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RESEARCH ARTICLE

Exploring the association of care fragmentation and patient ratings of care quality: A mediation analysis of women Veterans' experience with VA care

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Abstract

Objective: To examine the relationship between care fragmentation and patient ratings of care quality and identify potentially actionable mediators.

Data Sources/Study Setting: 2015 telephone survey of 1395 women Veterans with three or more visits in primary care and/or women's health care in the prior year at 12 Veterans Affairs (VA) medical centers.

Study Design: Cross-sectional analysis.

Data Collection/Extraction Methods: We operationalized lower care fragmentation as receiving VA-only care versus dual use of VA/non-VA care. Participants rated VA care quality (overall care, women's health care (WH), and primary care (PC)) and three aspects of their patient experience (ease of access to services, provider communication, and gender sensitivity of VA environments). We examined associations between care fragmentation and care ratings and applied the Karlson-Holm-Breen decomposition method to test for mediation by aspects of patients' experience.

Principal Findings: Lower care fragmentation was associated with higher ratings of care quality (odds ratios [95% CI] for overall care: 1.57 [1.14;2.17]; WH: 1.65 [1.20;2.27]; PC: 1.41 [1.10;1.82]). Relationships were mediated by patient-rated provider communication and gender sensitivity (26-54 percent and 14-15 percent of total effects, respectively). Ease of access was associated with higher care ratings (odds ratios [95% CI] for overall care: 2.93 [2.25;3.81]; WH: 2.81 [2.15;3.68]; PC: 2.33 [1.63;3.33], in models with the three types of patient care experiences included), but did not mediate the association of care fragmentation and care ratings.

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Conclusions: Potential negative effects of care fragmentation on care quality ratings could be mitigated by attention to quality of patient-provider communication and gender sensitivity of VA environments.

KEYWORDS

access to care, gender, patient experience, patient-provider communication, Veterans

1 | INTRODUCTION

In the face of widely publicized access delays, the 2014 Veterans Access, Choice and Accountability Act created new provisions for Veteran access to care by increasing Veterans Health Administration (VA) referrals to community care.¹ It was subsequently updated by the 2018 MISSION Act to extend referrals even further in addition to other changes in VA care. While referrals to community care may increase timeliness of access to care, the potential decrease in use of comprehensive care within VA facilities has raised concerns about unintended negative consequences for patient experience and outcomes.² In particular, increased fragmentation of care may result in additional challenges for coordination and continuity of care provided.³ The impact of increased care fragmentation is expected to be more pronounced for Veterans with greater health care utilization, and among them women Veterans, who have additional health burdens and complex care needs.^{4,5}

Women Veterans (WVs) constitute the fastest growing segment of VA patients, but represent a numerical minority within VA facilities (<10 percent of VA users).⁶ Delivering women's health (WH) services, maintaining provider competencies in WH, and providing gender-sensitive care environments have been challenging for VA facilities traditionally oriented toward the care of male patients.⁷⁻⁹ Furthermore, while overall the need for specific gender-related care has increased across VA due to changes in patient demographics and significant increases in enrollment of younger female patients, individual facilities may still lack the ability to deliver this type of care as locally it represents a low volume of patients.^{10,11} VA efforts to improve the care of WVs have focused on implementing comprehensive primary care models that are tailored to WV needs,^{12,13} and also aligned with WVs' preferences for receiving WH services and primary care (PC) from the same source.¹⁴ Nevertheless, in 2012, 31 percent of WV VA users still received some community care arranged through VA in contrast to 15 percent of male VA users,¹⁵ and the VA is projected to further increase outsourcing of services for WVs. The impact of increased reliance on community care on the quality of care Veterans receive is still being evaluated, and data on patient experience are lacking, especially as the VA begins implementation of the MISSION Act, which aims to consolidate community care programs. Learning from recent experiences of WVs who receive all WH and PC services directly from VA compared to dual users of VA/non-VA care

may provide important insights on how to optimize the balance between what was designed to be hastened access to any care versus comprehensiveness of on-site VA care. Lessons learned within VA may apply to non-VA health care settings that may also grapple with the decision to outsource certain types of care difficult to provide in-house. The current study contributes to the literature by drawing on a large survey of WVs to examine how lower care fragmentation (ie, VA-only care versus dual VA/non-VA care) is associated with patient ratings of care quality (overall, for WH care, and for PC). We also examine the extent to which other aspects of patient experience mediate these relationships.

