Access to Care for Women Veterans: Delayed Healthcare and Unmet Need

Donna L. Washington, MD, MPH[1,2,4], Bevanne Bean-Mayberry, MD, MHS[1,2], Deborah Riopelle, MSPH[1], and Elizabeth M. Yano, PhD, MSPH[1,3]

[1]VA Greater Los Angeles Health Services Research and Development (HSR&D) Center of Excellence, Sepulveda, CA, USA; [2]Department of MedicineUniversity of California Los Angeles (UCLA) School of Medicine, Los Angeles, CA, USA; [3]Department of Health ServicesUCLA School of Public Health, Los Angeles, CA, USA; [4]VA Greater Los Angeles Healthcare System, Los Angeles, CA, USA.

BACKGROUND: Timely access to healthcare is essential to ensuring optimal health outcomes, and not surprisingly, is at the heart of healthcare reform efforts. While the Veterans Health Administration (VA) has made improved access a priority, women veterans still underutilize VA healthcare relative to men. Eliminating access disparities requires a better understanding of the barriers to care that women veterans' experience.

OBJECTIVE: We examined the association of general and veteran-specific barriers on access to healthcare among women veterans.

DESIGN AND PARTICIPANTS: Cross-sectional, population-based national telephone survey of 3,611 women veterans.

MAIN MEASURE: Delayed healthcare or unmet healthcare need in the prior 12 months.

KEY RESULTS: Of women veterans, 19% had delayed healthcare or unmet need, with higher rates in younger age groups (36%, 29%, 16%, 7%, respectively, in 18–34, 35–49, 50–64, and 65-plus age groups; $p<0.001$). Among those delaying or going without care, barriers that varied by age group were: unaffordable healthcare (63% of 18–34 versus 12% of 65-plus age groups); inability to take off from work (39% of those <50); and transportation difficulties (36% of 65-plus). Controlling for age, race/ethnicity, regular source of care, and health status, being uninsured (OR=6.5; confidence interval [CI] 3.0–14.0), knowledge gaps about VA care (OR=2.1; 95% CI 1.1–4.0), perception that VA providers are not gender-sensitive (OR=2.4; CI 1.2–4.7), and military sexual assault history (OR=2.1; CI 1.1–4.0) predicted delaying or foregoing care, whereas VA use and enrollment priority did not.

CONCLUSIONS: Both general and veteran-specific factors impact women veterans' access to needed services. Many of the identified access barriers are potentially modifiable through expanded VA healthcare and social services. Health reform efforts should address these barriers for VA nonusers. Efforts are also warranted to improve women veterans' knowledge of availability and affordability of VA healthcare, and to enhance the gender-sensitivity of this care.

KEY WORDS: access to care; women veterans; VA healthcare; health services need; health services utilization.

J Gen Intern Med 26(Suppl 2):655–61
DOI: 10.1007/s11606-011-1772-z

BACKGROUND

The Department of Veterans Affairs (VA), in 2010, embarked on a systemwide transformation that aims to provide veterans with timely access to quality healthcare in a veteran-centered manner.[1,2] Expanding healthcare access for veterans with a focus on women veterans is one of the top three strategic initiatives to achieve this transformation. Women are one of the fastest growing segments of the U.S. veteran population, with an ever increasing number in younger age groups.[3] However, they underutilize VA healthcare relative to male veterans, with 15% overall market penetration among women veterans, in contrast to 22% market penetration in male veterans.[3,4] The growing number of women veterans, coupled with the documented gender disparities in women's entry into VA care, formed the rationale for focusing on women veterans as one of the high priority groups for the VA strategic initiative to expand healthcare access.[5]

While there may be many determinants of VA use, prior research has identified general access barriers (e.g., low income) and factors specific to women veterans (e.g., knowledge gaps in VA eligibility and services for women) as key.[6–8] It is unknown how general and veteran-specific determinants of VA healthcare use impacts overall receipt of needed healthcare, which is a relevant concern for settings both within and outside the VA that serve women veterans. With the entry into community and VA healthcare settings of new veterans from Operations Enduring Freedom and Iraqi Freedom (OEF/OIF), it is also important to understand how healthcare needs and access issues vary across different segments of the women veteran population.

