Relationship of Somatic Symptoms With Depression Severity, Quality of Life, and Health Resources Utilization in Patients With Major Depressive Disorder Seeking Primary Health Care in Spain

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Objective: To investigate the relationship between the characteristics of somatic symptoms and depression severity, quality of life (QOL), and health resources utilization in patients with major depressive disorder (MDD) in primary care setting.

Method: This cross-sectional, nationwide epidemiologic study, carried out in 1150 primary care patients with DSM-IV–defined MDD, evaluated the characteristics of somatic symptoms by means of the Standardized Polyvalent Psychiatric Interview. Depression severity and QOL were evaluated by means of the Zung Self-Rating Depression Scale (SDS) and the Physical and Mental Component Summaries of the Medical Outcomes Study 12-item Short-Form Health Survey. Health resources utilization was measured in terms of doctor consultations and hospitalizations. The associations were assessed by means of adjusted analyses. The study was carried out from April 2004 to July 2004.

Results: Disability associated with somatic symptoms and number of somatic symptoms were strongly associated with increased depression severity (2.45 and 0.29 increase in SDS score, respectively) and health resources utilization (odds ratios of 1.42 and 1.04, respectively). Associated disability, frequency, and persistence during leisure time of somatic symptoms were strongly associated with poorer QOL. In contrast, we found a weaker relationship between duration and intensity of somatic symptoms and depression severity, QOL, and health resources utilization.

Conclusions: Of the studied somatic symptom characteristics, somatic symptom–associated disability and number of somatic symptoms are strongly associated with increased depression severity and health resources utilization, as well as with decreased QOL. Our results may help physicians identify relevant characteristics of somatic symptoms to more effectively diagnose and treat depression in primary care patients.

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Major depressive disorder (MDD) is a highly prevalent mental disorder in primary care. Patients with MDD present with a broad range of symptoms including core emotional symptoms such as low mood, loss of interest, poor concentration, and associated anxiety and somatic symptoms such as lack of appetite, sleep disturbance, lack of energy, and general aches and pains.[1–4]

In particular, depression-related somatic symptoms often dominate in primary care. Approximately two thirds of patients with depression in the primary care setting present with somatic symptoms.[5,6] Patients usually attribute their somatic symptoms to normalizing causes, making depression difficult to recognize in patients who present with chiefly somatic symptoms.[7] Among these,

painful somatic symptoms are most frequent,[4,6] being responsible for disability in 41% of patients with depression.[8] Moreover, the relationship between chronic pain and depression is well documented. Whereas depression is common in patients with chronic pain, pain is a frequent complaint in patients with depression,[5,9] and its presence is associated with poorer quality of life (QOL).[10]

Several studies have shown that depression-related somatic symptoms are associated with increased depression severity,[11] health resources utilization,[12] and impaired QOL.[11,13] However, few studies have addressed specific characteristics of somatic symptoms, such as total number of somatic symptoms, intensity, or interference with activities that are most important. Evaluating the characteristics of somatic symptoms when assessing patients will contribute to more effectively recognizing and treating depression in patients who present with mainly somatic symptoms.

The objective of this study was to investigate the relationship between the characteristics of depression-associated somatic symptoms, such as number, intensity, duration, associated disability, and persistence, and 3 measures of health, i.e., depression severity, QOL, and utilization of health resources, in a large population of patients with depression in primary care in Spain. We hypothesized that there would be an independent relationship between the specific characteristics of depression-associated somatic symptoms and the studied health measures.

METHOD

Study Centers and Patients

Data were collected from 79 primary health care centers widely distributed across Spain. One primary care physician with prior experience in the clinical management and research of depression was endorsed to conduct the study at each site. Participation was proposed only to those primary care physicians in their regular practices, so that they were aware of the patients' background and history. All participating physicians attended a 1-day training session prior to study commencement to establish uniform criteria as to the use of the assessment instruments and data collection.

A systematic procedure was used to screen patients among those seeking medical consultation between April and July 2004 for any reason with the physician involved. A signed consent form for the collection and use of the patients' clinical data in accordance with the regulation regarding personal data protection was obtained from all participating patients. The study protocol was reviewed and approved by the ethical review board of the Hospital Universitario Puerta de Hierro in Madrid, Spain. The study was carried out from April 2004 to July 2004.

