ORIGINAL ARTICLES

A Comparison of the Preventive Health Care Provided by Women's Health Centers and General Internal Medicine Practices

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OBJECTIVE: To evaluate women's health centers as alternatives to traditional internal medicine practices.

DESIGN: Cross-sectional mailed survey.

SETTING: A women's health center and an internal medicine practice at each of three university-affiliated teaching hospitals.

PATIENTS: There were 3,035 female patients randomly selected to receive a mailed survey after their office visits.

MEASUREMENTS AND MAIN RESULTS: The survey asked for patient characteristics, patient satisfaction, and rates of gender-specific preventive health services. The survey response rate was 64% (1,942/3,035). Patients at women's health centers were younger, more educated, had higher physical functioning but lower mental health functioning, and more of them were single and employed. Patient satisfaction was similar at the two types of practices, although patients at women's health centers were more satisfied with certain aspects of the patient-provider interaction. After adjusting for measured differences in patient characteristics and site, patients at women's health centers were more likely to receive discussions on hormone replacement therapy (odds ratio [OR] 1.6; 95% confidence interval [CI] 1.1, 2.2) and dietary calcium (OR 1.3; 95% CI 1.1, 1.6). They were also more likely to receive their gender-specific preventive health services from their primary care provider: breast examination (OR 2.0; 95% CI 1.5, 2.6), Pap smear (OR 2.4; 95% CI 1.9, 3.1), hormone replacement therapy discussion (OR 2.2; 95% CI 1.5, 3.3), and dietary calcium discussion (OR 2.6; 95% CI 1.7, 3.9). These

findings remained when the analyses were limited to patients of female providers only.

CONCLUSIONS: In this study, patients at women's health centers were more likely to receive gender-specific health prevention counseling than patients at internal medicine practices. Moreover, patients were more likely to receive their gender-specific preventive health services from their primary care providers.

KEY WORDS: preventive health services; women's health centers; primary care; patient satisfaction; ambulatory care. J GEN INTERN MED 2000;15:1-7.

How best to deliver comprehensive health care to women has become a subject of increasing debate. Historically, women's health care has been divided, with "reproductive" and "medical" care delivered by different providers. This division can lead to inefficiencies and potentially lower quality of care, as the need to see another provider for a Pap smear or breast examination could be an obstacle to receiving recommended preventive health care services.¹

A potential solution for overcoming this fragmentation is the development of a women's health center, where emphasis is placed on providing comprehensive general medical and gynecologic care. Although these centers have become increasingly popular, with 23.6% of all American Hospital Association-registered U.S. hospitals in 1992 reporting a women's center,² they remain diverse, ranging from a comprehensive, primary care model, to birthing centers,^{3,4} breast care clinics, and reproductive health centers.^{3,4} A common theme, however, is that most of the providers at these centers are women.⁴⁻⁷

Increasing the number of female providers in a practice may influence the quality of care for female patients. Several studies have demonstrated that receipt of preventive services, primarily Pap smears and mammograms, was higher for women whose physicians were female.⁸⁻¹² Women were also more likely to receive estrogen replacement therapy when their physician was female,¹³ and were more likely to have visits scheduled for preventive care.¹⁰ In addition, patients of female physicians have been shown to be more satisfied with their care.^{12,14}

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There is a good deal of evidence about care provided by female providers, but the care delivered at women's health centers has not been evaluated to see if this model provides benefit beyond the gender of the provider. In this study, we evaluate care delivered in primary care women's health centers, focusing on patient characteristics, patient satisfaction, and receipt of gender-specific preventive health services at the women's health centers as compared with general internal medicine practices.

