

## ORIGINAL PAPER

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## Prevalence of somatoform disorders in a psychiatric population: an Italian nationwide survey

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**Abstract** The survey involved 50 centres comprising both hospital and community psychiatric care services throughout Italy. Overall, 2620 patients were recruited, and of those 2002 (76%) completed the Somatoform Disorders Schedule (SDS), a CIDI-derived interview. The NOS somatoform disorders (SDs) diagnosis appeared to be the most common (60%) (and they showed the highest number of co-morbid diagnoses), followed by pain disorders (8%). The prevalence of undifferentiated somatoform and hypochondriacal disorders was 1.6%; older age groups showed a tendency towards higher rates of the latter. In general, the study found that a significant percentage of patients with SDs are referred to psychiatric services, but mainly because of other psychopathological problems: in

fact, somatic complaints are cross-sectionally present in different psychiatric nosological categories. This study also emphasizes some limitations of the current classification of SDs.

**Key words** Somatoform disorders · Epidemiology · Co-morbidity · Somatoform Disorders Schedule

### Introduction

Somatoform disorders (SDs) bear remarkable economic and social costs (Isaac et al. 1995). In the United States patients suffering from these disorders account for approximately one fifth of the national health budget, and the cost of a single somatizing patient amounts to nine times the average per capita cost of the whole health service. Moreover, SDs are among the primary causes of absence from work (Lipowsky 1988). Therefore, there has been an understandable increase in the number of epidemiological studies to quantify and characterize relevant risk factors and, above all, to define the best pathways to care for patients affected by SDs through the health system (Escobar 1987; Swartz 1991).

As far as psychiatric services are concerned, it is not yet clear at what stage in their history SDs affected patients should receive psychiatric attention, nor indeed whether they require it at all.

The aims of our study were: (a) to assess percentages of patients with SDs in the psychiatric care system; (b) to calculate the specific frequencies of various socio-demographic variables (i.e. age, marital status, rural or city residency, education level, socio-economic status, type of employment, housing conditions); and (c) to assess co-morbidity with other psychiatric disorders.

### Methods

The survey involved 50 centres throughout Italy. The centres were randomized after stratification according to geographical area. Italy was divided into four macroareas: the North (8 regions), the

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Centre (5 regions), the South (5 regions) and the islands (2 regions). Such distinction means a different distribution of both average per capita incomes and the average quality of the public psychiatric services supplied (CENSIS 1994). One centre every 1,000,000 inhabitants was chosen in each macroarea. Four centres which did not join the survey were replaced by four centres in the same macroareas. Each centre recruited a sample of at least 40 randomly selected patients. All patients were eligible for the study regardless of psychiatric disorder and diagnosis.

In each centre at least two members of the staff were trained together, in a single 5-day course, in both the use of the study instruments and the protocol procedures. Patient recruitment started simultaneously in all centres according to a randomized design (one patient every ten visits, by means of hazard numbers 1–10). Patients were eligible for the study if they had been referred with a request for treatment, or if they were already being treated by that service, regardless of their diagnosis.

Probands were administered the Somatoform Disorders Schedule (SDS), a CIDI-derived interview developed by the World Health Organization (Janca et al. 1995). The SDS is a highly standardized diagnostic instrument useful for assessing SDs according to ICD-10 (WHO 1992) and DSM-III-R criteria in different cultures and settings. The symptom-related questions of the SDS are presented in three sections (somatization, hypochondriasis, neurasthenia). The symptom-related questions in the SDS are fully structured and are answered by either fixed alternatives or a number. For each of the main groups of symptoms the onset and recency of symptoms and their interference with work and other usual activities are elicited. A brief sections on demographics and a section summarizing symptoms are also included.

The SDS is accompanied by a reference manual and a computerized data input and scoring program for ICD-10 and DSM-III-R. All interviews were collected centrally, reviewed and processed for diagnoses and statistical analysis. Overall, 2620 patients were recruited; 2002 (76.4%) completed statistically significant interviews.