Study Design

This was a 2-stage, cross-sectional, multicenter epidemiologic study. The first stage consisted of screening patients with respect to depressive mood by means of the Spanish validated version of the Goldberg Anxiety and Depression Scale (GADS).[14] Patients with 3 or more positive responses on the 9-item depression scale went on to the second stage, in which a thorough collection of demographic and clinical data was made. The Mini-International Neuropsychiatric Interview (MINI)[15] was used to establish the diagnosis of MDD according to the *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition (DSM-IV).[16]

Study Measures

Demographic and clinical data collected included age, gender, occupational and marital status, concomitant medications, and concomitant prevalent diagnoses.

The somatic symptoms module of the Standardized Polyvalent Psychiatric Interview (SPPI) described by Lobo et al.[17] was administered to depressed patients to identify and characterize their somatic symptoms. This interview consisted of 2 parts. The first part gathered information about the presence of up to 42 symptoms specific to the gastrointestinal, pain, pseudo-neurologic/conversion, cardiopulmonary, and gynecologic-sexual areas by means of a systematic checklist and included a general item regarding the number of symptoms that, in the opinion of the primary care physician based on his/her clinical judgment, were not fully explained by an organic origin. The second part of the SPPI included the characteristics of those somatic symptoms not fully explained by an organic origin, which were described in terms of intensity, frequency, relationship with psychological distress, persistence during leisure time, associated disability, duration, and the patient's attribution of the symptoms' origin by means of 5-point Likert-type categorical scales, where 0 corresponds to the least severe category and 4 to the most (apart from the item addressing the attribution for which the options do not have an intrinsic order; in this case, 0 refers to complete psychological and 4 to complete organic attribution).

To complement the SPPI, a visual analog scale (VAS)[18] was used to estimate of the intensity of each of the pain symptoms investigated (back pain, limb pain, join pain, urinary pain, and other pain except headache) and to classify patients into 2 categories: no/mild pain (scores less than 40 mm) and moderate/severe pain (any pain score greater than or equal to 40 mm).

The Spanish validated version of the Zung Self-Rating Depression Scale (SDS)[19,20] was used to evaluate the severity of depression. The SDS is a 20-item self-reported measure of the symptoms of depression that includes statements about cognitive, somatic, psychomotor, and affective symptoms. Each item is scored from 1 to 4; thus,

the global score ranges from 20 to 80. According to Conde-López and Esteban,[19] a transformed score ranging from 25 to 100 can be obtained by multiplying the global score by 1.25. This can be used to express outcome in a categorical fashion: no/unimportant depression (SDS transformed score < 50), mild depression (transformed score 50 to 59), moderate or marked depression (transformed score 60 to 69), and severe or extreme depression (transformed score ≥ 70).

Health-related QOL was evaluated with the Spanish Standard Version of the Medical Outcomes Study 12-item Short-Form Health Survey (SF-12 Spanish [Spain] Standard Version 1.0. The Health Institute, New England Medical Center, 1994; available from the author upon request). It provides an accurate reproduction of the Physical Component Summary (PCS) and Mental Component Summary (MCS) scores of the Medical Outcomes Study Short-Form 36 (SF-36), but requires considerably less time for administration and is self-reported. The 12 items provide a representative sampling of the content of 8 health concepts: physical and social functioning, role-physical, role-emotional, bodily pain, vitality, general health, and mental health. Scores on the 12-item PCS and MCS were obtained using the specific algorithm for scoring patients in Spain. The estimated mean (SD) PCS and MCS scores for the general population in Spain are, respectively, 49.9 (9.0) and 51.8 (9.0).[21,22]

Information on the use of health resources was collected by asking about the use of health care services in terms of hospitalizations and consultations with the following 2 questions: "During the last 12 months, until yesterday, have you been hospitalized for any reason for at least 1 night?" and "Have you consulted with any doctor for any problem or illness during the last 2 weeks (excluding the current visit)?" Answer options were "yes" and "no." These questions have been used extensively in National Health Enquiries.[23,24]

Statistical Analyses

The sample size of the study was calculated to estimate the prevalence of somatic symptoms in primary care patients with a diagnosis of MDD. On the basis of an estimated prevalence of MDD of 14% to 20% in the population seeking consultation in primary care,[25] information from 10,000 patients from the list of appointments of primary care physicians was necessary in order to obtain a sample of patients with depression of approximately 1000 to 1500. With this number of patients, the prevalence of somatic symptoms can be estimated with a precision of 2.2% and a 95% confidence interval, assuming that these symptoms affect 50% of the patients with MDD.