METHODS

Study Design

The study was conducted at three sites in Boston-area academic teaching centers (Boston Medical Center, Brigham and Women's Hospital, and Massachusetts General Hospital) that had both primary care women's health centers and general internal medicine primary care practices. At the women's health centers, all providers were female, with clinical and academic interests in the women's health field. Providers of mental health and gynecologic services were incorporated into the practice sites. Patients at the six sites in this study received care from a total of 63 providers who were either board-certified internists or nurse practitioners. Each provider had a mean of 30 patients (range, 1–158) evaluated in this cohort. The study was approved by the institutional review board at each of the three study institutions.

Data were collected by mailed survey (available by request from the authors) between July 1995 and March 1996 from 3,035 female patients. Surveys were mailed 2 weeks after the office visit. Nonrespondents received a reminder postcard, a second mailing, and up to seven telephone calls.

Survey

Standard items were used to categorize age, race, marital status, education, employment, income, and self-reported health care utilization. Insurance information and the primary care physician's gender were obtained from administrative databases.

Subjects were asked about their overall satisfaction and satisfaction with access to care, the courtesy of the office staff, office wait times, the communication of recommendations, and the physician's understanding of concerns. Responses were on a 5-point Likert scale, ranging from poor to excellent or never to always. Questions were about themes identified in four focus groups held with female patients from both women's health centers and internal medicine practices.

Subjects were asked about receipt of the following preventive health care services: breast examination, mammogram, Pap smear, discussion about hormone replacement therapy, dietary calcium requirements, and smoking cessation counseling. When available, wording

to describe the preventive health service was taken from the National Interview Survey.¹⁵ Patients who said they received a preventive health service were asked whether the service was provided by a primary care provider, a gynecologist, or some other provider.

Functional health status was assessed using the Short Form 12 (SF-12).¹⁶ Comorbidities were determined using a checklist of common conditions, modified from the Charlson comorbidity index.^{17,18}

Chart Review

We looked in the charts of 15% of the subjects who returned surveys to find documentation of breast exams, mammograms and Pap smears. We used the κ statistic to compare self-reports with chart reports of these services.

Statistical Analysis

Statistical analyses were conducted using SAS statistical software (SAS Institute, Cary, NC). Patient characteristics were compared using the Mantel-Haenszel test, stratified by site, for categorical measures, and analysis of variance, controlling for site, for continuous measures.

Patient satisfaction responses were dichotomized: excellent vs very good, good, fair, or poor and always vs most times, sometimes, rarely, or never. Responses of excellent or always indicated higher satisfaction. Dichotomization was chosen because current theories of quality management and improvement recommend comparisons to best practices.¹⁹

Patient satisfaction was then compared between the two types of practices using logistic regression. To adjust for possible confounders, multivariate models were developed that included site, age, marital status, insurance type, income, race, employment, education, SF-12 physical and mental summary scores, comorbidities, time in practice, and number of visits per year, as well as a propensity score.^{20,21} The propensity score was used to adjust the results for unmeasured differences in patients who selected one or the other type of practice. Analyses were also conducted with satisfaction as a continuous variable and with ordinal logistic regression, but all analyses led to the same conclusions, and only the results from the logistic regression models are presented.

Patient receipt of preventive health services was compared between the two types of sites using logistic regression. In these comparisons, we included only women 50 years and older when we looked at mammogram rates. We did one analysis of Pap smears received within the past 3 years and another of those received within the past year. The results were almost identical, and only the 3-year rates are presented. We did one analysis of the entire cohort and another of the subgroup of patients less than or equal to 65 years of age ($n = 1,605$), in which the evidence for the effectiveness of screening mammograms and Pap smears is strongest. Because the results for the subgroup