Males accounted for 43.7% of the final sample (see Table 1), and females accounted for 58.3%. Central age classes were modal, with young adults accounting for 48.5% and older adults accounting for 35.8%; there were remarkably fewer young (10.2%) and elderly patients (5.5%). Most of the probands were married (43.4%), whereas 40.6% of them were single; a moderately high number of patients were widowed (6.9%), separated (5.7%) or divorced (3.3%); 3.9% of the patients were recruited from day-hospital settings, whereas 37.4% of them were being treated in out-patient facilities, and 58.7% were inpatients in a psychiatric ward; 45.7% of the patients were from northern Italy, 24.9% from central Italy, 17.1% from southern Italy and 12.2% from Sicily and Sardinia.

No standardized diagnosis is available with regard to the patients who refused to join the survey. Their conditions were diagnosed by methods routinely used by the centres to which they belonged. However, there are no statistically significant differences from the sample recruited if five overall classes related to the main

diagnosis made according to different classifications (non-affective functional psychoses, mood disorders, anxiety, personality disorders, etc.) are considered.

As for the average age of the group of patients who were not interviewed, no statistically significant differences were shown from the average age of the whole sample of people who refused to join the survey. However, within the four age classes considered, subjects over 65 years were potentially represented more extensively among the patients who had refused to join the survey (8.1% vs 5.5%).

## Data analysis

Data were processed by means of a software program specially designed for that purpose, according to CIDI diagnostic algorithms (Robins et al. 1989).

In a subsequent analysis exclusion criteria were dropped and SDs were no longer limited to the absence of mood or psychotic disorders. Odds ratios were computed for all non-somatoform psychiatric disorders, namely depression, mania, schizophrenic disorders, generalized anxiety, panic attacks and phobia, as assessed by the relevant section of the SDS, according to DSM-III-R.

Lifetime prevalence of each disorder was computed.

## Results

Table 2 shows lifetime prevalence of the clinical diagnoses we made from our sample; the cumulative percentage is higher than 100 due to co-morbidity. The most frequent diagnosis was: not-otherwise-specified (NOS) SDs. However, a category with better-defined criteria, such as somatoform pain disorder, was also present in over 8% of the patient sample.

Prevalence of hypochondriacal disorder was 1.6%, the same as that of undifferentiated SD (USD) whereas somatization disorder was much rarer (0.1%). Table 3 shows lifetime diagnosis according to gender and age. Data analysis on gender distribution showed no statistically significant differences, with the exception of NOS SDs, which showed a significantly higher prevalence among women (71.3 vs 58.9%, OR = 1.8,  $\chi^2 = 34.04$ ,  $P < 0.001$ ). Somatization disorder was absent among males.

There is a tendency towards higher rates of hypochondriasis among older age groups, with statistical signifi-

**Table 1** Socio-demographic characteristics of the sample

Gender	%	Civil status	%
Male	43.6	Married	43.5
Female	56.1	Single	40.6
		Widowed	6.9
		Separated/divorced	9.1
Age (years)		Education (years)	
< 24	10.2	1– 5	27.7
25–44	48.6	6– 8	27.0
45–65	35.7	9–13	32.0
> 65	5.5	> 13	13.3

**Table 2** Lifetime diagnoses according to DSM-III-R

Diagnosis <sup>a</sup>	<i>n</i>	%
Somatoform disorder not otherwise specified	1321	65.9
Generalized anxiety	659	32.9
Depressive episode	629	31.4
Panic attacks	426	21.3
Phobias	352	17.6
Psychotic disorders	286	14.3
Somatoform pain disorder	177	8.8
Manic episode	132	6.6
Hypochondriasis	31	1.6
Undifferentiated somatoform disorder	31	1.6
Somatization disorder	2	0.1

<sup>a</sup> More than one condition may be diagnosed in any patient

**Table 3a** DSM-III-R lifetime diagnosis according to gender and age (females)

<sup>a</sup> From < 24 to 64 years more at risk vs > 65 (NOS-SDs, GAD  $P < 0.005$ , SPD, PD phobias  $P < 0.01$ )  
<sup>b</sup> < 24 and > 65 years at risk ( $P < 0.05$ )  
<sup>c</sup> < 24 and 25–44 years at risk ( $P < 0.05$ )  
<sup>d</sup> From 45 to > 65 years at risk ( $P < 0.01$ )  
<sup>e</sup> 44–65 years at risk ( $P < 0.05$ )  
 All values are percentages Chi-Square with 3 *d.f.* and homogeneity test between cells, Chi-square with 1 *d.f.*