Global patient ratings of care quality provide important information on patient experience and satisfaction. Higher patient care ratings are predictive of patient behaviors, such as greater treatment adherence, that have been associated with better outcomes.¹⁶ Among VA users, WVs receiving all care from VA were found to be overall more satisfied with VA care quality compared to dual users.¹⁷ Receipt of more comprehensive VA care was also associated with high patient care quality ratings.¹⁸ Care quality ratings are also strongly associated with patients' decision to use VA services: Lower ratings were frequent among WVs who stopped using VA care,¹⁹ whereas high ratings among current VA users were associated with willingness to recommend VA services to other WVs.^{14,17,20} In the current study, we examined patient ratings of overall care quality as well as for WH care and PC specifically.

Patient ratings of care may provide important insights into how care fragmentation may affect the patient experience, but they may lack sufficient nuances to inform quality improvement efforts.¹⁶ In addition, identifying specific aspects of the patient experience mediating the effect of care fragmentation on patient ratings may yield more actionable information on how to balance efforts to increase access via community referrals with efforts to provide more comprehensive care within VA. Therefore, we evaluated the hypothesis of mediation of the association of care fragmentation with care quality ratings through three aspects of patient experience: ease of access to services, patient-provider communication, and gender sensitivity of the environments (Figure 1). We selected those factors because they relate to key components of VA efforts to provide comprehensive primary care tailored for WVs;²¹ they represent distinct dimensions of patient experience that are meaningful for satisfaction with care among WVs;^{13,14,18,20} and they may be modified through VA policies and quality improvement efforts.

2 | METHODS

2.1 | Design and sample

Data for this study were drawn from a cluster randomized trial evaluating an evidence-based quality improvement approach to tailoring comprehensive primary care to WVs' needs.²² Briefly, eligible participants were WVs who had three or more encounters for PC or WH care in the prior 12 months (December 1, 2013, to November 30, 2014) at one of 12 VA medical centers within nine states. Three visits per year is the average number of PC visits among all WV VA users,¹⁵ suggesting that those patients are routine PC users. Of 4307 women randomly sampled from these sites in January to March 2015, 1395 completed computer-assisted telephone interviews for the study baseline survey (response rate 45 percent; Figure S1).

We compared respondents and nonrespondents using available administrative data (age, marital status, military service-connected disability, U.S. region) and found significant differences between responders and nonresponders only for age (mean age, 53 [SD 14] vs 48 [SD 15], respectively). The study protocol was approved by the VA Greater Los Angeles Healthcare System Institutional Review Board. Informed consent was obtained from each participant at the time of the interview.

2.2 | Main measures

Patient ratings of care quality were adapted from the summary rating of patient satisfaction with care from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey.²³⁻²⁶ Patients were asked to rate care quality on a scale of 0 (lowest quality) to 10 (highest quality) for overall care, WH care, and primary care (PC). To accommodate the ceiling effect and skewness of quality ratings, we

dichotomized ratings using the top-box approach recommended for CAHPS measure analysis;²⁷ specifically, we defined a high rating as a value of 9 or 10 versus a rating of 8 or lower.

2.3 | Independent variables

We defined health care use as VA-only if the WV reported receiving both WH and other PC solely through VA. Alternately, we defined dual use as receipt of WH and/or PC in both VA and community health care settings. Lower care fragmentation was operationalized as a dichotomous variable set to 1 for VA-only care, and zero for dual use. Though these variables were based on components of comprehensive primary care (ie, WH and PC), we also assessed use of specialty care and mental health care for context.

Patient experience factors included patient ratings of ease of access to care, provider communication, and gender sensitivity of VA environments. Ease of access to care was measured on the CAHPS Access subscale; the four questions asked how often in the past 12 months the patient had received care as soon as needed for routine care and for urgent care, respectively; seen her VA provider within 15 minutes of appointment times; or got an answer to health-related questions by phone as soon as needed (Cronbach's alpha = 0.71). Provider communication was measured using the CAHPS Communication subscale; six questions asked how often in the past 12 months "did your VA provider know important information about your medical history/explain things in a way that was easy to understand/show respect for what you had to say/spend enough time with you/listen carefully to you/give you easy to understand information?" (Cronbach's alpha = 0.88). On both subscales, items were rated on a 4-point Likert scale, "always," "usually," "sometimes," and "never." A high rating for ease of access, or provider communication, was defined by selecting "always" on all items of the