Table 1. Patient Characteristics

Variable*	Women's Health Centers	Internal Medicine Practices	p Value†
Mean age (range), y	44 (17, 105)	51 (19, 105)	.001
Average number of visits per year ($\pm$ SD)	3.6 ($\pm$ 4.4)	4.3 ($\pm$ 5.3)	.005
Average number comorbidities ($\pm$ SD)	1.5 ($\pm$ 1.7)	1.8 ($\pm$ 1.7)	.001
SF-12 physical summary score ($\pm$ SD)	49.4 ($\pm$ 10.6)	47.2 ($\pm$ 11.3)	.001
SF-12 mental summary score ($\pm$ SD)	47.1 ($\pm$ 10.9)	48.6 ($\pm$ 10.2)	.005
Race			.620
White	761 (77)	720 (76)	
Nonwhite	205 (21)	205 (21)	
Missing	24 (2)	27 (3)	
Marital status			.001
Married	378 (38)	444 (47)	
Not married	611 (62)	507 (53)	
Missing	1 (0.1)	1 (0.1)	
Employment			.001
Employed	709 (72)	584 (62)	
Not employed	258 (26)	335 (35)	
Missing	23 (2)	33 (3)	
Education			.001
$\leq$ High school	242 (24)	301 (32)	
$>$ High school	724 (73)	629 (66)	
Missing	24 (3)	22 (2)	
Insurance			.001
Fee-for service	326 (33)	211 (22)	
Managed care	403 (41)	436 (46)	
Medicare	143 (14)	224 (24)	
Medicaid/none	100 (10)	63 (6)	
Missing	18 (2)	18 (2)	
Income			.862
$<$ \$50,000	608 (61)	559 (59)	
$>$ \$50,000	282 (28)	264 (28)	
Missing	100 (11)	129 (13)	
Time seeing PCP			.001
$<$ 1 y	444 (45)	354 (37)	
$>$ 1 y	546 (55)	598 (63)	
Preference for physician gender			.001
Prefer female	714 (72)	401 (42)	
Prefer male	10 (1)	70 (7)	
No preference	262 (26)	469 (50)	
Missing	4 (1)	12 (1)	

*Interaction terms between site and the type of practice were significant for all variables, so differences between the two types of practice are not consistent site to site; differences were in the same direction for some characteristics (marital status, time seeing primary care provider [PCP], preference for physician gender, age, average number of visits per year and 12-Item Short Form [SF-12] mental summary score), and inconsistent for others (race, employment, education, insurance, income, average number of comorbidities, SF-12 physical summary score).

†Values adjusted for site.

were consistent with the results for the entire cohort, we present only the results for the entire cohort.

RESULTS

Patient Characteristics

The overall response rate was 64%, with similar rates across all three sites ($p = .141$), and between the two types of practices ($p = .07$). Respondents were older than nonrespondents (47.4 years vs 44.5 years, $p = .0001$), with similar insurance and marital status.

Table 1 describes patient characteristics. Patients at women's health centers were younger and more likely to have fee-for-service insurance. Also, more of them were single, employed, and had more than a high school education. The degree and direction of differences between the two types of practices varied across the three sites. Patients at women's health centers had higher physical summary scores on the SF-12, but lower mental summary scores. In addition, they reported fewer comorbidities and fewer visits to the practice. Patients at women's health centers had been seeing their primary physician for a shorter period of time. Although the most important

Table 2. Patient Satisfaction in Women's Health Centers Compared with Internal Medicine Practices

Variable	Site-Adjusted Odds Ratio* (95% Confidence Interval)	Fully Adjusted Odds Ratio† (95% Confidence Interval)
Doctor listening seriously	1.15 (0.9, 1.46)	1.24 (0.97, 1.60)
Doctor understanding concerns	1.18 (0.96, 1.45)	1.28 (1.03, 1.60)
Doctor not "talking down" to you	0.78 (0.54, 1.12)	1.52 (1.03, 2.24)
Doctor spending enough time with you	1.22 (0.99, 1.48)	1.31 (1.06, 1.62)
Doctor explaining tests and medications	1.02 (0.80, 1.31)	1.17 (0.90, 1.51)
Doctor's ability to coordinate care	0.97 (0.80, 1.18)	1.03 (0.83, 1.26)
Would definitely recommend doctor	1.02 (0.82, 1.27)	1.12 (0.93, 1.36)
Overall satisfaction with care	1.05 (0.87, 1.26)	1.10 (0.87, 1.387)

*Site-adjusted models are adjusted for site only.