Relevant variables were described for the whole sample using appropriate summary statistics for continuous variables and absolute frequencies and percentages for categorical variables.

Multiple linear regression analysis was used to assess the relationship between somatic symptoms and depression severity as measured by the SDS. Explanatory variables that had a significant association with SDS ($p \leq .05$) were selected in a stepwise procedure from the following initial list: age, sex, occupational status, marital status, current use of antidepressants, total number of symptoms from the SPPI checklist regardless of their etiology, pain category (none/mild or moderate/severe), and characteristics of somatic symptoms not having an organic origin (variation with psychological distress, intensity, frequency, associated disability, duration, persistence during leisure time, and patient's attribution of the symptom's origin). Correlations between pairs of explanatory variables were explored to ensure that there was no redundancy among those chosen. Only 2 pairs were found to have a correlation greater than 0.5: age and number of prevalent diagnoses ($r = 0.56$) and intensity and associated disability of somatic symptoms ($r = 0.56$).

Two linear regression models were used to explore the relationship between somatic symptoms and the 2 components of QOL, namely the PCS and the MCS. Explanatory variables were as listed above for the relationship between somatic symptoms and depression severity, but with the addition of the number of concomitant prevalent diagnoses (from a checklist of 8 diagnoses, given in Table 1) and whether the patient was currently taking an analgesic/anti-inflammatory drug, an antipsychotic, a benzodiazepine, or an antidepressant, rather than just whether he or she was taking an antidepressant.

The odds of having consulted a physician within the previous 2 weeks and of having been hospitalized in the last year were modeled by means of logistic regression with the stepwise selection of explanatory variables having a significant association among those listed above for the QOL linear models.

RESULTS

Demographic and Somatic Symptom Characteristics of Patients

Of the 8215 patients who agreed to participate and were screened by means of the GADS, 1150 were diagnosed with MDD according to DSM-IV criteria using the MINI. Patient demographic and clinical characteristics are summarized in Table 1.

Of the 1026 patients who completed the SPPI item regarding the number of symptoms not fully explained by an organic origin, 954 (93.0%; 95% CI = 91.2% to 94.5%) had at least 1 somatic symptom not fully explained by an organic origin, and 588 (57.3%; 95% CI = 54.2% to 60.4%) had 4 or more of these symptoms. Somatic symptoms not fully explained by an organic origin were of moderate or severe intensity in 56.1% of patients, caused intense and/or frequent disability in 38.1%, had

Table 1. Clinical and Demographic Characteristics of Patients With Major Depressive Disorder (N = 1150)

Characteristic	Total N	N	%
Gender			
Proportion of females	1138	856	75.2
Proportion of males	1138	282	24.8
Current use of medications			
Taking at least 1 medication	1150	908	79.0
Analgesics/anti-inflammatory	1150	616	53.6
Antipsychotics	1150	23	2.0
Benzodiazepines	1149	518	45.1
Antidepressants	1150	356	31.0
Concomitant prevalent diagnoses			
Osteoarthritis	1150	488	42.4
Hypertension or cardiac disease	1150	366	31.8
Dyslipidemia	1150	267	23.2
Diabetes	1150	105	9.1
Allergy	1150	93	8.1
Gastric or duodenal ulcer	1150	85	7.4
Chronic pulmonary diseases	1150	71	6.2
Cancer	1150	31	2.7
Severity of depression (SDS)			
None/unimportant	1049	42	4.0
Mild	1049	185	17.6
Moderate/marked	1049	355	33.8
Severe/extreme	1049	467	44.5
Somatic symptoms not fully explained by an organic origin (at least 1 of these symptoms present)	1026	954	93.0
Any pain (regardless of etiology)	1131	967	85.5
Any cardiopulmonary (regardless of etiology)	1131	912	80.6
Any gastrointestinal (regardless of etiology)	1131	785	69.4
Any pseudoneurologic (conversion) (regardless of etiology)	1131	726	64.2
Hospitalized within the last 12 months	1145	181	15.8
Consulted with a physician within the prior 2 weeks	1148	579	50.4
	Total N	Mean	SD
Age, y	1112	55.0	15.4
No. of somatic symptoms regardless of their etiology	1132	8.1	4.7
Health-related quality of life (SF-12)			
Physical component score	1108	39.4	10.5
Mental component score	1108	29.0	9.3