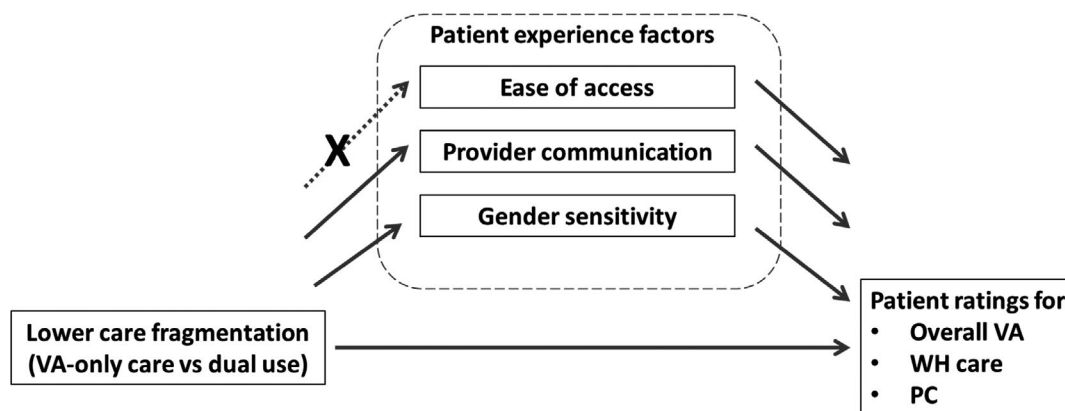


FIGURE 1 Model for the mediation analysis. We hypothesized that the effect of lower care fragmentation on the patient ratings was mediated by the three experience factors: ease of access to care, provider communication, and feeling welcome at VA as a woman as a proxy measure for the gender sensitivity of VA environments. Table 2 presents supporting evidence for the relationship of lower care fragmentation and patient ratings, as well as the associations of patient experience factors and patient ratings. The relationships between lower care fragmentation and two of the candidate mediators, provider communication and feeling welcome at VA, are supported by the results of the regression analyses presented in Table 3, whereas the role of ease of access as mediator was rejected. Based on those results, mediation of the effect of lower care fragmentation on care ratings via provider communication and feeling welcome at VA was further tested (Table 4)

subscale.^{23,28} Perception of the gender sensitivity of the environment was rated by asking VVs their level of agreement with feeling welcome at VA as a woman (“strongly agree,” “somewhat agree,” “neither agree nor disagree,” “somewhat disagree,” or “strongly disagree”).^{14,25} Responses were coded as “strongly/somewhat agree” versus other. We performed a sensitivity analysis to verify that the results were not sensitive to grouping neutral feelings with disagreement, and found no effect on the estimates.

2.4 | Covariates

We controlled for patient characteristics typically associated with satisfaction ratings,¹² including age, race/ethnicity, marital status, educational attainment, and source of care coverage. Overall self-rated health status was assessed using a validated single question on a 5-point Likert scale (“excellent,” “very good,” “good,” “fair,” “poor”),²⁹ with “excellent/very good” grouped in analyses because of small numbers.

2.5 | Statistical analysis

We applied survey weights to adjust for clustered sampling design and nonresponse. Multivariate analyses using logistic regression models proceeded as follows:

First, we separately modeled the associations of care fragmentation with care quality in each care setting (overall, WH, and PC), with patient sociodemographics and overall health as covariates. We next added patient experience factors (ease of access, provider communication, and gender sensitivity) to the models as covariates. For both sets of models, we estimated the marginal effect of care fragmentation as the difference in predicted probability of a high care rating associated with lower care fragmentation versus higher care fragmentation; standard errors of marginal effects were estimated using the delta method.³⁰

Next, to test for potential mediating effects of patient experience factors, we examined the associations between care fragmentation and each of the candidate mediators (ie, ease of access, provider communication, and gender sensitivity) used as the outcome. Variables not significantly associated with care fragmentation were rejected as mediators.

Finally, variables identified as potential mediators were incorporated in logistic regression models in which we applied the Karlson-Holm-Breen method for mediation analysis to decompose the total effect of care fragmentation on care ratings into a direct component and indirect components via the mediating variables.³¹ Briefly, the direct effect of care fragmentation on each care rating was estimated in the presence of candidate mediators. Next, the total effect of care fragmentation was estimated using the same model after replacing the mediators with residuals from the regression of each mediator on care fragmentation. Indirect effects are then estimated as the differences of the total and direct effects, and mediation is supported if the difference is significantly different from zero. The contribution of the indirect effect is presented as the percentage of

the indirect effect over the total effect, including percentages attributed to individual mediators.