Age (years)	< 24	25–44	45–64	> 65	Total
Somatoform disorder not otherwise specified (NOS-SDs)	70.2 <sup>a</sup>	72.5 <sup>a</sup>	72.4 <sup>a</sup>	59.2	71.3
Somatoform pain disorder (SPD)	9.8 <sup>a</sup>	9.4 <sup>a</sup>	8.7 <sup>a</sup>	4.9	8.9
Hypochondriasis	0.9	0.6	2.7 <sup>d</sup>	2.5 <sup>d</sup>	1.7
Undifferentiated somatoform disorder	3.5 <sup>b</sup>	0.8	1.2	2.5 <sup>b</sup>	1.3
Somatization disorder	0	0.2	0.2	0	0.2
Schizophrenia	14.0 <sup>c</sup>	17.2 <sup>c</sup>	11.2	2.3	14.3
Manic episode	8.8 <sup>c</sup>	7.4 <sup>c</sup>	5.6	4.9	6.7
Depressive episode	29.8	28.2	44.3 <sup>e</sup>	32.0	34.6
Panic disorders (PD)	27.1 <sup>a</sup>	26.6 <sup>a</sup>	22.1 <sup>a</sup>	13.5	24.1
Phobias	17.5 <sup>a</sup>	23.1 <sup>a</sup>	17.0 <sup>a</sup>	9.8	19.3
Generalized anxiety disorder (GAD)	32.4 <sup>a</sup>	40.1 <sup>a</sup>	35.6 <sup>a</sup>	27.2	36.7

**Table 3b** DSM-III-R lifetime diagnosis according to gender and age (males)

<sup>a</sup> < 24 and 25–44 years at risk ( $P < 0.05$ )  
<sup>b</sup> < 24, 25–44 and 45–64 years at risk ( $P < 0.05$ )  
<sup>c</sup> 25–44 and 45–64 years at risk ( $P < 0.01$ )  
<sup>d</sup> 25–44, 45–64 and > 65 years at risk ( $P < 0.05$ )  
<sup>e</sup> 45–64, > 65 years at risk ( $P < 0.05$ )  
 All values are percentages Chi-Square with 3 *d.f.* and homogeneity test between cells, Chi Square with 1 *d.f.*

Age (years)	< 24	25–44	45–64	> 65	Total
Somatoform disorder not otherwise specified	60.7	60.1	56.4	65.8	65.5
Somatoform pain disorder	4.5	9.0 <sup>c</sup>	10.3 <sup>c</sup>	1.6	8.7
Hypochondriasis	0	0	2.3 <sup>e</sup>	1.6 <sup>e</sup>	1.4
Undifferentiated somatoform disorder	0	2.2 <sup>d</sup>	1.6 <sup>d</sup>	3.4 <sup>d</sup>	1.8
Somatization disorder	0	0	0	0	0
Schizophrenia	14.0 <sup>a</sup>	17.2 <sup>a</sup>	11.2	12.3	14.4
Manic episode	9.1 <sup>b</sup>	5.8 <sup>b</sup>	6.6 <sup>b</sup>	3.4	6.2
Depressive episode	25.2	27.0	29.0	24.1	24.1
Panic disorders	16.8 <sup>b</sup>	20.6 <sup>b</sup>	15.3 <sup>b</sup>	10.3	18.1
Phobias	16.8	16.6	14.0	13.7	13.7
Generalized anxiety disorder	24.2	29.9	28.0	24.1	24.1

cance in older adults (between 44 and 65 years of age) as well as in the elderly (2.6% > 44 years vs 0.4 > 44 years, OR = 2.53,  $\chi^2 = 6.3$ ,  $P < 0.01$ ).

Somatoform pain disorder was poorly presented among elderly people of both genders. However, unlike USDs, this disorder may also be shown among young women.