Building on the value of information from principally regional studies, the VA funded the National Survey of Women Veterans (NSWV) to establish a foundation for evidence-based approaches to improving access to care among women veterans. In this paper, we report on the association between general and veteran-specific barriers, and women veterans' delaying or going without needed healthcare. We also identify potentially modifiable barriers to women veterans' healthcare access, and do so for cohorts

of the women veteran population as defined by their age group.

METHODS

Sample

We conducted the National Survey of Women Veterans, a cross-sectional national telephone survey, in 2008–2009. The NSWV enrolled a population-based, stratified random sample of women veterans. Stratification was based on VA use/nonuse and military service period, using previously described Methods.[9] Survey respondents represented all geographic regions and Veterans Integrated Service Networks. This study was approved by the Institutional Review Board of the VA Greater Los Angeles Healthcare System, and by the U.S. Office of Management and Budget.

To create the sampling frame, we cross-linked Veterans Health Administration, Veterans Benefits Administration, and Department of Defense databases, which collectively identified more than 50% of the 1.8 million U.S. women veterans.[9] Inclusion criteria was being a woman veteran of the regular armed forces, or a member of the National Guards or Reserves who had been called to active duty. Exclusion criteria were current active military duty, VA employment, or institutionalization.

Conceptual Framework and Survey Measures

The Behavioral Model for Healthcare Use is the conceptual framework that guided our examination of access to care for women veterans.[10–12] This model describes an array of factors that predict healthcare use. It suggests that use is a function of an individual's predisposition to use healthcare services, factors that enable or impede such use, and need for care. Predisposing characteristics include attitudes about the healthcare system. Enabling characteristics are attributes of the individual or of their environment, such as VA eligibility, which affect access to care. Need may be measured as perceived or evaluated. When viewed in relationship to healthcare use, need may be conceptualized as unmet need. The Behavioral Model has been modified several times, so that the current version conceptualizes access to care that result in optimal patient outcomes.[12]

Dependent Variable: Access to Care

We focused our measure of access to care on self-reported delays in obtaining needed healthcare and instances of going without needed care in the prior 12 months. Integrating patients' perceived needs for care allows us to distinguish access from general healthcare utilization, which may or may not be need-based. Among respondents who reported delayed care or unmet need, we asked four items to assess potential reasons for this. These items were based on factors thought to be important in healthcare decision-making by women.[13]

Independent Variables

General access factors from the behavioral model that we measured were: age, race/ethnicity, marital status, education, employment, insurance status, household income, having a regular source and provider for healthcare, overall health status, disability, and having diagnosed mental health conditions. Age was categorized into groups that reflect the importance and unique experiences of OEF/OIF, Vietnam, and Medicare-eligible veterans (with age predominance <35, >50, and ≥65, respectively). Geographic region was based on the U.S. census region for the respondent's residence. Rural location was determined by residence in an area with a population <2,500 based on the rural-urban continuum code for that area.[14]

VA and veteran-related factors included: military service period; perceptions and attitudes about VA care; knowledge of available VA healthcare services; military-specific health conditions; and VA healthcare use. Priority for VA enrollment is determined on the basis of military service-connected disability rating, income, recent military service, and other factors, with veterans in the highest priority groups (groups 1 to 6) having no co-payment for VA care, therefore we estimated high enrollment priority using those measures. We measured perception of VA healthcare quality with the Consumer Assessment of Health Plans Survey (CAHPS) global rating of healthcare, a single-item rating of the quality of care during the past year (range 0-to-10 with 10 being the best healthcare possible).[15,16] We measured other perceptions and attitudes about VA care using 4-point scales of agreement (strongly disagree to strongly agree) with statements about VA providers and care, then dichotomized to agreement versus disagreement. We measured knowledge of available VA services with 4-point scales assessing whether the respondent thought the service was offered (definitely or probably) by VA, versus (probably or definitely) not offered, and then dichotomized to offered versus not offered.

