

# Organization of Care and Diagnosed Depression Among Women Veterans

Usha Sambamoorthi, PhD; Bevanne Bean-Mayberry, MD, MHS; Patricia A. Findley, DrPH, MSW, LCSW; Elizabeth M. Yano, PhD, MSPH; and Ranjana Banerjea, PhD

Depression is the most common mental illness among the medically ill, with the prevalence ranging from 15% to 61%.<sup>1</sup> Individuals with chronic illness have higher rates of depression than those without chronic illness.<sup>2,3</sup> Among individuals with chronic physical illness, documented or diagnosed depression increases the likelihood of treatment.<sup>4</sup> Because of the high rates of co-occurring medical illness and depression, clinical care has focused on integrating primary and mental healthcare. Investigations that evaluated care models for co-occurring physical and mental illness have found strong evidence in support of integrated care, at least for depression.<sup>5</sup>

However, few studies have examined the association between organizational structures specific to integrated care (ie, mental healthcare integrated with primary care) among individuals with co-occurring medical illness and depression. Indeed, a study<sup>6</sup> on a conceptual framework model to improve the quality of depression treatment reports that research has primarily focused on treatment issues once depression is diagnosed, but little is known about the actual diagnosis of depression. For example, findings from one study<sup>7</sup> suggested that healthcare systems and practices that have integrated primary and mental healthcare may help in recognizing depression. Another study<sup>8</sup> cited the availability and affordability of mental health professionals as organizational barriers for recognizing depression in primary care. Examination of the association between integrated care and diagnosis of depression is important because the actual diagnosis of depression is the starting point for subsequent stages in clinical care for depression (eg, diagnosis and initial treatment decisions, adherence to treatment, a transition phase if treatment needs to be modified, a continuation-and-treatment phase to deter relapse), and decisions at this step are critical to delivering appropriate care.<sup>6</sup>

The Veterans Health Administration (VHA) is an ideal healthcare system in which to examine the association between the organizational features related to integrated care and the diagnosis of depression. The VHA clinics have implemented integrated general medical and mental healthcare to improve the identification and treatment of veterans with depression and other mental illness in the context of co-occurring physical illness. Furthermore, systematic development by the VHA of electronic health records, including electronic progress notes, has enabled providers from different areas (prima-

**Objective:** To analyze the association between the organizational features of integration of physical and mental healthcare in women's health clinics and the diagnosis of depression among women veterans with or at risk for cardiovascular conditions (ie, diabetes mellitus, heart disease, or hypertension).

**Study Design:** Retrospective and observational secondary data analyses.

**Methods:** We studied 27,972 women veterans from 118 facilities with diagnosed cardiovascular conditions in fiscal year 2001 (FY2001) using merged Medicare claims and Veterans Health Administration (VHA) data merged with the 1999 VHA Survey of Primary Care Practices and the 2001 VHA Survey of Women Veterans Health Programs and Practices. The dependent variable was a binary indicator for diagnosed depression during FY2001 at the individual level. We used a multilevel logistic regression model to control for clustering of women veterans within facilities. Individual-level independent variables included demographics, socioeconomic characteristics, and chronic physical conditions.

**Results:** Overall, 27% of women veterans using the VHA were diagnosed as having depression in FY2001. Across facilities, rates of diagnosed depression varied from 13% to 41%. After controlling for individual-level and facility-level independent variables, women veterans who were served in separate women's health clinics with integrated physical and mental healthcare were more likely to have diagnosed depression. The adjusted odds ratio was 1.12 (95% confidence interval, 1.01-1.25).

**Conclusions:** Existing women-specific VHA organizational features with integration of primary care and mental health seem effective in diagnosing depression. Emerging patient-centered medical home models may facilitate diagnosis and treatment of mental health issues among women with complex chronic conditions.

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### Take-Away Points

This study examines effects of practice structures, primary care and mental healthcare integration, and sex-specific primary care services on diagnosis of depression among women veterans with chronic conditions.

