Sex Differences in Depression Symptoms Among Adult Family Medicine Patients

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Beck Depression Inventory factor structures for men and women were compared to determine whether there are sex differences in self-reported depression symptoms. Subjects were 131 white men and 223 nonpregnant, white women presenting for health care at the University of Missouri–Columbia Family Medical Care Center. Dysphoric mood and performance difficulty were the two major components of depression in both men and women. A third component, unique to men, was labeled interpersonal behavior change; it was characterized by social withdrawal, indecisiveness, and irritability. Health care providers should be alert to interpersonal behavior changes signaling depression in their male patients even in the absence of dysphoric mood.

Accurate diagnosis of depression in the family medicine setting is important. Psychosocial problems in general, and depression in particular, make up a major part of the family physician's practice.[1–5] Appropriate treatment is available, and the consequences of untreated depression can be very serious.

Seller et al[4] identified patient sex as an important diagnostic variable. They administered the Beck Depression Inventory (BDI) to 222 family medicine patients and found no significant difference in the proportions of male and female patients classified as depressed by a BDI score greater than 20. Yet, there was a difference in the proportions of male and female patients given a diagnosis of depression by resident physicians (6 percent of men vs 16 percent of women, $P < .05$ by chi-square). The Seller group concluded that diagnosis of depression by family medicine residents may be influenced by a sex stereotype.

The sex stereotyping hypothesis implies that physicians are more likely to consider depression in women. Alternatively, the manner in which men express depression may make recognition difficult.[6]

A review of the literature indicated that the question of sex difference in the expression of depression had not been addressed in a nonpsychiatric medical setting. Eight studies[7–14] had addressed the question in other settings; sex differences were found in all but one. A subjective review of these differences was consistent with the hypothesis that men express depression less overtly than women. Precise interstudy comparisons were hindered, however, by the variety of psychometric instruments and statistical procedures used.

The current study was undertaken to determine whether there are sex differences in self-reported depression symptoms among adult family medicine patients.

METHODS

This study was conducted at the University of Missouri—Columbia Family Medical Care Center (FMCC) during 58 Monday through Friday, primarily morning, half-day clinic sessions between November 11, 1985, and February 21, 1986. The FMCC is a primary medical care facility staffed by faculty and resident family physicians and family nurse practitioners. Data collection alternated between the two floors of the bilevel clinic.

Eligible subjects were competent English-speaking persons aged 18 years or older who presented to the clinic during the study period. Patients scheduled for laboratory tests only were not included.

Patients belonging to a racial minority group or who were pregnant were asked to complete the study materials, but their responses were excluded from the statistical analyses. Previous research found that black women scored higher on the BDI than other race-sex groups.[15]

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TABLE 1. POTENTIAL STUDY SUBJECTS

Study Status	Male	Female	Total No.(%)
Enrolled in study	154	330	484(88)
Missed (researcher not available)	3	12	15(3)
Skipped (time constraints, etc)	2	10	12(2)
Skipped (not English speaking, etc)	1	10	11(2)
Declined to participate	2	13	15(3)
Incomplete data	4	6	10(2)
Total	166	381	547(100)

The number of minority patients in the current study was too small to rule out a similar interaction of race and sex in relation to the expression of depression. Pregnancy was considered a common extraneous variable that might influence study results regarding sex differences in patient-reported depression symptoms.

Patient-reported depression symptoms were measured by the BDI.[16] The BDI was developed by Beck and colleagues[17] to provide a reliable and valid assessment of depression for research purposes. Items represent 21 symptom-attitude categories selected from Dr. Beck's clinical observations of depression. Following its construction, the BDI was extensively evaluated using psychiatric patients. Salkind[18] studied the BDI in a British general practice and concluded that it is useful for the assessment of depression in that setting.

Adult patients presenting to the FMCC for health care were asked by the researcher to complete a demographic questionnaire and the BDI. All inventories were reviewed before the end of the clinic session. The patient's health care provider or the attending physician was contacted if the patient acknowledged thoughts of self-harm (a response of 2 or 3 to BDI item 9) or had a total BDI score of 30 or more.

The BDI responses of adult white men and nonpregnant adult white women were subjected to separate factor analyses. Factor analysis simplifies data by reducing the number of variables needed to describe it. By simplifying the structure of the BDI, it was hoped that the factor analyses would facilitate a conceptual understanding of possible sex differences in patient-reported depression symptoms. Furthermore, factors were considered preferable to individual items as the units of comparison because of the limited reliability of individual items.

Both factor analyses were principal components analyses subject to varimax rotation after a decision regarding the number of factors to be retained. The number of factors was determined by choosing all factors with eigenvalues greater than or equal to 1.0 and additional factors if indicated by the scree test. Factor interpretability decisions were based primarily on the number and complexity of items with factor loadings greater than or equal to 0.40. A review of items with factor loadings greater than or equal to 0.60 guided the subjective assignment of factor labels.

The BDI factor structures identified for men and women were statistically compared. Given Cattell's[19] recommendation to use more than one procedure when comparing factor structures, the present study employed (1) the congruence coefficient, (2) the salient variable similarity index s, and (3) the configurative transformation method.

