A Cross-Sectional Study of Somatic Symptoms and the Identification of Depression Among Elderly Primary Care Patients

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Objective: To examine the relationship between somatization and depression as rated by primary care physicians.

Method: This study was a cross-sectional survey of 355 older adults with and without significant depressive symptoms. Physicians' ratings of somatization and depression were obtained for 341 of the 355 patients. Patients were sorted into 4 groups on the basis of physician ratings (no depression/no somatization, somatization only, depression only, and both somatization and depression). Data were collected from 2001–2003.

Results: Patients who were rated as somatizing were 4.03 (95% CI, 2.52–6.45) times as likely to be rated as depressed as well as somatizing. A comparison of the 4 groups defined by physicians' ratings found that functional status, ethnicity, number of medical conditions, depressive symptoms, and anxiety were statistically significantly different ($P < .05$). Primary care physicians were 3.95 (95% CI, 1.53–10.16) times more likely to identify older black patients as somatizing only versus depressed and somatizing compared to older white patients among patients above a threshold on a standard depression instrument.

Conclusions: Our study fills a gap in the literature by focusing on the primary care physician ratings of depression and somatization, and also specifically on older primary care patients. Blacks are less likely to be rated as depressed, but this may reflect the tendency of doctors to rate them as somatizing.

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Somatization, the presentation of medically unexplained symptoms, is very common in primary care. Somatic complaints are the cause of up to half of all primary care visits¹ and result in increased medical care expenditures, utilization of health care resources, disability,^{2–5} and reduced quality of life.⁶ Findings from community^{7,8} and psychiatric settings^{9,10} report that increasing age may predict somatization. Somatic presentations of depression are reported to be more common among women, blacks, and persons from lower socioeconomic backgrounds.^{11–15} Depression is a common feature of somatization, and, in a majority of cases, the clinical presentation of depression is dominated by somatic symptoms such as headache, constipation, weakness, or general aches and pains.^{16,17} Internationally, the percentages of depression with somatic presentation range from 45% to 95% among patients in 14 countries and on 5 continents.¹⁶

Prior research has noted a close link between somatization and depressive disorders in the elderly,¹⁸ building on the historical view that “masked depression” underlies somatization.^{19,20} Researchers have found depression is less likely to be recognized in patients who present with predominantly somatic complaints compared to patients who present with predominantly psychological complaints.^{21–23} Primary care physicians frequently explore organic diseases and fail to consider depression as a diagnosis,²⁴ which may contribute to high rates of unrecognized and untreated depression in primary care,^{21,25,26} particularly among the elderly.²⁷ Primary care physicians may pursue a lengthy investigation of somatic symptoms rather than considering depression as a possible diagnosis.²⁸

Our goal was to examine the association between somatization and depression as rated by primary care physicians. In addition, we investigated the characteristics of patients who were identified by the physician as somatizing, depressed, or both depressed and somatizing. Our conceptual framework was a simplified version of the model suggested by Cooper and colleagues (Figure 1).²⁹ In this model, attitudes and familiarity with the practice influence the relationship between patient characteristics and the identification of depression and/or somatization by primary care physicians.

CLINICAL POINTS

- ◆ Somatic symptoms appear to function as a barrier to the detection of depression.
- ◆ Ethnicity plays an important role in the identification and management of depression.
- ◆ Clinicians should be aware of the close association of somatic symptoms and depression among older primary care patients.

In our study, we tested 2 hypotheses. The first hypothesis was that primary care physicians would be more likely to identify elderly patients as depressed who were also identified as somatizing. Our second hypothesis was that primary care physicians would be more likely to identify older male patients and older black patients as somatizing only versus depressed and somatizing compared to older female patients and older white patients, respectively, among patients above a threshold on a standard depression instrument. A further understanding of the identification of depression and/or somatization in primary care among older adults is an advantage in designing a mental health intervention appropriate to primary care settings.