†Fully adjusted models are adjusted for site, propensity score, age, marital status, insurance type, income, race, employment, education, 12-Item Short Form physical and mental summary scores, comorbidities, time in practice, and self-reported number of visits per year.

reason in both types of practice for choosing a physician was the personal recommendation of a doctor, friend, or family member, patients in women's health centers more often picked their physician based on gender issues, and they preferred female physicians.

Patient Satisfaction

Overall patient satisfaction was similar between women's health centers and internal medicine practices, although satisfaction with some aspects of the provider-patient interaction were greater in women's health centers (Table 2), and these results were consistent across all three sites. In contrast, differences in patient satisfaction with practice logistics, such as access to care, courtesy of the office staff, and office wait times, was not consistent across the three sites.

Preventive Services

Patients in both types of practices reported high rates of preventive health services, ranging from 78% for mammography to 92% for Pap smears within the past 3 years. Counseling rates were not as high; 36% of women were counseled about dietary calcium, while 71% of patients at

women's health centers and 61% at internal medicine practices were counseled about hormone replacement therapy.

After adjusting for patient characteristics, the propensity for choosing a practice type, and site, patients at women's health centers were more likely to have received, from any provider, discussions about hormone replacement therapy and dietary calcium (Table 3), but were no more likely to have received a breast exam, Pap smear, mammogram, or smoking cessation counseling. For patients who received preventive health services, patients at women's health centers were more likely to have their breast exam, Pap smear, hormone replacement, and dietary calcium counseling performed by their primary care providers than by another provider such as a gynecologist. As the site-adjusted and fully adjusted odds ratios for all models were similar, only the fully adjusted ratios are displayed. All results were similar across all three sites.

When patients of only female providers were analyzed, the results were consistent with those found in the entire cohort. Such patients in women's health centers were more likely to be counseled about dietary calcium by any provider and to receive a Pap smear and discussions about hormone replacement therapy and dietary calcium

Table 3. Preventive Health Care Services Received in Women's Health Centers Compared with Internal Medicine Practices*

Measures	Receipt from Any Provider (95% Confidence Interval)	Odds of Receiving Service from Primary Care Provider versus Gynecologist/Other (95% Confidence Interval)
Breast exam, within past 1 y	1.26 (0.96, 1.66)	1.98 (1.51, 2.60)
Mammogram, within past 1 y, age ≥ 50 y	0.79 (0.53, 1.17)	1.47 (0.95, 2.26)
Pap smear, within past 3 y	1.45 (0.99, 2.13)	2.44 (1.94, 3.06)
Discussion—hormone replacement therapy	1.55 (1.08, 2.24)	2.19 (1.46, 3.30)
Discussion—dietary calcium	1.31 (1.06, 1.63)	2.56 (1.69, 3.87)
Smoking cessation counseling	1.11 (0.83, 1.51)	1.10 (0.80, 1.51)

*All models are adjusted for site, propensity score, age, marital status, insurance type, income, race, employment, education, 12-Item Short Form physical and mental summary scores, comorbidities, time in practice, and self-reported number of visits per year.

Table 4. Preventive Health Care Services by the Primary Care Provider Versus Other Providers for Subgroups of Patients: Odds (95% Confidence Intervals)*