We performed a sensitivity analysis using a propensity score matching approach to address the potential bias in who may use VA care only. The propensity score approach matches patients based on observable characteristics to reduce bias related to those characteristics. The propensity score models yielded similar results to the analysis adjusted using survey weights, supporting the robustness of the results. We report here the results of the analysis with survey weights that are more representative of population estimates; in the Supplement, we provide a detailed description of the propensity score approach that we implemented. We also performed a sensitivity analysis for our definition of fragmentation of care. We compared the dichotomous indicator for VA care-only vs dual use to a four-level indicator (all VA—reference; nearly all VA; mostly VA; mostly non-VA) and an indicator for (all VA/nearly all VA) versus (mostly VA/mostly non-VA); the estimates obtained in all cases were consistent in direction, significance, and magnitude.

All analyses were performed on the subset of patients with complete data for the variables of interest (90 percent of participants). No covariate had more than 1.5 percent missing values, except WH ratings (4.9 percent). High communication ratings were less frequent among cases with missing values ($n = 126$) than among complete cases (38 percent vs 51 percent, $P < 0.001$); no significant differences on the other covariates were detected between those two groups. All analyses were performed in STATA 13 (StataCorp), and values are considered significant for $P < 0.05$.

3 | RESULTS

Most participants (60 percent) reported receiving all WH and PC at VA only (ie, low care fragmentation). VA-only users were less often married, had lower education levels, and were less often privately insured (Table 1). The vast majority (97 percent) of participants had either no use or VA-only use of specialty or mental health care, so those services were not included in analyses because of the lack of informative variations in fragmentation. Overall, 21 percent of the participants reported always experiencing easy access to care, 50 percent reported always experiencing good provider communication, and 90 percent reported feeling welcome at VA as a woman. Half of the participants gave a high rating (9 or 10 out of 10) to overall care, 66 percent to WH, and 64 percent to PC. The proportion of high ratings was significantly greater among VA-only users compared to dual users (overall care, 55 percent vs 43 percent, $P = 0.004$; WH, 71 percent vs 59 percent, $P = 0.004$; PC, 67 percent vs 60 percent, $P = 0.010$).

Lower care fragmentation (VA-only use) was positively associated with high ratings for each type of care (Table 2; model series 1). We expressed the marginal effect of lower care fragmentation as the difference in predicted probability of a high care rating associated with lower care fragmentation versus higher care fragmentation.

TABLE 1 Characteristics of the participants, overall and by care fragmentation

Characteristics	All N = 1395	Care fragmentation		P
		Lower (VA-only use) (60%)	Higher (Dual use) (40%)	
Age				
18-44	370 (35%)	34%	37%	0.579
45-64	756 (50%)	51%	50%	
65+	265 (15%)	15%	14%	
Race/ethnicity				
Non-Hispanic white	855 (59%)	58%	61%	0.476
Non-Hispanic black	319 (25%)	27%	23%	
Other	203 (16%)	16%	16%	
Marital status				
Married/partner	530 (38%)	35%	42%	0.018
Divorced	550 (39%)	41%	37%	
Never married	300 (23%)	24%	21%	
Education				
No college	252 (17%)	19%	14%	0.009
Some college	609 (44%)	45%	43%	
College degree	531 (39%)	36%	43%	
Care coverage				
VA-paid only	550 (42%)	54%	24%	<0.001
Private	260 (20%)	12%	32%	
Medicare/Medicaid	388 (24%)	22%	27%	
Military	97 (7%)	6%	9%	
Other	84 (7%)	6%	8%	
Self-reported health				
Poor	115 (8%)	7%	9%	0.366
Fair	406 (29%)	30%	29%	
Good	524 (37%)	36%	39%	
Very good/Excellent	345 (25%)	27%	23%	
Quality of care ratings				
Overall VA ratings				
High (9-10)	652 (50%)	45%	57%	0.004
Lower (8 or lower)	731 (50%)	55%	43%	
WH ratings				
High (9-10)	421 (34%)	29%	41%	0.004
Lower (8 or lower)	906 (66%)	71%	59%	
PC ratings				
High (9-10)	473 (36%)	33%	40%	0.010
Lower (8 or lower)	915 (64%)	67%	60%	
Candidate mediators				
Ease of access				
Always	296 (21%)	21%	20%	0.508
Not always	1099 (79%)	79%	80%	
Gender sensitivity				
Agree	1258 (90%)	93%	86%	<0.001
Neutral or disagree	126 (10%)	7%	14%	