METHOD

The Spectrum Survey

The Spectrum Study was an observational study designed to characterize how depression presents among older primary care patients. Details of the study design of the Spectrum Study are available elsewhere.^{30,31} In summary, primary care practices recruited from the community provided the venue for sampling older patients. Trained lay interviewers were instructed in screening and interviewing by the study investigators working with Battelle Memorial Institute's Center for Public Health Research and Evaluation located in Baltimore, Maryland.

Participants who agreed to be part of the study were scheduled for an in-home interview that consisted of a 90-minute survey questionnaire. In-home interviews were obtained for 357 people, but 2 persons did not complete the interview, leaving a sample of 355 persons. The study protocols were approved by the Institutional Review Board of the School of Medicine, University of Pennsylvania, Philadelphia, and all participants signed consent forms. Data were collected from 2001–2003.

Physician Assessment of Depression and Somatic Symptoms

Physicians were asked to provide their assessment of the patient's depression at the index visit. Physicians were asked to rate the patient's level of depression on the following 4-point scale: none at all, mild, moderate, or severe. For this investigation, physician identification of

depression was defined as including ratings of mild, moderate, and severe. Physicians were also asked to rate the patient's focus on medically unexplained somatic complaints on a 5-point scale: none, a little, somewhat, significant, or a great deal. The presence of somatic symptoms was defined as including ratings of a little, somewhat, significant, or a great deal. Finally, physicians were asked to rate how well they knew the patient (very well, somewhat, or not at all).

Patient Assessment

We used standard questions to obtain information from the respondents on age, gender, marital status, self-reported ethnicity, education, and the number of visits made to the practice for medical care within 6 months of the index visit. We asked patients whether they agreed or disagreed with 3 statements about depression and its treatment.³² The statements were "I believe depression is a medical problem"; "If my doctor told me I had depression, I could accept that"; and "I would take a medicine for depression if my doctor told me to." Questions from the 36-item Medical Outcomes Study Short-Form (SF-36) General Health Survey were used to assess functional status.^{33,34} The SF-36 has been employed in studies of outcomes of patient care^{33–37} and appears to be reliable and valid even in frail elders.³⁸

Baseline medical comorbidity was measured by summing the lifetime presence of chronic diseases or conditions, including myocardial infarction, angina, congestive heart failure, atrial fibrillation, hypertension, diabetes mellitus, osteoarthritis, Parkinson's disease, stroke, and hip fracture. The Centers for Epidemiologic Studies–Depression (CES-D) scale was developed for use in studies of depression in community samples.^{39–41} The standard CES-D questionnaire contains 20 items and has been employed in studies of older adults.^{42,43} In this study, we employed the CES-D as a continuous score, but we also categorized patients whose CES-D score was 16 and above as depressed.

The Beck Anxiety Inventory (BAI)⁴⁴ was developed in order to measure the severity of anxiety symptoms, and it has been shown to be an appropriate instrument for measuring symptoms of anxiety in the elderly. The BAI is a 21-item, self-report instrument designed to minimize the relationship of symptoms of anxiety and depressive

Figure 1. Conceptual Framework of Physician Identification of Somatization and Depression^a

^aAdapted with permission from Cooper et al.²⁹

symptoms. Total scores range from 0 to 63. The Mini-Mental State Examination (MMSE)⁴⁵ is a short standardized mental status examination that has been widely employed for clinical and research purposes. The MMSE has been extensively studied, as reviewed by Tombaugh and McIntyre⁴⁶ and by Crum and colleagues.⁴⁷

Analytic Strategy

We carried out our analyses in 2 steps. The first step involved comparing characteristics of patients identified by their physician as (1) no depression/no somatization, (2) somatization only, (3) depression only, and (4) both depression and somatization using χ^2 or 2-tailed *t* tests as appropriate for categorical or continuous data. An α of .05 was used to evaluate statistical significance, recognizing that statistical methods are guides to inference. In the second step, we employed separate multivariate logistic regression models to assess physician ratings of somatizing only compared to somatizing and depressed among patients with a CES-D score > 16 . In model 1, we adjusted for age, gender, ethnicity, marital status, level of educational attainment, functional status, and depressive and anxiety symptoms. In model 2, we adjusted for attitudes about depression and its treatment, the number of visits to the practice in the 6 months prior to interview, and the doctors' rating of how well they knew the patient as well as the terms included in model 1. We adjusted for practice-clustering effects by using generalized estimating equations for binary outcomes. Data analysis was performed using SPSS version 12 (SPSS Inc, Chicago, Illinois).

