, D. P. (1972). *The Detection of Psychiatric Illness by Questionnaire*. Oxford University Press: London.

Goldberg, D. P. & Hillier, V. F. (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine* **9**, 139–145.

Gureje, O., Üstün, T. B. & Simon, G. E. (1997). The syndrome of hypochondriasis: a cross-national study in primary care. *Psychological Medicine* **27**, 1001–1010.

Kirmayer, L. J. & Robbins, J. M. (1991). Three forms of somatization in primary care: prevalence, co-occurence, and sociodemographic characteristics. *Journal of Nervous and Mental Disease* **179**, 647–655.

Kirmayer, L. J., Galbaud du Fort, G., Young, A., Weinfeld, M. & Lasry J.-C. (1996). Pathways and barriers to mental health care in an urban multicultural milieu: an epidemiological and ethnographic study. *Culture & Mental Health Research Unit, Report No. 6*, Sir Mortimer B. Davis – Jewish General Hospital: Montreal, Canada.

Noyes, R., Kathol, R. G., Fisher, M. M., Phillips, B. M., Suelzer, M. T. & Woodman, C. L. (1994). Psychiatric comorbidity among patients with hypochondriasis. *General Hospital Psychiatry* **16**, 78–87.

Paykel, E. S., Myers, J. K., Diendelt, M. N., Klerman, G. L., Lindenthal, J. J. & Pepper, M. P. (1969). Life events and depression: a controlled study. *Archives of General Psychiatry* **25**, 340–347.

Paykel, E. S., Prusoff, B. A. & Uhlenhuth, E. H. (1971). Scaling of life events. *Archives of General Psychiatry* **25**, 340–347.

Pennebaker, J. W. & Watson, D. (1991). The psychology of somatic

symptoms. In *Current Concepts of Somatization* (ed. L. J. Kirmayer and J. M. Robbins), pp. 25–27. American Psychiatric Press: Washington, DC.

Robbins, J. M. & Kirmayer, L. J. (1996). Transient and persistent hypochondriacal worry in primary care. *Psychological Medicine* **26**, 575–589.

Swartz, M., Hughes, D., George, L., Blazer, D., Landerman, R. & Bucholz, K. (1986). Developing a screening index for community studies of somatization disorder. *Journal of Psychiatric Research* **20**, 335–343.

Wittchen, H.-U., Robins, L. N., Cottler, L. B., Sartorious, N., Burke, J. D. & Regier, D. (1991). Cross-cultural feasibility, reliability and sources of variance of the composite international diagnostic interview (CIDI). *British Journal of Psychiatry* **159**, 645–653.

World Health Organization (1990). *Composite International Diagnostic Interview* (*CIDI*). World Health Organization: Geneva.

World Health Organization (1993). *ICD-10, The ICD-10 Classification of Mental and Behavioural Disorders, Diagnostic Criteria for Research*. World Health Organization: Geneva.