Statistical Analysis

Our main comparisons are between women veterans with delayed healthcare or unmet need in the prior 12 months versus those without. These groups were compared on general and women veteran-related access factors using chi-square tests for categorical variables and t-tests for continuous measures.

To determine factors independently predicting delayed care or unmet need, we conducted logistic regression analysis adjusting for factors significant in bivariate analysis at $p<0.05$. We addressed collinearity by examining the inter-correlations among independent variables and selecting one variable from each correlated subset. We examined interactions between VA use and each enabling and veteran-related factor.

Sampling weights were developed from the inverse of the probabilities of inclusion in the sample. All analyses applied weights to account for disproportional allocation of the population by strata, so that resulting estimates are representative of

the U.S. women veteran population. All analyses were conducted using STATA version 11.0.[17]

RESULTS

The NSWV enrolled 3,611 women veterans (Fig. 1), of whom 3,608 provided data on delayed healthcare or unmet need. Characteristics of the women veteran population, overall and by the presence or absence of delayed healthcare or unmet needs in the prior 12 months, are given in Table 1. Overall 18.9% of the women veteran population delayed or went without needed healthcare in the prior 12 months, including 14.3% of insured, and 54.6% of uninsured. VA healthcare users comprised 21% of those with and 13% without delayed healthcare or unmet needs. Younger age group was associated with higher prevalence of delayed care or unmet need (36% of 18–34 year olds; 29% of 35–49 year olds; 16% of 50–64 year olds; 7% of 65-plus; $p<0.001$).

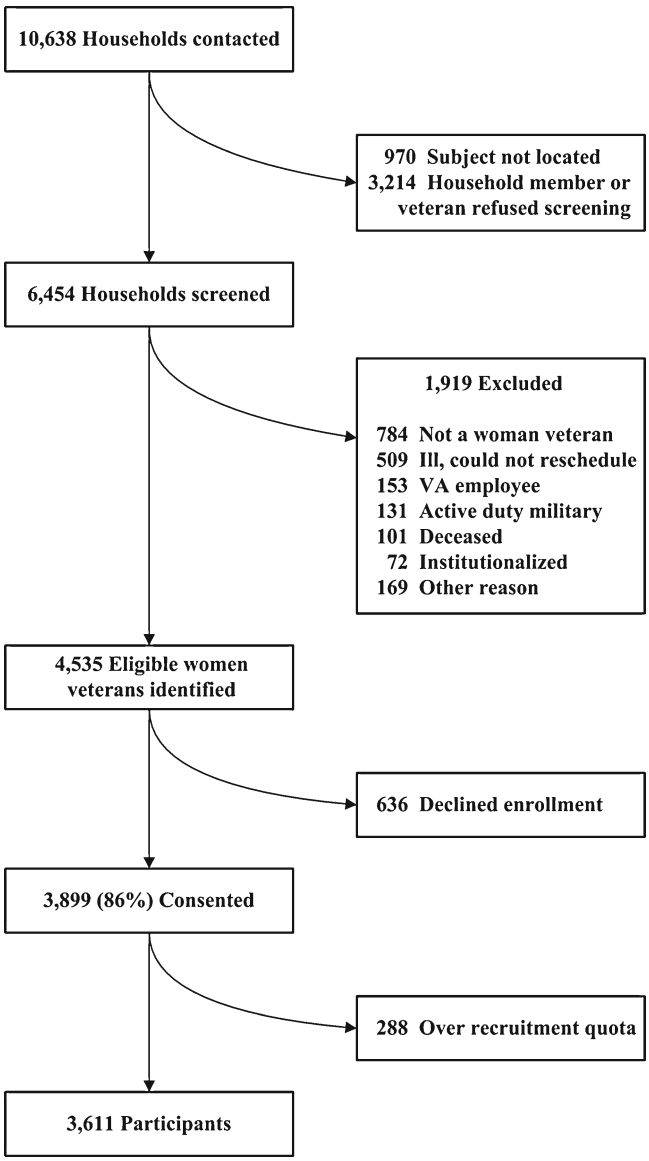

Figure 1. Study flow.