Measures	Patients of Female Providers Only	Less-Educated Patients Only	Lower-Income Patients Only	Non-white Patients Only
Breast exam, within past 1 y	1.24 (0.90, 1.71)	2.08 (1.09, 4.00)	2.10 (1.43, 3.09)	5.17 (2.05, 13.06)
Mammogram, within past 1 y, age $\geq$ 50 y	0.90 (0.52, 1.56)	1.03 (0.46, 2.30)	0.83 (0.46, 1.52)	2.22 (0.54, 9.10)
Pap smear, within past 3 y	1.61 (1.25, 2.08)	3.70 (2.11, 6.48)	2.49 (1.83, 3.38)	3.28 (1.81, 5.98)
Discussion—hormone replacement therapy	2.08 (1.27, 3.40)	2.38 (1.35, 4.19)	1.89 (1.10, 3.26)	2.62 (0.78, 8.72)
Discussion—dietary calcium	1.83 (1.12, 3.00)	1.76 (0.78, 3.97)	2.45 (1.38, 4.35)	2.79 (0.93, 8.41)
Smoking cessation counseling	1.19 (0.81, 1.75)	0.91 (0.62, 1.95)	0.87 (0.76, 1.72)	1.59 (0.73, 3.45)

*All models are adjusted for site, propensity score, age, marital status, insurance type, income, race, employment, education, 12-Item Short Form physical and mental summary scores, comorbidities, time in practice, and self-reported number of visits per year.

from their primary care providers (Table 4). Results were similar across all three sites.

We did additional analyses limited to less-educated, lower-income, and nonwhite patients to evaluate whether or not the differences between types of practice were limited to some socioeconomic groups. The results of all these analyses (Table 4) were similar to those in the entire cohort (Table 3) in that patients in women's health centers received more of at least some of their preventive health services from their primary care providers. Results were similar across all three sites.

Validation of Self-Report

Patient reports of receiving preventive services often were confirmed by the medical chart. The κ values were 0.74 (95% confidence interval [CI] 0.67, 0.82), for mammograms, 0.34 (95% CI 0.19, 0.48) for Pap smears, and 0.15 (95% CI 0.02, 0.27) for breast exams when we limited the chart search to the most recent year, and 0.83 (95% CI 0.76, 0.90) for mammograms, 0.53 (95% CI 0.36, 0.71) for Pap smears and 0.28 (95% CI 0.11, 0.44) for breast exams when there were no time limits for the search.

DISCUSSION

This study compares the delivery of gender-specific preventive health services between women's health centers that provide primary care to women and traditional general internal medicine practices. The delivery of basic preventive health services such as the clinical breast exam, mammography, and Pap smear was as likely to be received by patients in women's health centers as by those in traditional general internal medicine practices. However, patients who received their care at women's health centers were more likely than their counterparts to receive their breast exam and Pap smear from their primary care provider, suggesting a potential for increased efficiency in the provision of gender-specific preventive services at primary care women's health centers. Preventive counseling services such as discussions about the

use of hormone replacement therapy and dietary calcium were also more likely to be received by patients who obtained their care at women's health centers than by those who received primary care through traditional general internal medicine practices. In addition, although overall patient satisfaction was similar between the practice types, satisfaction with certain aspects of the patient-provider interaction was greater in women's health centers.

This study also provides new information about the characteristics of women who choose to receive their care in a women's health center. Evaluation of the population that utilizes women's health centers has not been well described, although marketers have often targeted these centers for young, well-educated, privately insured women.⁷ Patients at our women's health centers were more diverse than marketing strategies would predict: 10% of patients in our women's health centers had either Medicaid or no insurance; and 21% were from a minority population, with less-educated, lower income, and nonwhite women receiving benefits consistent with the entire cohort. In addition, although women who attended women's health centers in this cohort appeared to be healthier than patients in the traditional internal medicine practices, reporting lower numbers of comorbid illnesses and higher physical functional status, they reported slightly lower levels of mental health functional status, despite their younger age.