Married patients risk NOS SDs (64.3%, OR = 1.33,  $\chi^2 = 9.16$ ,  $P < 0.001$ ) and hypochondriasis (2.1%, OR = 2.08,  $\chi^2 = 3.9$ ,  $P < 0.05$ ), whereas the prevalence of these disorders is low among never-married patients (NOS SDs = 56.1%, OR = 0.61,  $\chi^2 = 11.13$ ,  $P < 0.001$ , hypochondriasis = 0.7%, OR = 0.34,  $\chi^2 = 5.38$ ,  $P < 0.05$ ). However, if a stratified analysis is made according to age, this data loses statistical significance with regard to hypochondriasis ( $\chi^2 = 2.1$  with the Mantel Haenzel method). Conversely, a different profile is shown with regard to USDs (married = 5.4%, OR = 0.61,  $\chi^2 = 7.27$ ,  $P < 0.01$ ; never married = 9.0%, OR = 1.55,  $\chi^2 = 6.48$ ,  $P < 0.01$ ). Stratified analysis, conducted by the same method, does not show any confusing effect caused by the age factor. This means that any statistically significant differences between married and never-married groups are kept, although the age factor is considered in the comparison.

Better-educated classes run low risk for hypochondriasis and somatoform pain disorder, reaching statistical sig-

nificance in the group between 9 and 13 years of education (hypochondriasis = 0.8%, OR = 0.28,  $\chi^2 = 7.03$ ,  $P < 0.01$ ); (somatoform pain disorders = 6.4%, OR = 0.62,  $\chi^2 = 6.65$ ,  $P < 0.01$ ). These classes are poorly affected by NOS SDs.

The analysis of geographical distribution shows a tendency towards higher odd ratios for Sicily and Sardinia, and ratios lower than one in the northern regions of Italy for the entire group of disorders: statistically significant differences in NOS SDs (63.4%, OR = 0.88,  $\chi^2 = 4.9$ ;  $P < 0.05$ ) and somatoform pain disorder (7.5%, OR = 0.73,  $\chi^2 = 3.8$ ,  $P < 0.05$ ) were shown in the North.

Differences tend to flatten out, but do not disappear when the data is stratified according to the location of the service, i.e. urban or rural.

Table 4 shows co-morbidity patterns: again, NOS SDs were the most frequent psychiatric disorders among those analysed. Hypochondriasis was never shown to be associated with panic attacks, and USDs were less frequently in association with other psychopathological conditions, and was not associated with mood disorders and generalized anxiety.

If one drops the exclusion rules, which make the diagnoses of SDs ineffective when somatic symptoms appear only with other disorders, the percentage of hypochondri-

**Table 4** Co-morbidity profiles according to DSM-III-R

Diagnoses	No. of subjects	No. of co-morbidity diagnoses	Average no. of co-morbidity diagnoses
Somatoform pain disorder	177	485	2.8
Hypochondriasis	31	65	2.1
Undifferentiated somatoform disorders	31	17	0.6
NOS somatoform disorders	1321	3199	2.5
Total	1560	3766	2.5

acal disorders increases slightly (45; 2.5%) and that of USDs increases substantially (145; 7.24%). Other disorders remain unchanged. However, none of the eight hypochondriasis cases added through this procedure were associated with panic attacks; likewise, none of the 114 new cases of USDs were associated with generalized anxiety. On the contrary, there were 105 (91%) new cases of USDs associated with mood disturbances; of the eight new cases of hypochondriasis, six were female and seven were elderly patients.

Inclusion of hypochondriacal cases associated with other disorders makes the higher frequency of this disorder in the elderly highly significant (10.9%; OR = 6.7,  $\chi^2 = 39.2$ ,  $P < 0.001$ ).

## Discussion

Because NOS SDs were found to be the most frequent diagnosis (60%), the relevance of somatization in general and the high frequency of somatic symptoms in psychiatric settings seem to have been further proved. However, this also shows the drawbacks of an all-embracing category. This finding is very likely to be influenced by the lack of studies providing a clearer clinical and diagnostic definition of SDs.

The lack of diagnostic specificity with regard to NOS SDs may have involved using it for cases the clinician would have most likely diagnosed only on the basis of the main syndrome, ignoring somatic complaints.

Not-otherwise-specified SDs bring together a variety of different clinical features the common denominator of which is that they do not fully meet the criteria of any of the other specific SDs. Therefore, this diagnostic concept is so extensive that it does not allow any useful patient profile to be defined. Testimony to this is also provided by the excessively high average number of co-morbidity diagnoses, as shown in Table 4, and by the fact that practically no patients with diagnosed NOS SDs alone refer to psychiatric services.

The fact that 63.4% of depressive disorders feature an additional diagnosis of NOS SDs calls for greater attention to somatoform symptoms within other psychiatric disorders, i.e. for a better definition of these sometimes overlapping concepts.