RESULTS

Study materials were completed by 88 percent (n = 484) of potential study subjects (Table 1). Age and sex distributions of the sample were similar to age and sex register information for the total practice population.

Three hundred fifty-four subjects were retained after application of the racial and pregnancy exclusions. The subsample of 131 adult white men had a mean age of 38.2 years and a mean BDI score of 7.0. The 223 adult, white, nonpregnant women had a mean age of 39.5 years and a mean BDI score of 7.4. Analyses of variance indicated that neither the sex differences in ages nor BDI scores were significant.

Separate factor analyses of BDI responses by male and female patients each yielded five factors. Factor comparison techniques paired factor 1 for men with factor 1 for women, factor 2 for men with factor 2 for women, and factor 4 for men with factor 4 for women. Sex-specific factors were factors 3 and 5 for men and factors 3 and 5 for women.*

The first three factors for men and the first two factors for women were considered interpretable. The interpretable factors accounted for 43.8 percent of the variance in BDI scores of male patients and 40.9 percent of the variance in BDI scores of female patients.

A review of items with factor loadings greater than or equal to 0.60 guided the subjective assignment of labels to interpretable factors. It appears that the first factor for both men and women (Table 2) reflects the element of depression referred to as "dysphoric mood" in DMS III.[20] Review of the items with high factor 2 loadings (Table 3) prompted the label "performance difficulty." Factor 3 for men (Table 4) was the only sex-specific factor recognized as an interpretable category of depression symptoms. It was labeled "interpersonal behavior change."

* *Complete tables of factor loadings and factor comparison indices are available from the author upon request.*

TABLE 2. DYSPHORIC MOOD FACTOR LOADINGS GREATER THAN OR EQUAL TO 0.60

BDI Item		Factor 1 for Men	Factor 1 for Women
Number	Content		
1	Mood	.66	.67
2	Pessimism	.68	.64
3	Sense of failure		.75
4	Lack of satisfaction		.71
5	Guilty feeling	.75	
6	Sense of punishment	.60	
7	Self-hate		.71
8	Self-accusations	.68	
9	Self-punitive wishes		.69
10	Crying spells		.64
12	Social withdrawal		.71
13	Indecisiveness		.65

BDI—Beck Depression Inventory

TABLE 3. PERFORMANCE DIFFICULTY FACTOR LOADINGS GREATER THAN OR EQUAL TO 0.60

BDI Item		Factor 2 for Men	Factor 2 for Women
Number	Content		
15	Work inhibition	.75	.69
16	Sleep disturbance	.62	
17	Fatigability	.74	.64
20	Somatic preoccupation		.68
21	Loss of libido	.66	.67

BDI—Beck Depression Inventory

DISCUSSION

The identification of separate BDI factor structures for men and women is the major finding of this study. The interpersonal behavior change factor in men is of particular clinical importance. Identification of this sex-specific category of depression symptoms by factor analysis indicates that interpersonal behavior changes in men can occur without the usual depression indicators of dysphoric mood or performance difficulties. Irritability, social withdrawal, and other interpersonal behavior changes in men, therefore, deserve special attention as potential "red flags" for depression.

Health care providers may wish to involve a patient's family when they suspect depression in a male patient. Family members may be acutely aware of the patient's interpersonal behavior changes and performance difficulties. They may also be able to describe subtle changes in the patient's affect.

TABLE 4. INTERPERSONAL BEHAVIOR CHANGE FACTOR LOADINGS GREATER THAN OR EQUAL TO 0.60

BDI Item		Factor 3 for Men
Number	Content	
11	Irritability	.61
12	Social withdrawal	.62
13	Indecisiveness	.62

BDI—Beck Depression Inventory

The use of a mixed sample of depressed and nondepressed patients is a potential limitation of this study. A BDI score of 13 or greater has been recommended for calculating the prevalence of depression in ambulatory medical care settings[15]; in the current study 15.3 percent of male subjects and 15.7 percent of female subjects had BDI scores of 13 or greater. It is consistent with the statistical properties of factor analysis to assume that sex differences identified in this mixed sample of depressed and nondepressed patients hold for the subsample of depressed men and women. Factor analysis identifies variables that move together. It begins with a correlation matrix that reflects how each study variable correlates with every other study variable. Variables that correlate in one subgroup of subjects but not in another are unlikely to emerge as a factor.

This study supports Warren's[6] contention that there are sex differences in the expression of depression that might make depression more difficult to recognize in men. While the study does not rule out the possibility of sex stereotyping by residents advanced by Seller et al[4] as an explanation for misdiagnosis of depression, it suggests that the sex stereotyping explanation is insufficient. Sex differences in patient-reported depression symptoms were demonstrated in this study. Recognition of such differences is considered critical to the early and appropriate diagnosis of depression.

The assessment and treatment of psychiatric disorders are addressed in the behavioral science training of family physicians. Such training should now take into account the finding that there are sex differences in self-reported depression symptoms. The resulting sensitivity to the differential manifestations of depression in men and women may improve the accuracy with which depression is diagnosed in the family medicine setting. Accurate assessment followed by appropriate treatment is expected to increase the likelihood of favorable patient outcomes.

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