- Among women veterans with chronic conditions such as diabetes mellitus, heart disease, and hypertension, facility-level variations in diagnosed depression exist.
- After controlling for individual-level and facility-level characteristics that influence diagnosed depression, women veterans who were served in separate women's health clinics with integrated physical and mental healthcare were more likely to have diagnosed depression.
- Sex-specific practice structures were not conducive to recognizing depression.

ry care and mental health) to access and share information, thereby supporting the efforts of integrated practice.<sup>9</sup>

Women veterans are of special interest to the VHA because of their growing number<sup>10</sup> and their significant physical and mental health burden.<sup>11</sup> For example, in 2009 the VHA served 281,000 women veterans.<sup>10</sup> Data on female veterans returning from Iraq and Afghanistan evaluated in the VHA between 2002 and 2009 indicate that 44% have been treated for mental health disorders.<sup>12</sup> Compared with men, women with comorbid physical and mental illness are a high-intensity subgroup based on outpatient healthcare utilization and cost.<sup>13</sup>

Congressional laws have mandated the provision of VHA mental health services to women veterans, in addition to general, preventive, and sex-specific care.<sup>14</sup> The VHA has also adapted to varying degrees of sex- and gender-based systems and models of healthcare sponsored by the US Department of Health and Human Services Office on Women's Health.<sup>15</sup> In the United States, sex-based care models serve more than 15 million civilian women.<sup>16</sup> Following this model, separate women's health clinics have been established to improve women's health services within the VHA.<sup>17</sup> However, the issue of how best to deliver care for women veterans is a subject of ongoing debate.<sup>18</sup> In fact, there is limited information on the effectiveness of these models of care delivery, and there have been calls for further research to determine whether these clinics have improved women's health,<sup>19</sup> including facilitating diagnoses of common mental health conditions such as depression.

Therefore, the present article examines the relationship between the organizational features related to integrated primary and mental healthcare in separate women's clinics and the diagnosis of depression among women veterans with complex chronic illness such as cardiovascular disease risk (ie, diabetes mellitus, heart disease, hypertension). We chose these 3 chronic conditions because of their high prevalence and their increased likelihood of co-occurrence with depression. For example, among women veterans with diabetes, 29% had depressive disorders.<sup>20</sup> Indeed, hypertension and depression are the top 2 diagnostic categories for women veterans seeking care in VHA clinics.<sup>21</sup> Women veterans with chronic physi-

cal illness that requires ongoing care may be in most need of integrated primary and mental healthcare.

## METHODS

### Data

Our study data are from the following sources: (1) individual-level fiscal year 2001 (FY2001) VHA patient treatment files or administrative data, (2) individual-level FY2001 Medicare fee-for-service claims data (Medicare is important for those who are eligible at 65 years of age or owing to disability), (3) the facility-level 1999 VHA Survey of Primary Care Practices, and (4) the facility-level 2001 VHA Survey of Women Veterans Health Programs and Practices. The facility-level surveys are organizational surveys of practice arrangements from key informants (ie, senior leadership). Individual-level data were merged with facility-level data through facility identifiers recorded in VHA administrative data.

For the present study, we identified women veterans who were users of the VHA system and were diagnosed as having diabetes, heart disease, or hypertension during FY2001. We used an algorithm based on *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)* codes, the number of clinical care encounters, site of care (inpatient vs outpatient), and type or level of diagnosis (primary vs other). For example, to identify women with heart disease, we required at least 1 inpatient visit or 1 outpatient visit with a primary diagnosis of heart disease or 2 outpatient visits with primary or secondary diagnoses of heart disease. Herein, heart disease refers to the presence of coronary artery disease (CAD). We used the same criteria for identifying women with diabetes and women with hypertension. To ensure a uniform observation period, we excluded veterans who died during the year. Among veterans enrolled in both the VHA and Medicare, we excluded those enrolled in Medicare health maintenance organizations (HMOs) because Medicare claims data for these women were unavailable. We also excluded women from facilities that did not receive practice structure surveys (described herein). We excluded 6650 women veterans with diabetes, heart disease, or hypertension who were enrolled in Medicare HMOs and 6635 women from facilities that did not receive practice structure surveys.