Apart from NOS SDs, specific forms of SDs may be diagnosed in approximately 12.2% of the interviewees. This figure shows the burden of this often poorly understood illness on mental health services.

The very low prevalence of somatization disorders is in line with similar ECA Study published data (Simon and von Korff 1991; Escobar et al. 1987). Once again, this issue raises the question of the usefulness of this diagnosis, for reasons differing from those expected for NOS SDs.

The absence of somatization disorders among male patients has been confirmed (Escobar et al. 1987; Robins et al. 1984; Blazer et al. 1985). The diagnostic significance and specificity found for USDs stands out: not only is such disorder high relatively prevalent in our sample, but very rare co-diagnoses and a high number of cases with absolutely no psychiatric co-morbidity have been found as well. However, as suggested by Kroenke et al. (1997), in primary care the DSM-IV diagnostic criteria for somatization disorders are too restrictive, and those for USDs are overly inclusive. They suggest replacing the latter with the new category of multisomatoform disorder defined as three or more medically unexplained currently bothersome physical symptoms plus a long ( $\geq 2$  years) history of somatization, and a co-diagnosis of mood or anxiety disorders should not be precluded.

It is pointed out that some community surveys conducted in Italy testified to the significant role of this diagnostic category in the general population. Faravelli et al. (1997) observed in Florence that the prevalence of USDs in a year was 13.4%, whereas in an area in southern Sardinia our group (Carta et al., in press) showed a lifetime prevalence of the same disorder of 8.9% in males and 23.3% in females, respectively. The study conducted in Florence resulted in numerous psychiatric co-diagnoses similar to ours (0.78 vs 0.66%), thus further testifying to a significant number of "pure" cases unassociated with anxiety or mood disorders. According to the study conducted in southern Sardinia and some literature findings in the general population (Swartz et al. 1986; Bland et al. 1988), females are associated with a remarkably higher frequency. This apparently clashes with the results of our study, which show a ratio between males and females of 1 to 4. The reason may be that we chose a different population for our study (a psychiatric instead of a general population). However, it should be pointed out that, according to the Italian community survey results, males with diagnosed USDs tended to refer to specialists, whereas women usually preferred to refer to general practitioners. Therefore, the data we gathered may result from male patients' tendency to refer to psychiatric services. The comparison with the community survey shows that a diagnostic category accounting for 10–20% of the general population is poorly represented in the psychiatric population. It is emphasized that increased depression, which had approximately 13% prevalence in community surveys carried out in the same areas (Faravelli et al. 1990; Carta et al. 1995), lower than that of USDs, was found in approximately 30% of the sample patients who were referred to the psychi-



atric services analysed in our study; therefore, such patients are seldom referred to psychiatric services.

The analysis of geographical distribution showed some differences, thus emphasizing the role of socio-cultural variables in co-determining the onset and course of somatic symptoms.

Our data on frequencies of SDs in educational classes are in line with some of the results of the ECA Study, showing SDs were more frequent in lower-income classes (Escobar et al. 1987).

A different trend was shown for the NOS SDs, possibly because this category is so poorly defined that its profile is strongly affected by co-morbidity patterns, particularly when depression is involved, at least in our sample.

Several preliminary suggestions can be made with regard to co-morbidity. The higher frequency of hypochondriasis associated with other psychiatric disorders among women might stem from the fact that co-morbidity is mainly connected with the various subtypes of depression, to which women are more prone.

Undifferentiated SDs was rarely shown as compared with our expectations and the literature findings (Faravelli et al. 1997). Although the reasons for this are difficult to explain, this might result from the fact that most patients were under pharmacological treatment, which affected medium-severe somatic symptoms, leaving, both the most disturbing and, above all, the most trivial ones unaffected. The general population and psychiatric patients might also differ significantly in this respect.

## Conclusion

Our study shows that a significant percentage of patients with specific SDs refer to psychiatric services and, in general, somatic complaints are present in different psychiatric disorders. This study also emphasizes some limitations of current classification; its two extremes, i.e. somatization disorders and NOS SD, are too restrictive for the former, and far too broad for the latter. The fact that USDs is relatively rarely diagnosed is also a key point in other studies which involved general population or primary care. Both factors might mean an overall difference between psychiatric patients and the general population, although they might also stem from an excess of selectivity in all the diagnostic categories except the NOS category. Moreover, the geographical prevalence patterns seem to further prove the influence of socio-cultural variables on somatic symptom presentations.