RESULTS

Study Sample

Our study sample included 355 participants who had completed a baseline in-home interview. In all, 14 participants were excluded because of incomplete physician assessments for depression and somatization, leaving a sample size of 341 for this analysis. The age range of our study sample was 65–92 years; 257 of the participants were women (75.4%) and 118 were black (34.6%).

Relationship of Somatization and Depression

Patients who were rated as somatizing were 4.03 (95% CI, 2.52–6.45) times as likely to be rated as depressed as well as somatizing. Black patients who were rated as somatizing were 4.60 (95% CI, 1.94–10.89) times as likely to be rated as depressed as well as somatizing. White patients who were rated as somatizing were 3.94 (95% CI, 2.20–7.09) times as likely to be rated as depressed as well as somatizing.

Patient Characteristics and Physician Identification of Somatization and/or Depression

A comparison of the 4 groups (no depression/no somatization, somatization only, depression only, both depression and somatization) defined by physicians' ratings, ethnicity, number of medical conditions, functional status, depressive symptoms, and anxiety were statistically significantly different. The no depression/no somatization and somatization-only groups had higher proportions of black patients compared to the depression-only and depression and somatization groups. The mean scores on all measures of functional status (physical functioning, role physical, role emotional, social functioning, bodily pain, and general health perception) were higher in the no depression/no somatization and somatization-only groups compared to the depression-only and depression and somatization groups. The depression-only and depression and somatization groups had higher mean numbers of medical conditions, depression scores, and anxiety scores compared to the no depression/no somatization and somatization-only groups (Table 1).

Primary care physicians were 3.95 (unadjusted, 95% CI, 1.53–10.16) times more likely to identify older black patients as somatizing only versus depressed and somatizing compared to older white patients among patients with CES-D scores ≥ 16 . In multivariate models that controlled for age, gender, ethnicity, marital status, level of educational attainment, functional status, depressive and anxiety symptoms, attitudes about depression and its treatment, the number of visits to the practice in the 6 months prior to interview, and the doctor's rating of how well they knew the patient, the likelihood of identification as somatizing only in comparison with both somatization and depression increased (adjusted odds ratio = 4.98; 95% CI, 1.64–15.17) among patients with CES-D scores ≥ 16 . A significant association was not found between gender and physician identification of somatization only versus both somatization and depression (Table 2).

DISCUSSION

In this community-based primary care sample, patients rated as somatizing were more likely to be rated as depressed as well as somatizing. Our findings indicate that primary care physicians were more likely to identify older

Table 1. Characteristics of the Study Sample (stratified by physician identification of depression and/or somatization or neither) Among 341 Patients With Complete Information on Physician Identification of Depression and Somatization at the Index Visit^a