Those experiencing delays or unmet needs differed from those who did not on most of the general and veteran-specific measures (Table 1). A higher percentage of women with delayed care or unmet need, compared to those without, were racial/ethnic minorities, lacked a regular source or provider for healthcare, were uninsured, low income, had fair or poor health status, were disabled, and had mental health diagnoses. With respect to veteran-related factors, women veterans with delayed care or unmet need were more likely than those without to be OEF/OIF veterans, in a high priority group for VA enrollment, and to have experienced military sexual assault. They were less likely to have positive perceptions or attitudes about VA care, or to have knowledge of VA service availability.

Reasons for Delaying or going without Healthcare

Among women veterans who delayed or went without needed healthcare, the reasons for delaying or foregoing care are listed by age group in Table 2. The most commonly cited reason was not being able to afford medical care, occurring in 41% of those with delayed or unmet need (22% of insured, 79% of uninsured), and 8% of women veterans overall (3% of insured, 43% of uninsured). Women in 18–34 and 50–64 year age groups were more likely than those 65 and older to have affordability barriers as reasons for delayed or unmet healthcare. Those under age 50, compared with other age groups, were less able to take off from work. Caregiver responsibilities as a reason for delay did not vary by age group. Those ages 65 and older were more likely than those under 35 and 35–49 to cite transportation difficulties as a reason for delaying or foregoing care.

Multivariate Results

Independent predictors of delayed or unmet healthcare are given in Table 3. General access factors and individual characteristics were the strongest predictors, including being uninsured (adjusted odds ratio [OR] =6.5; 95% confidence interval [CI] 3.0–14.0), followed by being in the under 35 (adjusted OR=4.5; 95% CI 1.8–11.3) or 35–49 year age groups (adjusted OR=5.2; 95% CI 2.2–12.3). Controlling for age, race/ethnicity, no regular healthcare source, insurance, and health status, knowledge gaps about VA care (OR=2.0; 95% CI 1.1–3.9), perception that VA providers are not gender-sensitive (OR=2.2; 95% CI 1.2–4.2), and military sexual assault history (OR=2.1; 95% CI 1.2–3.5) predicted delaying or foregoing care, whereas VA enrollment priority and VA use did not.

DISCUSSION

In a national population-based study, we found that almost 1 in 5 women veterans delayed healthcare or went without needed care in the prior 12 months. Delayed healthcare or unmet healthcare need was present to a varying degree in all subgroups, including all age groups, VA enrollment priority groups, and among VA users and nonusers. A wide range of predisposing, enabling, and need-related healthcare factors

Table 1. Characteristics of the Women Veteran Population by the Presence or Absence of Delayed Healthcare or Unmet Need in the Prior 12 months*