Abbreviations: SDS = Zung Self-Rating Depression Scale, SF-12 = Medical Outcomes Study 12-item Short-Form Health Survey.

been present for more than 6 months in 52.6%, and were attributed mainly or fully to a psychological origin by 52.2% (Table 2).

Somatic Symptoms and Severity of Depression

Results of the adjusted analysis by confounding factors that explored the relationship between somatic symptoms and depression severity are summarized in Table 3. The strongest associations with depression severity were found with somatic symptom–associated disability ($p < .0001$; with a predicted increase of 2.45 points on the SDS transformed score for every increase of 1 point on the 5-point ordinal disability scale) and number of somatic symptoms ($p < .0001$; with an increase of 0.29 points on the SDS transformed score for each additional somatic symptom). Other independent contributors to depression severity were frequency, intensity, and persistence during leisure time of somatic symptoms (with predicted increases of about 1 point on the SDS transformed score for every increase of 1 point on the 5-point ordinal scales). In contrast, duration of somatic symptoms and attribution of symptoms to an organic origin were found to be inversely associated with depression severity (Table 3). The presence of moderate or severe painful symptoms was not significantly associated with severity of depression.

Somatic Symptoms and Health-Related Quality of Life

Data on the SF-12 were available from 1108 patients. The mean (SD) PCS and MCS scores were 39.4 (10.5) and 29.0 (9.3), respectively. Seventy-seven percent of patients reported that their health was in general fair or poor (item 1 of the SF-12). Pain interference with work was reported to be moderate to extreme by 68.2% of patients, mild by 19.6%, and absent by 12.3% (item 8 of the SF-12). In the past 4 weeks, physical or emotional problems interfering with social activities were present all or most of the time in 43.3% of patients (item 12 of the SF-12).

The results of the adjusted analysis showed a significant association between lower PCS scores and moderate

Table 2. Characteristics of Somatic Symptoms Not Fully Explained by an Organic Origin by the Standardized Polyvalent Psychiatric Interview Among Patients With Major Depressive Disorder

Characteristic	Total N	N	%
Relationship with psychological distress	959		
0 = Absolutely not		50	5.2
1 = Yes, but minimally, no more than usual		125	13.0
2 = Admits that this occurs more than usual, though only occasionally		278	29.0
3 = Moderate increase		352	36.7
4 = Occurs in an extreme or severe manner		154	16.1
Frequency of symptoms	978		
0 = Absent		6	0.6
1 = No more than 1 hour per day, no more than 1 day of the week		107	10.9
2 = Infrequent		262	26.8
3 = Several hours of the day and days of the week		282	28.8
4 = More than 3 hours per day during 4 or more days of the week		321	32.8
Intensity of symptoms	982		
0 = Absence of symptoms		6	0.6
1 = Minimal habitual discomfort		102	10.4
2 = Light intensity		323	32.9
3 = Moderate intensity		432	44.0
4 = Severe or extreme intensity		119	12.1
Persistence during leisure time	981		
0 = Not manifested in such circumstances		98	10.0
1 = Disappear with a minimum effort		132	13.5
2 = With distractions can disappear, but not always		381	38.8
3 = Occasionally disappear		261	26.6
4 = Do not remit at all		109	11.1
Disability associated to symptoms	987		
0 = Not at all		122	12.4
1 = Minimal		216	21.9
2 = Infrequent and not intense disability		273	27.7
3 = Intense but occasional or not intense but frequent disability		224	22.7
4 = Intense and persistent disability		152	15.4
Duration of symptoms	985		
0 = Absent		5	0.5
1 = Only since 1 or 2 days ago		20	2.0
2 = Since 1 month ago or less		145	14.7
3 = Since more than 1 month, but less than 6 months ago		297	30.2
4 = Since more than 6 months ago		518	52.6
Patient's attribution of symptoms	998		
0 = Fully attributed to a psychological origin		268	26.9
1 = Mainly psychological, but doubts about a possible organic origin		253	25.4
2 = Psychological influence, but mainly organic		322	32.3
3 = Mainly organic, but doubts about a possible psychological origin		87	8.7
4 = Fully attributed to an organic cause		68	6.8