The data for the organizational characteristics were derived from the 1999 VHA Survey of Primary Care Practices and the 2001 VHA Survey of Women Veterans Health Programs and Practices. The 1999 VHA Survey of Primary Care Practices was conducted between October and December

1999 in VHA facilities with at least 4000 unique patients and at least 20,000 outpatient visits in FY1998. The response rate was 93%. The 2001 VHA Survey of Women Veterans Health Programs and Practices was conducted in facilities serving at least 400 unique women veterans in FY2000 (October 1, 1999, to September 30, 2000), which represented 80% of all women seen in the VHA and had a response rate of 82%. Details of these surveys are described in the published literature.<sup>19,22</sup>

We merged data from the 1999 VHA Survey of Primary Care Practices (219 facilities) with those from the 2001 VHA Survey of Women Veterans Health Programs and Practices (136 facilities). For the present study, we included only facilities for which we had information from both surveys, which resulted in 118 sites with 27,972 women veterans having a diagnosis of or at risk for cardiovascular diseases (ie, diabetes, heart disease, or hypertension).

### Dependent Variable of Individual-Level Presence of Diagnosed Depression

Patient-level data were used to identify the presence or absence of depression. Diagnosed depression was represented by ICD-9-CM codes 296.2 (major depressive disorder, single episode), 296.3 (major depressive disorder, recurrent episode), 300.4 (neurotic depression), 309.1 (prolonged depressive reaction), and 311 (depression not elsewhere classified). These diagnostic codes are assigned based on structured assessments by primary care providers. These assessments involve Patient Health Questionnaire 2 (PHQ2) screening, psychiatric referral for formal diagnostic assessment, or PHQ9 symptomatic assessment for uncomplicated depression through the use of a behavioral health laboratory.<sup>23</sup> The validity of the depression diagnosis and mental illness variables was established by comparing administrative data and results of the Large Veteran Health Survey.<sup>24</sup> Herein, the positive predictive value and negative predictive value remained consistent at 82% and 73%, respectively, when 1 diagnosis or 2 or more diagnoses were used.

### Facility-Level Variables

Based on queries regarding whether there was a separate women's clinic ("Does your site have a clinic specifically for the delivery of primary care to women veterans that is separate from your general primary care clinic? This clinic may provide primary care alone or in conjunction with other services, such as in the case of a comprehensive women's health clinic.") and whether mental health services were routinely available in these clinics, we constructed a variable representing integration of primary and mental healthcare in separate women's clinics. This variable was grouped into the following 3 categories: (1) mental healthcare provided in women's primary care clinics,

(2) no mental healthcare provided in women's primary care clinics, and (3) no separate women's clinic for primary care. In multivariate models, the reference group was no mental healthcare provided in separate women's primary care clinics.

Another measure of integration was based on the presence of separate mental health clinics for women. We used the yes or no response from the query regarding whether the facility has a clinic specifically for the delivery of mental health services to women veterans that is separate from the women's health clinic for primary care, gynecology clinic, or outpatient mental health clinic.

In the VHA, debate has been ongoing about how best to deliver care for women veterans in terms of services completely integrated with those for men (eg, same clinic space, waiting rooms, or providers) or completely separate from those for men (eg, separate clinic space, waiting rooms, or providers).<sup>25</sup> Therefore, we controlled for integration of services between men and women (ie, sex-integrated care). The 2001 VHA Survey of Women Veterans Health Programs and Practices inquired about how outpatient services for women veterans at the sites were organized in terms of complete integration with services for men or complete separation (eg, separate clinic space, waiting rooms, or providers) or some combination of integrated and separate services. To assess the level of integration, the survey asks:

The next question asks about how outpatient services for women veterans at your site are organized. For example, services might be completely integrated with services for men (e.g., same clinic space, waiting rooms, and/or providers), completely separate from services for men (e.g., separate clinic and/or waiting rooms, designated providers) or some combination of integrated and separate services. For the time periods indicated below (current arrangement, 2 years ago, next 2 years listed): On a scale from 1-9 where '1' equals completely integrated and '9' equals completely separate, circle the number that best matches the arrangement for the following outpatient services for women at your site. Please provide your best estimate.