Characteristic	Overall (n=3,608) % or mean (SD)	Unmet need (n=847) % or mean (SD)	No unmet need (n=2,761) % or mean (SD)	p-value
General Predisposing Factors				
Age (years)				<0.001
18 – 34	12.6	24.0	9.9	
35 – 49	24.4	37.9	21.3	
50 – 64	30.6	25.8	31.7	
≥ 65	32.4	12.4	37.1	
Racial/ethnic minority	23.2	31.8	21.2	0.04
Married or living as married	57.7	51.5	59.1	0.23
College graduate	47.5	36.5	50.1	0.03
Employed	45.9	52.2	44.5	0.22
Veteran-specific Predisposing Factors				
Period of military service				<0.001
All periods prior to Vietnam era	14.2	6.2	16.1	
Vietnam era to present, except OEF/OIF	81.0	86.2	79.8	
OEF/OIF	4.8	7.6	4.1	
Perceptions and Attitudes about VA:				
Rating of VA healthcare quality, mean (std dev)†	6.9 (1.9)	6.3 (2.3)	7.0 (1.8)	0.001
Rating of VA healthcare quality†				0.03
0 – 4	11.0	15.7	9.8	
5 – 6	27.1	36.5	24.8	
7 – 8	41.7	34.5	43.4	
9 – 10	20.3	13.4	22.0	
VA providers are skilled in treating women ‡	64.7	53.2	67.4	0.03
VA providers are sensitive to concerns of women‡	69.8	58.3	72.5	0.02
Women feel welcome at the VA ‡	78.6	69.9	80.7	0.05
General Enabling Factors				
No regular source of health care	7.0	11.8	5.8	0.05
No regular healthcare provider	25.1	35.2	22.7	0.03
Uninsured	11.4	32.8	6.4	<0.001
Household Income ≤100% Federal Poverty Level	6.5	12.7	5.0	0.01
Household Income ≤200% Federal Poverty Level	21.6	32.3	19.0	0.01
No healthcare prior year because could not afford §	26.3	87.5	8.2	<0.001
Geographic region				0.29
Northeast	9.3	8.7	9.5	
Midwest	17.9	24.4	16.4	
South	49.7	48.8	49.9	
West	23.1	18.1	24.3	
Rural residence ||	1.8	4.2	1.2	0.08
Veteran-specific enabling factors				
Has military service-connected disability	39.2	44.8	37.8	0.26
VA enrollment priority group high (priority 1 – 6) ¶	62.4	75.1	59.4	0.03
Knowledge of VA availability of contraception #	71.4	60.0	74.3	0.02
Knowledge of VA availability of readjustment counseling #	89.7	82.3	91.5	0.03
Main reason for non-VA use among those who never used VA: did not know entitled to VA care	49.4	68.4	45.7	0.03
Need Factors (General and Veteran-specific)				
Health status fair or poor	19.6	27.6	17.7	0.03
Disabled	4.4	8.0	3.6	0.002
Diagnosed depression	29.5	42.7	26.4	0.004
Diagnosed post-traumatic stress disorder	7.8	15.4	6.0	0.001
History of military sexual assault	10.0	14.8	8.8	0.04
Health Care Use				
Health care visits prior 12 months (mean, SD)	7.0 (13.5)	8.0 (16.6)	6.7 (12.8)	0.23
Any VA health care use in prior 12 months	14.1	20.6	12.5	<0.001

* *Column headers list unweighted sample size; table percentages and means are weighted population estimates for the U.S. woman veteran population*
† *CAHPS 0-to-10 scale, where higher numbers are better*
‡ *Agreement (strongly or somewhat) with statement (versus somewhat or strongly disagrees)*
§ *Among women veterans with no healthcare use in prior 12 months*
|| *Rural-urban continuum code in completely rural areas with population <2,500*
¶ *High VA enrollment priority groups (groups 1 – 6) have no copayment for VA healthcare*
# *Respondent thought service was offered (definitely or probably) by VA (versus probably or definitely not offered)*

Table 2. Population Estimates of Women Veterans Who Delayed or Went Without Needed Medical Care in Past Year and Reasons for Delaying / Going Without Care by Age Group (% distribution)

	Overall	18 – 34 years	35 – 49 years	50 – 64 years	65 years and older	p-value
Delayed Care or Unmet Need	18.9	36.1	29.3	15.9	7.2	<0.001
Reason for Delayed Care or Unmet Need						
Could not afford medical care	40.9	63.3	28.8	52.0	11.5	0.004
Unable to take off work	27.9	39.3	39.8	12.7	1.4	0.005
Childcare/other caregiver responsibilities	15.5	21.6	16.8	6.8	17.9	0.33
Transportation difficulties	13.4	7.0	8.4	16.1	35.7	0.02

had measurable and substantial impacts on women veterans' access to needed services.