Characteristic	No Depression/ No Somatization (n = 81)	Somatization Only (n = 72)	Depression Only (n = 41)	Depression and Somatization (n = 147)	P Value
Sociodemographic					
Age, mean (SD), y	75.2 (6.2)	76.0 (6.2)	75.5 (4.6)	74.7 (5.9)	.49
Women, n (%)	56 (69)	60 (83)	28 (68)	116 (79)	.10
Married or living with partner, n (%)	35 (43)	27 (38)	14 (34)	58 (40)	.79
Less than high school education, n (%)	30 (37)	34 (47)	15 (37)	59 (40)	.57
Black, n (%)	37 (46)	34 (47)	9 (22)	38 (26)	.001*
Attitudes about depression (agreement with statement), n (%)					
I believe depression is a medical problem	57 (70)	59 (82)	29 (71)	109 (74)	.39
If my doctor told me I had depression, I could accept that	66 (82)	65 (90)	33 (81)	134 (91)	.09
I would take medicine for depression if my doctor told me to	69 (85)	63 (88)	37 (90)	133 (91)	.30
Physical health, mean (SD)					
No. of office visits within past 6 mo	3.0 (1.8)	2.8 (3.5)	3.5 (3.9)	3.3 (3.1)	.50
No. of medical conditions	6.5 (3.2)	6.7 (3.1)	8.2 (3.6)	7.8 (3.9)	.01*
Functional status, mean (SD)					
Physical functioning score	64.0 (27.2)	65.1 (28.6)	52.5 (30.6)	53.6 (29.4)	.006*
Role-physical score	51.8 (38.5)	48.2 (43.6)	31.1 (38.6)	40.3 (38.1)	.02*
Role-emotional score	85.6 (31.6)	78.2 (38.0)	77.2 (39.0)	65.6 (41.8)	.002*
Social function score	77.6 (25.2)	74.5 (27.5)	68.3 (33.1)	67.2 (27.1)	.03*
Bodily pain score	59.4 (21.9)	55.9 (23.0)	52.4 (25.2)	50.0 (26.9)	.04*
General health perception score	57.9 (18.5)	55.8 (30.0)	44.9 (20.1)	46.6 (20.3)	<.001*
Cognitive and psychological status, mean (SD)					
MMSE score	27.2 (2.3)	26.6 (3.2)	27.1 (2.4)	27.0 (3.0)	.56
Depression score (CES-D)	10.3 (8.4)	12.2 (11.8)	15.1 (9.5)	18.3 (11.9)	<.001*
Beck Anxiety score	7.6 (7.3)	7.2 (7.6)	8.6 (9.1)	10.8 (8.6)	.02*

^aData from the Spectrum Study (2001–2003).**P* < .05.

Abbreviations: CES-D = Centers for Epidemiologic Studies-Depression scale, MMSE = Mini-Mental State Examination.

Table 2. Association of Patient Characteristics With Identification of Somatization Only Versus Identification of Somatization and Depression as Reported by Primary Care Physicians for Patients With CES-D Score ≥ 16 (n = 118)^a

Characteristic	Unadjusted OR (95% CI)	Model 1 OR (95% CI) ^b	Model 2 OR (95% CI) ^c
Comparison of patients identified with somatization only with patients identified with somatization and depression (CES-D score ≥ 16)			
Black patients (reference group: nonblack)	3.95 (1.53–10.16)	4.24 (1.52–11.79)	4.98 (1.64–15.17)
Female patients (reference group: male patients)	1.00 (0.30–3.38)	0.84 (0.21–3.33)	0.71 (0.15–3.70)

^aData from the Spectrum Study (2001–2003).^bModel 1 includes terms for age, gender, ethnicity, marital status, level of educational attainment, functional status, and depressive and anxiety symptoms.^cModel 2 includes terms for attitudes about depression and its treatment, the number of visits to the practice in the 6 months prior to interview, and the doctors' rating of how well they knew the patient as well as the terms included in Model 1.

Abbreviations: CES-D = Centers for Epidemiologic Studies-Depression scale, OR = odds ratio.

black patients as somatizing only versus depressed and somatizing compared to older white patients among patients above a threshold on a standard depression instrument. The association between patient ethnicity and physician identification of somatization and depression persisted even after controlling for potentially influential variables, including severity of depressive and anxiety symptoms, functional status, medical conditions, and physicians' ratings of how well they knew the patient. A significant association was not found between gender and physician identification of somatization only versus both somatization and depression. Our study adds to the literature examining

the role of ethnicity in the identification and management of mental illness.^{29,48–53}

Before discussing our findings, the limitations of our study deserve comment. First, we obtained our results only from primary care sites in Maryland, whose patients may not be representative of most primary care practices. However, these practices were not academically affiliated and are probably similar to other practices in the country. Second, there is the potential for the sources of error associated with retrospective interview data including imperfect recall and response. Third, the survey instruments used in the study do not necessarily reflect the actual interaction

the patient had with the physician when the patient was assessed by the physician. We do not know if there are ethnic differences in symptom expression during the doctor-patient encounter, and we do not have supplemental ratings of patient behavior or symptoms from other health care workers.