or severe pain (with a decrease of 3.40 points on the PCS compared to patients with no or mild pain), somatic symptoms that are more intense (decrease of 1.45 points on the PCS for every increase of 1 point on the corresponding 5-point ordinal scale), symptoms that persist during leisure time (decrease of 0.90 points on the PCS), symptoms that are disabling (decrease of 1.38 points), and symptoms that are attributed mainly to an organic origin (decrease of 1.53 points) (Table 4). Moreover, lower MCS scores were associated with symptoms that worsen with psychological distress (decrease of 0.85 points with every 1-point increase on the corresponding 5-point ordinal scale), more frequent symptoms (decrease of 1.04 points), symptoms that persist during leisure time (0.60-point decrease), symptoms that are disabling (1.51-point decrease), and more psychological attribution (increase of 1.55 points of MCS score with each 1-point increase in the corresponding scale, where higher scores mean that a greater degree of attribution is given to organic causes) (Table 4).

Somatic Symptoms and Health Resources Utilization

In our study, 50.4% of patients consulted a physician within the previous 2 weeks, and 15.8% were hospitalized during the past 12 months. In the adjusted analysis, patients with a greater number of somatic symptoms, presence of symptoms that are disabling, and/or presence of symptoms mainly attributed to an organic origin had higher odds of being hospitalized during the last year and having consulted a physician within the previous 2 weeks. Of note is that the odds of having consulted a physician within the previous 2 weeks increased by 1.42 times with each increase of 1 point on the 5-point disability scale and by 1.04 times with each additional somatic symptom. Interestingly, the odds of having consulted a physician recently decreased significantly as the frequency of

Table 3. Results of the Linear Regression Model Constructed to Explore the Relationship Between Somatic Symptom Characteristics and Depression Severity[a]

Independent Variables Significantly Associated With Depression Severity[b]	Estimate of Regression Coefficient	t	p
Disability associated with symptoms[c] (0 = not at all to 5 = intense and persistent disability)	2.4533	8.44	< .0001
No. of symptoms[d] (continuous variable)	0.2872	4.00	< .0001
Frequency of symptoms (0 = absent to 4 = more than 3 hours per day during 4 or more days a week)	1.1974	3.60	.0003
Persistence during leisure time (0 = not at all to 4 = do not remit at all)	0.9461	3.11	.0020
Age (continuous variable)	0.0637	2.69	.0074
Intensity of symptoms (0 = absence of symptoms to 4 = severe or extreme intensity)	0.9332	2.04	.0418
Patient's organic attribution of symptoms (0 = fully attributed to a psychological origin to 4 = fully attributed to an organic cause)	–0.8354	–3.14	.0018
Duration of symptoms[e] (0 = absence of symptoms to 4 = more than 6 months)	–1.4035	–3.64	.0003

[a]The dependent variable is the transformed score of the Zung Self-Rating Depression Scale (SDS). This analysis used data from 828 patients. All p values were calculated with 814 degrees of freedom.
[b]Marital status also showed a significant and independent association with SDS score.
[c]Disability associated to symptoms was predictive of depression severity ($p < .0001$), with an increase of 2.45 points in the SDS score for every increase of 1 point on the 5-point disability scale.
[d]Number of symptoms was predictive of depression severity ($p < .0001$), with an increase of 0.29 points in the SDS score for every additional symptom.
[e]Duration of symptoms was predictive of depression severity ($p = .0003$), with a decrease of 1.4 points in the SDS score for every increase of 1 point on the 5-point duration of symptoms scale.