(Continues)

TABLE 1 (Continued)

Characteristics	All N = 1395	Care fragmentation		P
		Lower (VA-only use) (60%)	Higher (Dual use) (40%)	
Communication				
High rating	698 (50%)	54%	43%	<0.001
Lower rating	697 (50%)	46%	57%	

Notes. 1395 observations; weighted percentages adjusted for cluster survey sampling and nonresponse; P value for group comparison. VA-only users, patients receiving all primary care and women's health care within the Veterans Affairs Healthcare System (VA); dual users, patients using both VA and non-VA systems of health care.

We found a 10-percentage point difference (95% CI, 3-17) between lower care fragmentation (VA-only use) and higher care fragmentation (dual use) in the probability of a high rating for overall care; the difference was 11 points for WH (95% CI, 4-18) and 8 points for PC (95% CI, 2-13).

The addition of patient experience factors (ease of access, communication, and gender sensitivity) in the models (Table 2, model series 2) led to an attenuation of the effect of care fragmentation,

consistent with our hypothesis of mediation. High care ratings were significantly more likely among patients reporting easier access to VA care, better provider communication, or feeling welcome at VA as a woman (Table 2). We examined the marginal effects of lower care fragmentation for these models. The association of experiencing easier access to VA care with care quality ratings was strongest with overall care ratings, with a difference of 20 percentage points (95% CI, 15-34), compared to 17 points for WH (95% CI, 8-20) and 14

TABLE 2 Odds ratios (OR) for the association of care quality ratings with care fragmentation and patient experience

OR (95% CI)	Overall care ratings		WH ratings		PC ratings	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Lower care fragmentation (VA care vs dual)	1.57* (1.14, 2.17)	1.35* (1.00, 1.81)	1.65* (1.20, 2.27)	1.39* (1.03, 1.88)	1.41* (1.10, 1.82)	1.16 (0.94, 1.43)
Ease of access (always vs not)	-	2.93** (2.25, 3.81)	-	2.81** (2.15, 3.68)	-	2.33** (1.63, 3.33)
Gender sensitivity (agree vs not)	-	3.82** (2.23, 6.57)	-	2.81** (1.98, 3.97)	-	2.12* (1.42, 3.15)
Communication (high vs low)	-	3.75** (2.89, 4.87)	-	4.58** (3.24, 6.47)	-	5.48** (4.37, 6.87)
Age (y)	1.03** (1.02, 1.04)	1.03** (1.02, 1.04)	1.03** (1.02, 1.04)	1.03** (1.02, 1.04)	1.03** (1.02, 1.04)	1.03* (1.01, 1.04)
Education (vs some college)						
No college	1.89* (1.29, 2.77)	1.72* (1.16, 2.55)	1.48 (0.94, 2.33)	1.39 (0.88, 2.19)	1.58 (0.94, 2.66)	1.48 (0.87, 2.50)
College degree	1.09 (0.89, 1.34)	1.15 (0.88, 1.52)	1.01 (0.67, 1.53)	1.10 (0.71, 1.71)	1.00 (0.75, 1.34)	1.06 (0.76, 1.47)
Health status (vs good)						
Poor	0.45* (0.24, 0.85)	0.60 (0.33, 1.11)	0.61 (0.33, 1.12)	0.88 (0.47, 1.68)	0.62 (0.34, 1.14)	0.82 (0.48, 1.40)
Fair	0.67 (0.43, 1.03)	0.81 (0.51, 1.30)	0.87 (0.56, 1.34)	1.11 (0.72, 1.72)	0.9 (0.56, 1.43)	1.15 (0.71, 1.86)
Very good/Excellent	1.64* (1.25, 2.15)	1.58* (1.13, 2.20)	1.57* (1.13, 2.20)	1.50* (1.01, 2.23)	1.43* (1.10, 1.84)	1.31 (0.88, 1.94)

Notes. n = 1324, 1269, and 1329 for models of overall, WH, and PC ratings, respectively. Odds ratios (OR) with 95% CI from multivariate logistic regression models also adjusted for race/ethnicity, marital status, and source of health care coverage (factors that were not significant in the model and are not presented here), using survey weights to control for sampling design and nonresponse (models 1). Models 2 are adjusted for the same set of covariates and the candidate mediators.