Nevertheless, despite limitations, our study warrants attention because we attempted to address the relationship between the identification of somatization and depression in relation to patient-level factors, while adjusting our estimates of association for demographic factors, functional impairment, psychopathology, medical conditions, and the physicians' ratings of how well they knew the patient. In addition, because we examined a community-based primary care sample, the results may be generalizable to older adults in primary care settings, which may help facilitate identification and treatment of somatic complaints and depression in the future.

Our study differs from others on identification of depression by primary care physicians in several ways. First, our analysis was based on an ethnically diverse sample in contrast to studies in which the patients were predominantly white.^{54,55} Second, our study focused exclusively on patients over the age of 65 years in primary care settings.⁵⁶ Third, we were able to link the patient data to reports of physician identification of depression and somatization simultaneously within 6 months of interview. We did not have to depend on chart reviews. In summary, our study fills a gap in the literature by focusing on the primary care physician ratings of depression and somatization and also specifically on older primary care patients.

No known studies have focused on older adults to assess the relationship between patient characteristics and the identification of somatization and depression. Gallo et al⁴⁹ found that black patients aged 65 years and older were less likely to be identified as depressed and their depression was less likely to be actively managed than older white patients. We acknowledge that race and ethnic origin are crude markers of complex social and behavioral patterns and that designations of ethnicity imply a homogeneity of groups, which is an oversimplification. Ethnicity refers to a common heritage shared by a particular group,⁵⁷ and, consistent with the National Institutes of Health and current research, we use the terms *black* to include individuals of African, African American, and African Caribbean descent and *white* to include individuals of European descent. Our findings indicate that primary care physicians were 4 times more likely to identify older black patients as somatizing only versus depressed and somatizing compared to older white patients among patients with clinically significant depression (CES-D score ≥ 16). The presentation of depression in blacks has previously been found to be more likely to include physical symptoms.^{13,58}

The Institute of Medicine (IOM) report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health*

Care⁵⁹ called attention to disparities in the treatment of illness and delivery of care across ethnic groups, including mental illness. Despite these findings, few studies have focused on the patient-physician encounter to elucidate the mechanisms resulting in these startling disparities.⁴⁹ Sleath and colleagues⁶⁰ found that physicians were more likely to minimize emotional symptoms of blacks than of whites, which led to lower treatment rates for blacks. Cooper-Patrick et al⁵⁶ found that black patients rated their office visits as less participatory than did white patients. To supplement our findings, further research is needed to clarify the underlying differences in presentation of depression and communication style between primary care providers and patients from various ethnic groups.

Our results are not wholly consistent with our hypotheses. Although somatization as well as depression has been found to be more common among women,^{11,12} no significant association was found between gender and physician identification of somatization only versus both somatization and depression. Somatic symptoms appear to function similarly as a barrier to the detection of depression in both men and women. Somatic complaints may impede depression identification by competing for the attention and time of the physicians,⁶¹ especially if a lengthy investigation of somatic symptoms is carried out.²⁸ Patients and physicians may erroneously believe there is no reason to initiate depression treatment, although data indicate that treatment with antidepressants can improve outcomes.^{62,63} The patient-related and physician-related barriers to the detection of depression among men and women with somatic symptoms may be similar.

Findings from our study have implications for enhanced medical education and practice. With greater awareness of biases in the diagnosis of somatization in comparison with depression and somatization among blacks, primary care physicians can begin to explore modification in treatment and care, namely patient-physician communication, which may eventually lead to improved care outcomes. We acknowledge that the recognition and management of somatization and depression in primary care settings is a complex process that is influenced by multiple factors on all levels of analysis: provider, patient, practice, systemic, and policy. Further research is needed to elucidate the mechanisms resulting in ethnic disparities in the care of somatization and depression. In the meantime, physicians who care for older patients from diverse backgrounds should be aware of the close association of somatic symptoms and depression.

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