Table 4. Results of the Linear Regression Model Constructed to Explore the Relationship Between Somatic Symptom Characteristics and Quality of Life[a]

	Dependent Variable (PCS of the SF-12)			Dependent Variable (MCS of the SF-12)		
Independent Variables Significantly Associated With QOL[b]	Estimate of Regression Coefficient	t	p	Estimate of Regression Coefficient	t	p
Organic attribution of symptoms (0 = fully attributed to a psychological origin to 4 = fully attributed to an organic cause)	–1.5299	–5.53	< .0001	1.5453	5.52	< .0001
Disability associated with symptoms (0 = not at all to 5 = intense and persistent disability)	–1.3812	–4.66	< .0001	–1.5068	–5.31	< .0001
Age (continuous variable)	–0.1291	–5.50	< .0001			
Pain category (moderate or severe vs no or mild pain)	–3.3992	–4.96	< .0001			
Intensity of symptoms (0 = absence of symptoms to 4 = severe or extreme intensity)	–1.4533	–3.20	.0014			
Persistence during leisure time (0 = not at all to 4 = do not remit at all)	–0.9034	–2.88	.0040	–0.6015	–1.98	.0485
Frequency of symptoms (0 = absent to 4 = more than 3 hours per day during 4 or more days a week)				–1.0425	–3.09	.0021
Relationship with psychological distress (0 = absolutely not to 4 = severe increase of symptoms with psychological distress)				–0.8465	–2.68	.0074
No. of symptoms (continuous variable)	–0.1480	–2.03	.0422			

[a]The dependent variables are the PCS and MCS scores of the SF-12. This analysis used data from 805 patients for PCS and 865 for MCS. All p values were calculated with 795 degrees of freedom for PCS and 853 for MCS.
[b]The number of concomitant prevalent diagnoses also showed a significant and independent association with PCS and MCS scores; the current use of analgesic/anti-inflammatory drugs, antipsychotics, benzodiazepines, or antidepressants, with PCS score; and marital status, with MCS score.
Abbreviations: MCS = Mental Component Summary, PCS = Physical Component Summary, QOL = quality of life, SF-12 = Medical Outcomes Study 12-item Short-Form Health Survey.

symptoms increased, that is, as the persistence of symptoms in the patient increased (Table 5).

DISCUSSION

Our study supports previous data showing that patients with MDD in the primary care setting commonly have somatic symptoms not fully explained by an organic origin.[4,5,7,8] The present study adds considerably to these findings, as it reflects data from a large sample of patients in primary care who presented with chiefly somatic symptoms. We found that 57.3% of patients with MDD in primary care have 4 or more somatic symptoms not fully explained by an organic origin and that somatic symptoms are associated with increased depression severity and health resources utilization and decreased QOL.

Positive associations were found between most of the evaluated characteristics of somatic symptoms (number,

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Table 5. Odds Ratios (ORs) of Being Hospitalized in the Last Year and of Having Consulted a Doctor in the Last 2 Weeks and 95% Confidence Intervals (CIs), Calculated for Statistically Significant Independent Variables Considered in the Logistic Regression Models

	Any Doctor Consultation in the Last 2 Weeks		Hospitalization Within the Last Year for Any Reason	
Independent Variables Significantly Associated With Health Resources Utilization[a]	OR	95% CI	OR	95% CI
No. of symptoms				
0 (reference)	1.0		1.0	
1	1.043	1.011 to 1.076	1.063	1.021 to 1.106
4	1.183	1.043 to 1.341	1.275	1.087 to 1.497
8	1.399	1.088 to 1.799	1.627	1.181 to 2.240
Frequency of symptoms				
0 = Absent (reference)	1.0			
1 = No more than 1 hour, no more than 1 day	0.777	0.672 to 0.899		
2 = infrequent	0.604	0.452 to 0.808		
3 = Several hours of the day and days of the week	0.470	0.304 to 0.727		
4 = More than 3 hours during 4 or more days	0.365	0.204 to 0.653		
Associated disability				
0 = Not at all (reference)	1.0		1.0	
1 = Minimal	1.417	1.252 to 1.602	1.184	1.014 to 1.383
2 = Infrequent and not intense disability	2.007	1.568 to 2.568	1.402	1.028 to 1.912
3 = Intense but occasional or not intense but frequent disability	2.843	1.964 to 4.114	1.660	1.043 to 2.644
4 = Intense and persistent disability	4.027	2.460 to 6.593	1.966	1.057 to 3.655
Patient's attribution				
0 = Fully attributed to a psychological origin (reference)	1.0		1.0	
1 = Mainly psychological, but doubts about a possible organic origin	1.182	1.050 to 1.329	1.352	1.155 to 1.581
2 = Psychological influence, but mainly organic	1.396	1.104 to 1.767	1.827	1.335 to 2.499
3 = Mainly organic, but doubts about a possible psychological origin	1.650	1.159 to 2.348	2.469	1.542 to 3.951
4 = Fully attributed to an organic cause	1.950	1.218 to 3.121	3.336	1.782 to 6.247