PC, primary care; VA, Veterans Affairs Healthcare System; WH, women's health care.

*P < 0.05.

**P < 0.001.

OR (95% CI)	Ease of access	Gender sensitivity	Communication
Lower care fragmentation (VA-only care vs dual care)	1.05 (0.68, 1.61)	2.15** (1.48, 3.12)	1.52* (1.23, 1.89)
Age (y)	1.02* (1.01, 1.03)	1.02* (1.00, 1.04)	1.01* (1.00, 1.02)
Marital status (vs married)			
Divorced	1.04 (0.65, 1.66)	0.68* (0.47, 0.97)	0.70* (0.50, 0.98)
Never married	0.99 (0.71, 1.37)	1.06 (0.80, 1.40)	0.76 (0.57, 1.01)
Care coverage (vs VA-paid)			
Private	1.11 (0.61, 1.99)	1.52* (1.08, 2.13)	0.88 (0.69, 1.13)
Medicare/Medicaid	0.61* (0.41, 0.89)	1.18 (0.75, 1.86)	0.85 (0.60, 1.18)
Military	0.54* (0.32, 0.93)	1.13 (0.61, 2.10)	1.02 (0.51, 2.04)
Other	1.05 (0.49, 2.23)	1.37 (0.29, 6.47)	0.95 (0.49, 1.86)
Self-reported health (vs good)			
Poor	0.63 (0.33, 1.19)	0.27* (0.13, 0.54)	0.61 (0.36, 1.03)
Fair	0.80 (0.57, 1.11)	0.56 (0.29, 1.06)	0.66* (0.53, 0.82)
Very good/Excellent	1.23 (0.84, 1.80)	1.51 (0.76, 2.99)	1.25 (0.93, 1.67)

Notes. $n = 1345, 1335,$ and 1335 for the models of ease of access, gender sensitivity, and communication, respectively. Odds ratios with 95% CI from multivariate logistic regression models also adjusted for race/ethnicity and education, with survey weights to control for sampling design and nonresponse. Race/ethnicity and education were not significant in the models and are not presented here. VA, Veterans Affairs Healthcare System.

* $P < 0.05$.

** $P < 0.001$.

points for PC (95% CI, 7-21). The difference in probability of high care ratings associated with provider communication was 27 points for overall care (95% CI, 22 -32), 28 points for WH (95% CI, 22-35), and 33 points for PC (95% CI, 30-36). For gender sensitivity, the difference in probability of high care ratings was 24 points for overall care (95% CI, 22-32), 19 points for WH (95% CI, 13-26), and 14 points for PC (95% CI, 13-20). All differences were significant at the 5 percent level.

The association of each mediator—ease of access, provider communication, and gender sensitivity—with care fragmentation is shown in Table 3. We found that lower care fragmentation was associated with provider communication (OR 1.53; $P = 0.001$) and gender sensitivity (OR 2.15; $P = 0.008$), but not with ease of access (OR 1.05; $P = 0.817$), controlling for sociodemographics and health. Based on those results, ease of access to care was rejected as a mediator and the mediation analysis was performed as shown in Figure 1.

The tests of mediation via provider communication and gender sensitivity, for each type of care rating, are presented in Table 4. We found that the total effect of care fragmentation on overall care ratings of 0.49 (SE 0.14) could be decomposed into a direct part, 0.29 (SE 0.14), and an indirect part, 0.20 (SE 0.05). All three effects (total, direct, and indirect) were statistically significant, and the indirect effect accounted for 41 percent of the total effect, with 26 percent via provider communication and 15 percent via gender sensitivity. We found similar results for WH ratings, with a significant indirect effect corresponding to 44 percent of the total effect, of which 29 percent was mediated by provider communication and 15 percent by

TABLE 3 Odds ratios for the association of care fragmentation with patient experience

gender sensitivity (Table 4). The indirect effect of care fragmentation was the largest for PC ratings (68 percent of the total effect) with a greater contribution of communication (54 percent), than of gender sensitivity (14 percent).