Mechanisms for improving the delivery of preventive health services to women have been the subject of recent research. Lurie et al. clearly demonstrated that women were more likely to undergo screening with Pap smears and mammograms if they saw a female physician as opposed to a male physician.⁸ More recent work by Lurie et al. has sought to explain the reasons for this difference; they have documented that female physicians were more likely to ask new patients about preventive services, to believe in the effectiveness of mammography, and to feel more responsible for ensuring that their patients received screening.¹

Our research findings go further to suggest that the women's health center concept has an effect beyond the fact that all the providers were women. When we restricted

our analysis to female providers only, the effect of the women's health center was slightly diminished, but did not disappear, suggesting that above and beyond the effect of physician gender, women's health centers offer an advantage to patients with respect to gender-specific preventive services.

The findings of this study are limited by several factors. First, this study is a cross-sectional analysis of women who were cared for in different types of practice settings. Therefore, we do not know if the women who actively chose a women's health center represent a cohort who will derive additional benefits from this setting, or if they represent a cohort who are more likely to receive preventive health services in any setting because they want more gender-specific preventive services. We attempted to control for this potential selection bias with the propensity score. In addition, within this study, 69% of women were aware they had picked a doctor in a women's health center when they chose their primary care doctor, and of this group, 50% considered it a very important factor when choosing their doctor. However, the patients' rating of the importance of the physician being in a women's health center was unrelated to the preventive health services that they received; women who were not aware they had joined a women's health center, or thought it not important had the same rates of preventive services as those who thought it important (data not shown). Another possible explanation for the differences in receipt of preventive health services in the two types of practice is that women in women's health centers had fewer comorbid illnesses, which may afford the provider greater time to provide preventive services. We attempted to control for such differences by including comorbidities and functional health status in our analyses. Several studies have also demonstrated increased delivery of mammography,^{22,23} as well as other preventive screening tests,²⁴ in patients with more chronic illnesses and primary care visits, suggesting that patients with chronic illnesses may visit their doctor more frequently, and that increased contact may lead to a greater likelihood of receiving preventive health services. In addition, patient factors are not the only variables affecting receipt of health care services; physician recommendations are important determinants of practice patterns.^{25,26} Lastly, there were no significant differences between practice types for some preventive health services; patients in women's health centers were just more likely to receive the services from their primary care provider. This pattern suggests that patient selection did not produce cohorts with markedly different preferences for preventive health care, but that there are differences in the practices.

Another limitation in this study is that the rates of preventive services found here are based on self-report. Although studies have found self-report to not be as accurate as chart review, it gives a reasonable approximation of services delivered,²⁷ and a 15% audit of the sample showed good agreement between self-report and what was

documented in the chart. The low κ scores for Pap smear and breast exam, however, may have prevented us from finding a real relation between the receipt of these preventive services and practice type. In addition, using chart review as the gold standard is problematic itself, because some preventive services such as counseling may be provided but not recorded.

Our patients were from three well-established academic teaching centers in one major northeastern city. How this population compares with those found in the general medical community and with practices located elsewhere is unknown.

Finally, this study focuses primarily on gender-specific preventive services for women. We evaluated smoking cessation counseling rates and found no differences in rates between women's health centers and internal medicine practices. However, other non-gender-specific preventive services such as colon cancer screening and lipid analysis were not evaluated and would be important factors when evaluating the impact of a women's health center on preventive health care services. The women's health centers in this study were composed of board-certified internists who practiced general internal medicine and cared for their patients as their primary care providers. We did not collect information on the quality of chronic disease care, which would be another important step in evaluating the potential role of a women's health center for providing comprehensive health care for women.

In conclusion, patients who use women's health centers appear to receive gender-specific preventive health services at rates comparable to or higher than those of patients who receive their care at traditional internal medicine practices, and report comparable or higher levels of satisfaction. This effect is not due to the higher prevalence of female providers in women's health centers. Moreover, providers at women's health centers are more likely than those at internal medicine practices to deliver these services themselves, obviating the need for patients to see other providers, such as gynecologists, for their routine preventive health services. This finding suggests that women's health centers might be an efficient alternative health care delivery model for women, as patients could receive their general medical and gender-specific preventive health services from one provider at one visit.

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