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## References

- American Psychiatric Association (1987) Diagnostic and statistical manual of mental disorders (DSM-III-R), 3rd edn, revised. American Psychiatric Press, Washington, DC
- Bland RC, Newman SC, Orn H (eds) (1988) Epidemiology of psychiatric disorders in Edmonton. *Acta Psychiatr Scand Suppl*
- Blazer D, George LK, Landerman R, Pennybacker M, Melville ML, Woodbury M, Manton KG, Jordan K, Locke B (1985) Psychiatric disorders. A rural/urban comparison. *Arch Gen Psychiatry* 42: 651–656
- Carta MG, Altamura AC (in press) Epidemiology of somatoform disorders. *Minerva Psichiatr*
- Carta MG, Carpiniello B, Kovess V, Porcedda R, Zedda A, Rudas N (1995) Lifetime prevalence of major depression and dysthymia: results of a community study in Sardinia. *Eur Neuropsychopharmacol* 5 [Suppl]: 103–107
- CENSIS Centro Studi e Investimenti Sociali (1994) La attuazione della riforma psichiatrica nel quadro delle politiche regionali, Roma
- Escobar JI (1987) Cross cultural aspects of the somatization trait. *Hosp Commun Psychiatry* 38: 174–180
- Escobar JI, Burnam A, Karno M, Forsythe A, Golding JM (1987) Somatization disorder in the community. *Arch Gen Psychiatry* 44: 713–718
- Faravelli C, Salvatori S, Galassi F, Aiazzi L, Drei C, Cabras P (1997) Epidemiology of somatoform disorders: a community survey in Florence. *Soc Psychiatry Psychiatr Epidemiol* 32: 24–29
- Faravelli C, Guerrini Degl'Innocenti B, Aiazzi L, Incerpi G, Palanti S (1990) Epidemiology of mood disorders: a community survey in Florence. *J Affect Disord* 20: 135–141
- Isaac M, Janca A, Burke KC (1995) Medically unexplained somatic symptoms in different cultures. A preliminary report from phase I of the World Health Organization International Study of Somatoform Disorders. *Psychother Psychosom* 64: 88–93
- Janca A, Burke JD Jr, Isaac M, Burke KC, Costa Silva EJA, Acuda SW, Altamura AC, Chandrashekar CR, Miranda CT, Tacchini G (1995) The WHO Somatoform Disorders Schedule: a preliminary report on design and reliability. *Eur Psychiatry* 10: 373–378
- Kroenke K, Spitzer RL, Gruy de FV III, Hahn SR, Linzer M, Williams JBW, Brody D, Davies M (1997) Multisomatoform disorder. *Arch Gen Psychiatry* 54: 352–358
- Lipowsky ZJ (1988) Somatization: the concept and its clinical application. *Am J Psychiatry* 45: 1358–1368
- Robins LN, Helzer JE, Weissman MM, Orvaschel H, Gruenberg E, Burke JD Jr, Regier DA (1984) Lifetime prevalence of specific psychiatric disorders in three sites. *Arch Gen Psychiatry* 41: 949–958
- Robins LN, Wing J, Wittchen HU, Helzer JE, Babor TF, Burke J, Farmer A, Jablenski A, Pickens R, Regier DA, et al (1989) The Composite International Diagnostic Interview: an epidemiologic instrument suitable for use in conjunction with different diagnostic system and in different cultures. *Arch Gen Psychiatry* 45: 1069–1077
- Simon GE, Korff M von (1991) Somatization and psychiatric disorders in the NIMH Epidemiologic Catchment Area Study. *Am J Psychiatry* 148: 1494–1500
- Swartz M, Blazer DG, George L, Landerman R (1986) Somatization disorder in a community population. *Am J Psychiatry* 143: 1403–1408
- Swartz M, Landerman R, George L, Blazer DG, Escobar JL (1991) Somatization disorder. In: Robins LN, Regier DA, Freedman DX (eds) *Psychiatric disorders in America: the Epidemiologic Catchment Area Study*. Free Press, New York, pp 220–257
- World Health Organization (1992) The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. WHO, Geneva