4 | DISCUSSION

Women Veterans receiving care only at VA gave higher ratings to their care compared to those with care fragmented between VA and non-VA health care providers. Ease of access to services, quality of provider communication, and gender sensitivity were all associated with higher care ratings, regardless of the setting (ie, overall VA care, WH, or PC). Furthermore, WVs' ratings of their provider's communication and how welcome they felt both served as important mediators of their experiences with VA-only care versus dual care. In contrast, ease of access did not mediate women's ratings of their experiences with care.

We found that women who are VA-only users were markedly more satisfied than dual users. Given the strong relationships of continuity of care (whether in or outside VA) to improved patient satisfaction and quality of care, these findings should not come as a surprise,³²⁻³⁴ though that relationship had not yet been demonstrated for WVs. Of greater importance are the implications of these findings for the expansion of Choice and now MISSION care for Veterans as it relates to continuity of care and patient experience.² While VA has sought greater oversight over the coordination of care

TABLE 4 Mediation analysis of the effect of care fragmentation on patient care quality ratings

	Overall care ratings			WH ratings			PC ratings		
	Coef.	SE	P	Coef.	SE	P	Coef.	SE	P
Total effect	0.49	0.14	<0.001	0.45	0.15	0.003	0.31	0.15	0.035
Direct effect	0.29	0.14	0.036	0.25	0.15	0.095	0.10	0.15	0.496
Indirect effect	0.20	0.05	<0.001	0.19	0.05	<0.001	0.21	0.06	<0.001
Via communication	0.13	0.04		0.13	0.05		0.16	0.05	
Via gender sensitivity	0.07	0.03		0.07	0.02		0.04	0.02	
Contribution of the indirect effect (% of total effect)	40.7%			43.5%			67.7%		
Via communication	25.6%			29.0%			53.7%		
Via gender sensitivity	15.1%			14.5%			13.9%		

Notes. n = 1324, 1269, and 1329 complete cases, respectively. Coefficients for the direct and total effect of care fragmentation on the three different types of ratings were obtained from same-sample, nested logistic models.

PC, primary care; VA, Veterans Affairs Healthcare System; WH, women's health care.

between VA and community settings, how this coordination will be achieved and whether it will be tailored to WVs' needs are still unknown. The increase in care fragmentation associated with more referrals to non-VA care may affect other aspects of care that are valued by WVs, such as their relationship with their VA PC providers, coordination of care, and receipt of care from providers experienced in caring for Veteran-specific issues.³⁵⁻³⁷

Our findings point to provider communication and gender sensitivity as essential drivers of how patients view their care. The identification of these patient experience factors as mediators of perceived care quality is novel and provides insights into modifiable factors that VA leadership may be able to leverage to further improve WVs' care experiences and subsequently their ratings of VA care. The role of patient-provider communication in WVs' satisfaction with care confirms qualitative findings that WVs value the quality of their relationship with individual providers.²⁰ Participants in our study were asked to rate their VA provider for communication skills that are key components for a patient-centered approach to care, and likely to foster treatment adherence and other patient behaviors associated with improved health outcomes.^{16,38} Patients receiving all care within one system are also likely to benefit from more reliable and complete information exchange, through an electronic record system that supports information sharing and care coordination.³⁹ Future investigations should explore which interventions best improve communication for providers of dual care patients, and identify strategies to mitigate the negative association of dual care use with patient care quality ratings.

We identified women Veterans' perception of being welcome at VA as a mediator for the perception of care quality. The association of gender sensitivity of VA environments was not limited to patient perception of overall VA care as it was also applicable to the appraisal of WH and PC services received at VA. We found that the strength of the relationship of feeling welcome at VA as a woman with quality ratings was on a par with more traditional predictors of

satisfaction, access and provider communication. Our observations add important new information on factors associated with WVs' positive care experiences and retention of WVs as VA patients. Previous work has shown that WVs' discomfort in a male-dominated environment could lead to nonuse of services,¹⁴ and feeling unwelcome at VA was one of the reasons reported by WVs who had stopped using VA services.¹⁹ Other studies have identified Veteran identity and the perceived fit within VA as influential on the use of VA for women Veterans.⁴⁰ More research is needed to understand how to best leverage the different facets of WV identity, as a Veteran and as a woman, to enhance their sense of belonging within VA health care system, and improve their care experience.