Therefore, using a scale of 1 to 9, senior clinicians or clinic directors rated the extent to which the outpatient services for women veterans were combined by sex in their areas of management. The range from 1 to 9 provides a graded representation in which 1 to 3 represent high integration levels, 4 to 6 moderate integration levels to an equal split or more, and 7 to 9 low levels of integration and more separation of care by sex.

Other facility-level variables measured were patient-provider sex concordance for mental healthcare and the avail-

**Table 1.** Characteristics of Women Veterans With Diabetes Mellitus (DM), Heart Disease, or Hypertension (HTN) During Fiscal Year 2001

Variable	No. (%) (n = 27,972)
<b>Race/ethnicity</b>	
White	18,053 (64.5)
African American	5141 (18.4)
Latina	369 (1.3)
Other or unknown	4409 (15.8)
<b>Age, y</b>	
<50	9900 (35.4)
51-64	7199 (25.7)
65-74	3296 (11.8)
≥75	7577 (27.1)
<b>Marital status (n = 27,647)</b>	
Married	9465 (30.6)
Not married	18,182 (65.8)
<b>Medicare enrollment</b>	
12-mo fee for service	13,570 (48.5)
No Medicare	14,402 (51.5)
<b>VHA enrollment status (n = 27,825)</b>	
Severe disability	6610 (23.8)
Moderate disability	5503 (19.8)
Low income	11,567 (41.6)
Copayment	4145 (14.9)
<b>Type of cardiometabolic risk</b>	
DM only	2266 (8.1)
CAD only	1179 (4.2)
HTN only	15,849 (56.7)
DM, CAD	198 (0.7)
DM, HTN	3936 (14.1)
CAD, HTN	2953 (10.6)
DM, CAD, HTN	1591 (5.7)
<b>Other physical health conditions</b>	
0	5257 (18.8)
1	6305 (22.5)
2	5232 (18.7)
≥3	11,178 (40.0)
<b>Depression</b>	
Yes	7405 (26.5)
No	20,567 (73.5)

CAD indicates coronary artery disease; VHA, Veterans Health Administration.

ability of women mental health providers. Research based on routine primary care visits in clinics from various health systems reported that patient–provider sex concordance did not affect the likelihood of detecting patients with major depression.<sup>26</sup> However, in the VHA, the presence of women providers was significantly associated with perfect ratings for communication and coordination.<sup>27</sup> We also analyzed the relationship between the availability of women mental healthcare providers and the diagnosis of depression. These providers included psychiatrists, psychologists, and social workers in outpatient mental health clinics to whom women veterans are preferentially assigned.

We also included the type of reminders for depression screening from the 1999 VHA Survey of Primary Care Practices. These consisted of medical record reminders, computer reminders, and provider education. We included these indicator variables because the VHA since 1998 has mandated annual depression screening at all VA primary care clinics, and different modes of screening had differential effects.<sup>28</sup> The availability of primary care providers within specialty mental health-care settings (sometimes referred to as reverse integration) was derived from the 1999 VHA Survey of Primary Care Practices and was also used to mark integrated care.

### Individual-Level Independent Variables

Individual-level independent variables consisted of race/ethnicity (white, African American, Latina, and other or unknown), age (<50, 51-64, 65-74, or ≥75 years), marital status (married vs not married), Medicare enrollment (12-month fee for service or no Medicare), VHA enrollment status (disabled, low income, or copayment), type of cardiometabolic risk (diabetes only, heart disease only, hypertension only, or combinations of these 3), and the number of other physical health conditions (0, 1, 2, or ≥3). All medical conditions and depression diag-

noses were based on ICD-9-CM codes in FY2001.

### Statistical Analysis

We used a multilevel logistic regression model owing to clustering of women veterans within facilities. In this model, facilities were considered random effects. The first level consisted of individual-level characteristics and the second level consisted of facility-level characteristics. Variable estimates from logistic regression analysis were converted to odds ratios (ORs) (95% confidence intervals [CIs]). Although the regression analysis controlled for individual-level variables, we did not tabulate the results of the individual-level variables because our main interest was the association between diagnosed depression and organizational features related to integration of mental health care.