[a]The number of concomitant prevalent diagnoses also showed a significant and independent association with the odds of being hospitalized in the last year and of having consulted a doctor in the last 2 weeks; occupational status, with the odds of being hospitalized in the last year; and the use of analgesic/anti-inflammatory drugs, antipsychotics, benzodiazepines, or antidepressants, with the odds of having consulted a doctor in the last 2 weeks.

frequency, persistence during leisure time, and associated disability) and depression severity. The strongest association with depression severity was found with somatic symptom–related disability. These results are consistent with those reported by Von Korff et al.,[26,27] who examined depression levels as a function of different dimensions of chronic pain (intensity, interference with activities, pain days in the prior 6 months, and number of body sites in which a pain problem was reported) among primary care patients by means of a multivariate analysis. These authors found that the interference with activities was a much stronger predictor of depression than pain intensity and that the number of pain sites was significantly associated with depression symptom levels. In our study, the association between pain intensity and depression severity was not statistically significant. However, a positive relationship between pain intensity and depression severity has been previously described in psychiatric outpatient consultations.[5,12] One possible explanation for the different results is that we categorized patients solely on the basis of the intensity of pain, while in other studies,[5,12] the painful experience was evaluated using more comprehensive strategies (such as the bodily pain subscale of the SF-36, the somatic symptom scale of the 15-item Patient Health Questionnaire, or the Somatic Symptom Inventory) that integrated measurements of the burden, the interference with work activities, and the duration of the pain. Interestingly, we found an inverse association between the duration of somatic symptoms and depression severity.

In regard to the relationship between somatic symptoms and QOL, we found that the mean QOL of the study population was below the normal reference value for the Spanish general population,[21] as expected. The presence of somatic symptoms had a significant inverse association with QOL, a finding also recently reported in the psychiatric setting by Muñoz et al.[12] In particular, there was a strong association between pain severity and the physical component of QOL, but not the mental component as reported previously.[7] This may be due to the different definitions of pain intensity used. In our study, the evaluation of pain intensity was based on VAS, while Bair et al.[5] used the SF-36 pain intensity item that includes interference with work activities. On the other hand, most of the evaluated characteristics of somatic symptoms (number of somatic symptoms, disability, persistence) were associated with decreased QOL. Contrary to other research work, we did not find duration of somatic symptoms to be inversely associated with QOL.

The proportion of MDD patients who consulted a doctor within the past 2 weeks or were hospitalized in the past 12 months was twice the proportion of the Spanish general population.[28] In addition, we found that somatic symptom–associated disability and number of somatic symptoms have a positive and independent association

with the use of health services. These findings support previously published data in different settings and different health care systems.[13,29,30] In our study, the odds of having consulted a doctor in the last 2 weeks increased with more incapacitating symptoms and were increased by 4.03 times in patients with intense and persistent disability. When we looked at the number of somatic symptoms, we found that the odds ratio of having consulted a doctor in the past 2 weeks increased with the number of symptoms. These results are consistent with recently published data showing that the perceived disability is an independent factor associated with the use of health services in patients with MDD[31] and that the presence of numerous somatic symptoms (medically explained or medically unexplained) is significantly associated with greater health service utilization.[32]

There are several limitations to this study. The sample was limited to patients with MDD, and therefore the results cannot provide information on somatic symptoms related to other depressive disorders or nondepressed populations. The cross-sectional design of the study and the instruments used do not permit an investigation of the possible causal relationships between somatic symptoms and depression. However, the study may serve as the basis for future clinical and therapeutic studies of depression in primary care. Finally, patients were screened on the basis of their visits to their primary care physician; thus, the results cannot be extrapolated to those not visiting their primary care physician.

CONCLUSIONS

Somatic symptom–associated disability and number of somatic symptoms are strongly associated with increased depression severity and health resources utilization, as well as with decreased QOL. Our results may contribute to helping primary care physicians identify relevant characteristics of somatic symptoms in order to more effectively diagnose and treat depression in primary care patients.

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