Current policies have placed access to care as a top priority for VA, with the potential for more timely care and/or greater availability of services motivating the increasing reliance of VA on care delivery through community care. Our findings suggest that a wholesale focus on access, without concomitant attention to continuity and coordination, may fall short of goals to improve Veteran perception of quality of care. Prior studies have identified patient experience as a determinant of WVs' decision to leave the VA health care system,¹⁴ and difficulties in accessing needed services as a barrier to the use of VA care among former VA users.⁴¹ However, to our knowledge, no previous study had attempted to directly compare the contribution of those different factors. Based on our analysis, the magnitude of the associations of provider communication and gender sensitivity on WVs' ratings of care quality well exceeds the effect of ease of access, and bolstering those aspects of care may counter some of the negative effects of care fragmentation on patient experience.

Limitations of the study include the cross-sectional nature of the data that precludes addressing causal relationships. We adjusted the analysis for the patient characteristics known to influence both patient experience and patient perceptions of care. Those factors are also associated with VA-only use versus dual use.¹⁷ A sensitivity analysis using a propensity score approach to

adjust on those observable characteristics supports the robustness of the results. An alternative explanation for our results is that a more favorable care experience may influence patients in their decision of using VA as their sole unique source of care and that conversely, WVs who are dissatisfied with VA are more likely to seek additional care in the community. While this may account for some part of the associations we observe in this study, prior research using the National Survey of Women Veterans supports a model in which care fragmentation leads to dissatisfaction, and identifies access and knowledge factors rather than patient experience as being the primary drivers for community care use.¹⁷ Recent qualitative studies on WVs' experience obtaining care through the Veterans Choice Act are also consistent with an explanation of care fragmentation leading to dissatisfaction,⁴² and interviews with VA staff and providers lend further support to this explanation.⁴³ We operationalized "lower care fragmentation" as receiving all care within VA (ie, no use of non-VA care); other specifications of care fragmentation used in sensitivity analyses gave similar results. It is worth noting that fragmentation in care could be experienced within a single health care system, for example, by having multiple or inconsistent care providers. Other limitations of our study include variations in time elapsed between the last visit and the interview that may affect patient ratings and cause recall errors. We attempted to minimize selection bias from survey nonresponse using survey weights. Measures focused on patients' perspectives and did not document provider- or clinic-level characteristics that may influence patient ratings.²⁵ Our survey sample was restricted to women with more than two visits in the past year and may not generalize to patients who are less-frequent users of care. Negative experiences at VA can discourage future visits,¹⁹ such that infrequent utilizers would give VA care lower ratings. However, WVs with more than two visits in a year are not atypical; for example, in 2012, WV had 3.2 visits to primary care on average, and 42 percent of women who used VA had more than two visits.¹⁵

A strength of the study is the large sample of women Veterans, representative of 12 urban and rural VAMCs across nine states. We also used reliable, validated measures adapted from the CAHPS survey—a national standard for evaluating patient experience and satisfaction with care.¹⁶ Those measures were designed to provide health care systems with actionable information relevant to quality improvement, and reflect patients' experience under usual care conditions. Patient perception of ease of access constitutes a tangible measure of access to care that can be easily assessed by patients. Finally, the data presented here were collected following transformative efforts to improve the delivery of comprehensive care for WVs at VA, and therefore describe a contemporary view of WVs' patient experience at VA.

4.1 | Implications for policy

Expanding Veteran access through referrals to community care runs the risk of fragmenting care and may negatively impact patients' perception of care quality. We find that two key components of VA

efforts to provide comprehensive primary care for WVs—provider communication and gender sensitivity—are key drivers of patient perception of care quality and mediate the effect of lower care fragmentation. While it may be difficult to modify patients' care-seeking behaviors that contribute to care fragmentation, those two aspects of patient experience are actionable and their improvement through VA policies and quality improvement efforts are likely to enhance patient experience for all WV patients. Our analyses highlight the potential for unintended consequences of substituting community care for VA-provided care. As VA increases community provider use, it should ensure reliable systems of communication between providers within and outside of VA, so that access remedies do not impair care quality. Enhancing availability of needed services at VA and improving VA environment of care may improve WVs' ratings of care quality; this approach is fully aligned with the ongoing transformative efforts across VA facilities to improve the delivery of comprehensive primary care tailored for women.

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Disclaimer: The views expressed in this article are those of the authors and do not necessarily represent the views of the Department of Veterans Affairs or the U.S. Government.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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