## RESULTS

**Table 1** gives the characteristics of women veterans with diabetes, heart disease, or hypertension for whom data from both surveys (1999 VHA Survey of Primary Care Practices and 2001 VHA Survey of Women Veterans Health Programs and Practices) were available. Of 27,972 women veterans diagnosed as having diabetes, heart disease, or hypertension in FY2001, we identified 7405 (27%) women veterans who had at least 1 clinical encounter documented with a depression diagnosis in FY2001. Most women veterans were white (65% vs 18% African American). Thirty-nine percent of women were 65 years or older. Only about one third of women veterans were married. About half (49%) of the women veterans were enrolled in the Medicare fee-for-service system. Among women with diabetes, heart disease, or hypertension, most had hypertension alone (57%) or in combination (30%) with diabetes or CAD.

There were wide variations in individual-level characteristics across facilities (data not shown). Rates of diagnosed depression ranged from 13% to 41%. White racial/ethnic composition varied from 19% to 98%; the range for women veterans younger than 50 years was 10% to 65%. Married

women constituted 13% to 52% of the study population across facilities. Medicare fee-for-service enrollment varied from 21% to 77%.

Level of integration as measured by type of mental health providers varied among facilities (**Table 2**). In 53% of facilities, psychiatry and mental healthcare programs or services provided primary care to more than just a few patients (sometimes referred to as reverse integration). Screening tools for depression varied from 46% relying on medical record reminders to 78% relying on provider education. It is important to note that we also examined the association between integrated systems and method of depression screening but found no statistically significant differences between integra-

**Table 2.** Organizational Characteristics Among 118 Facilities

Variable	Value
<b>MH services in PC clinic</b>	
Yes	60 (52.6)
No	48 (42.1)
No response	10 (5.3)
<b>Screening for depression</b>	
<b>Medical record reminders</b>	
Yes	54 (45.8)
No	64 (54.2)
<b>Computer reminders</b>	
Yes	76 (64.4)
No	42 (35.6)
<b>Provider education</b>	
Yes	92 (78.0)
No	26 (22.0)
<b>Separate women's MH clinic</b>	
Yes	13 (11.3)
No	102 (86.4)
No response	3 (2.5)
<b>Integration of PC and MH services in separate women's clinic</b>	
MH in PC clinic	39 (33.1)
No MH in PC clinic	28 (23.7)
No separate women's clinic	51 (43.2)
<b>Women's MH providers</b>	
Yes	52 (46.8)
No	59 (53.2)
<b>Sex-integrated services</b>	
	<b>Mean score<sup>a</sup> (SD)</b>
PC	4.19 (2.88)
MH	2.68 (2.30)

MH indicates mental healthcare; PC, primary care; VHA, Veterans Health Administration.  
<sup>a</sup>Score range, 1 to 9 points.

**Table 3.** Multilevel Modeling of Diagnosed Depression Among 29,972 Women Veterans Who Used VHA Services and Were Diagnosed as Having Diabetes Mellitus, Heart Disease, or Hypertension During Fiscal Year 2001<sup>a</sup>

Facility-Level Independent Variable	Adjusted Odds Ratio (95% CI)	P
<b>MH services in PC clinic</b>		
Yes	0.98 (0.91-1.06)	.67
No		
<b>Screening for depression</b>		
<b>Medical record reminders</b>		
Yes	1.00 (0.92-1.08)	>.99
No		
<b>Computer reminders</b>		
Yes	1.02 (0.94-1.11)	.67
No		
<b>Provider education</b>		
Yes	0.93 (0.84-1.02)	.12
No		
<b>Separate women's MH clinic</b>		
Yes	1.10 (0.96-1.26)	.18
No		
<b>Integration of PC and MH services in separate women's clinic</b>		
MH in PC clinic	1.12 (1.01-1.25)	.04 <sup>b</sup>
No MH in PC clinic	—	—
No separate women's clinic	1.11 (0.98-1.24)	.09
<b>Women MH services providers</b>		
Yes	1.06 (0.98-1.16)	.16
No		
<b>Sex-integrated services</b>		
PC	0.97 (0.95-0.99)	.008 <sup>b</sup>
MH	1.02 (1.00-1.03)	.08

CI indicates confidence interval; MH, mental healthcare; PC, primary care; VHA, Veterans Health Administration.

<sup>a</sup>The regression controls for individual-level variables and includes an intercept term. Adjusted odds ratios for individual-level variables and intercept term are not presented. Missing indicators for marital status and VHA enrollment status were included in the regressions.

<sup>b</sup>Statistically significant difference compared with the reference group.

tion and computer reminders versus medical record reminders versus provider education (data not shown).

Regarding women-focused practice structures, 43% of the sites had no separate women's clinics for primary care (Table 2). Among all sites, 33% offered mental healthcare services in separate women's clinics. Forty-seven percent of sites had 1 or more designated women's health providers (eg, psychiatrists, psychologists, social workers) in their outpatient mental healthcare clinics to whom women veterans were preferentially assigned. Sex-integrated primary care was moderate, with a mean (SD) score of 4.19 (2.88) on a 9-point scale. However, the mean score for sex-integrated mental healthcare was 2.68, suggesting higher integration (higher scores represent completely separate services); therefore, this score

suggests that most sites had integrated mental healthcare with that for men (ie, minimal separate mental healthcare for women was available).

Results from the multilevel logistic regression analysis are given in Table 3. After controlling for other individual-level and facility-level variables listed in the "Methods" section, almost all individual-level variables significantly predicted depression diagnosis (data not shown). Except for age, race/ethnicity, and the presence of diabetes only, all other individual-level variables were associated with higher likelihood of diagnosed depression. Among facility-level characteristics, only 2 variables had robust significance at values less than the 0.05 level. These were the availability of mental healthcare services in separate women's primary care clinics (adjusted

OR, 1.12; 95% CI, 1.01-1.25) and sex-integrated primary care services (adjusted OR, 0.97; 95% CI, 0.95-0.99). Sites with lower sex integration of primary care services (on a scale of 1-9, with 1 representing complete integration and 9 representing complete separation) were less likely to diagnose depression.

## DISCUSSION

After controlling for various individual-level and facility-level factors, diagnosed depression was more likely among patients treated at sites with availability of integrated primary care and mental healthcare in separate women's clinics versus at sites that did not have available mental healthcare within women's primary care clinics. Separate women's clinics may provide focused attention and resources that promote the recognition of depression. Our finding is consistent with recent results of a study by Yano and colleagues,<sup>29</sup> who documented that access to care and coordination were better in facilities with separate women's clinics. In our study, diagnosis of depression may be higher in separate women's clinics because of better coordination of care. It is documented that integrated mental health can reduce access barriers and engage women in brief treatment focused on specific behavioral healthcare goals.<sup>30</sup> Although the VHA has shifted its attention away from mandating separate women's clinics, our findings suggest that certain organizational features of separate women's clinics may be useful in caring for women veterans with or at risk for cardiovascular conditions and mental illness.<sup>19</sup>

We found that sites having fewer sex-integrated primary care services had a significantly lower likelihood of diagnosing depression. There may be several reasons for this finding. In settings that have care completely integrated with men, providers may see many patients with chronic conditions and depression; these providers may be more experienced in detecting depression in the presence of chronic conditions. On the other hand, this may point to differences in leadership priorities among sites with separate women's clinics.<sup>31</sup> For example, leadership dedicated solely to primary care may not enable clinics to focus on special populations within primary care (eg, women veterans with chronic illness and depression). This may also be related to wide variations in characteristics among the women veteran population across facilities. Future studies may need to focus on variation in characteristics among women veterans across sites (ie, volume of women veterans served and case mix) and on quality of depression screening. Our study found strong association between individual-level health status characteristics (ie, case mix) and diagnosed depression, and this varied across facilities. Therefore, further insight about facility variation in case

mix may clear up the question of whether sites having more women veterans or a different case mix have differential organizational characteristics compared with sites having fewer women veterans, which may lead to variation in rates of diagnosed depression.

The overall high rates of diagnosed depression in some facilities highlight challenges to comprehensive integrated treatment planning and the need for delivery of services that include simultaneous management of mental health and medical issues. The concept of the medical home (ie, patient-centered care that facilitates partnerships between patients, physicians, and families as appropriate to support referrals and care across multiple levels)<sup>32</sup> that is being developed and rolled out on an experimental basis may be well suited to the VHA because many elements of such models include sharable electronic medical records and a team approach to chronic care, which are already established in the VHA.<sup>33</sup>

This study is not without limitations. Our analysis uses VHA administrative data, and it has been reported that almost 75% of veterans do not receive healthcare in the VHA system<sup>34</sup>; as almost 49% of our study participants had Medicare eligibility, those not receiving care in the VHA are likely to receive care in community-based hospitals where the veterans can exercise their Medicare benefits if eligible. To address this limitation, we used Medicare data merged with VHA data to include veterans who received care outside the VHA. However, administrative data have limitations over use of the clinical record; we recognize that identifying depression is one of the more difficult problems in administrative data research and that perfection may not be attainable. However, for analysis of subgroups at the population level, administrative data offer a particularly attractive alternative to the substantial cost and complications related to the use of prospective surveys supplemented with medical record data. We are unable to speculate on whether there is overestimation or underestimation of diagnosed depression among individuals with co-occurring medical illness because the overlap of general medical and depressive symptoms complicates the diagnosis and management of depression. Coexisting medical problems may divert attention to depression and may lead to lower rates of diagnosed depression.<sup>35</sup> In addition, stigma and bias related to depression may lead to lack of recorded depression. As stated in the "Methods" section, these biases may be minimal at VHA clinics; the validity of depression diagnosis and various mental illness variables has been established.<sup>24</sup> We focused on women veterans; therefore, our study findings may not be generalizable to the nonveteran population and to practice structures that do not have separate women's health clinics. However, in the growing presence of dedicated women's health centers serving almost 15 million

civilian women nationally, some investigations have already begun to review the association between the quality of care and the presence of these centers.<sup>16</sup> Therefore, the evaluation of VHA women-specific organizational features needs to be viewed in the broader context of the effectiveness of sex-based healthcare practices available in the United States. We analyzed availability of service rather than actual practice, and did so in facilities where availability is not a marker for well-established site practice. The 2001 VHA Survey of Women Veterans Health Programs and Practices did not assess all sites and may not represent the entire population of women veterans. However, the survey represented 80% of women served by VHA clinics.

Despite these limitations, our study fills a knowledge gap in the management of women veterans with co-occurring physical and mental illness, which has remained an understudied area of research within the VHA.<sup>19,36</sup> In light of the finding that documented or diagnosed depression increases the likelihood of treatment among individuals with chronic physical illness, we believe that understanding organizational and other correlates of diagnosed depression is critical to depression care management.<sup>4</sup> Our study findings also highlight the positive effects of integrated physical and mental healthcare in women-specific practice structures on the diagnosis of depression among women veterans with co-occurring physical and mental illness. In the broader context, our study adds to the nascent literature<sup>15</sup> on evaluation of sex-specific health systems.

**Author Affiliations:** From the Department of Pharmaceutical Systems and Policy (US), West Virginia University, Morgantown, WV; the HSR&D Center for Healthcare Knowledge Management (US, PAF, RB), Department of Veterans Affairs New Jersey Health Care System, East Orange, NJ; Department of Community Health and Preventive Medicine (US), Morehouse School of Medicine, Atlanta, GA; the HSR&D Center of Excellence (BB-M, EMY), VA Greater Los Angeles Healthcare System, Sepulveda, CA; Department of Medicine (BB-M) and Department of Health Services (EMY), University of California, Los Angeles, Los Angeles, CA; and School of Social Work (PAF), Rutgers University, New Brunswick, NJ.

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**Address correspondence to:** Patricia A. Findley, DrPH, MSW, LCSW, School of Social Work, Rutgers University, 536 George St, New Brunswick, NJ 08901. E-mail: pfindley@ssw.rutgers.edu.

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