Access barriers present in the general non-veteran population influenced women veterans' likelihood of delaying or foregoing needed healthcare. For example, a broad range of studies on U.S. healthcare access documents the central role of insurance coverage, which was the impetus behind healthcare reform to expand access.[18,19] The VA is an equal access system for eligible veterans in that healthcare services are mostly free at the point-of-care, with a small copayment for certain categories of veterans, but no annual premium. Despite VA availability, unmet need was greatest in high priority enrollment groups, primarily related to the large numbers of low income and uninsured veterans experiencing delayed healthcare or unmet need. Seven percent of Canadians, with their equal access national healthcare system, experience delayed care or unmet need, in contrast to the 19% we found.[20] Forty-three percent of uninsured women veterans had healthcare affordability barriers underlying these delays, similar to the 46% reported for predominantly female, uninsured, low income public health clinic users.[21] Health reform in the U.S. is slated to be fully implemented by 2014. However, research on healthcare and outcomes in England, which already has a national universal health coverage system, documents socio-economic and class-related healthcare disparities, confirming our finding that healthcare eligibility, though necessary, is not sufficient for assuring healthcare use when it is needed.[22,23] Higher rates of delayed care or unmet need were also present in racial/ethnic minorities, women veterans lacking a regular source of healthcare, and those with low income. Though these general barriers to healthcare access are not unique to women veterans,[24] what is unique is that the VA healthcare system is in a special position to create programs that offset the socioeconomic and insurance-related barriers that other public programs may be less able to accomplish.

Table 3. Multivariate Analysis of Associations Between General and Veteran-specific Access Factors and Delayed Healthcare or Unmet Need in Women Veterans*

	Unmet healthcare need Adjusted Odds Ratio (95% CI)
Predisposing Factors (General and Veteran-specific)	
Age (years)	
18 – 34	4.5 (1.8, 11.3)
35 – 49	5.2 (2.2, 12.3)
50 – 64	1.7 (0.8, 3.7)
≥ 65	referent
Racial/ethnic minority	1.3 (0.7, 2.4)
Perception that VA providers not gender-sensitive †	2.2 (1.2, 4.2)
Enabling Factors (General and Veteran-specific)	
No regular source of healthcare	1.4 (0.7, 2.9)
Uninsured	6.5 (3.0, 14.0)
VA enrollment priority group high	1.6 (0.8, 3.3)
Knowledge gap of VA availability of contraception ‡	2.0 (1.1, 3.9)
Need Factors (General and Veteran-specific)	
Health status fair or poor	1.8 (0.95, 3.2)
History of military sexual assault	2.1 (1.2, 3.5)
Health Care Use	
Any VA health care use in prior 12 months	0.7 (0.4, 1.3)

* *Adjusted odds ratios given for model without interaction terms. An interaction was present between VA use and being uninsured* (p=0.01), *where the adjusted odds ratio for unmet need in the uninsured (versus the insured) was 2.3 (95% CI 1.7, 3.2) for VA users and 13.8 (95% CI 3.8, 49.8) for nonusers. Interactions were not present* (p>0.05) *between VA healthcare use and: perception that VA providers not gender-sensitive; VA enrollment priority group high; knowledge gap of VA availability of contraception; and history of military sexual assault*

† *Agreement (strongly or somewhat) with statement (versus somewhat or strongly disagrees)*

‡ *Respondent thought service was not offered (definitely or probably) by VA (versus probably or definitely offered)*

Veteran-related factors, including those specific to women veterans, were also important determinants of access to care. In a prior regional study, we identified women veteran-related corollaries to the Behavioral Model framework's predisposing, enabling, and need domains.[6] That regional study found women veterans' perceptions about VA healthcare quality, gender-appropriateness, and the VA environment, and their knowledge of VA eligibility and services, predicted VA healthcare use. With the current national study, we found that these women veteran-specific factors are also determinants of delayed healthcare and unmet need, independent of VA enrollment priority and VA use. Nonusers have much worse perceptions of VA care than VA users,[6] suggesting that VA should better market its services and quality so that nonusers will learn that it has something to offer. However, a small segment of VA users also have poor VA perceptions, implying a need to improve VA care, e.g., by tailoring it to women's needs and preferences.[25]

Some women veterans are not eligible for VA care, or choose to obtain their healthcare in the private sector. VA nonusers, particularly the uninsured, are at risk for not receiving needed care. Our findings suggest that the health plans they use should account for the general and veteran-specific need factors that veteran status confers (e.g., posttraumatic stress disorder and military sexual assault). The predictors and access barriers we identified could inform implementation of healthcare reform activities so that non-VA health plans are responsive to women veterans' access barriers and healthcare needs.

VA market penetration for OEF/OIF women veterans is much higher than that for women veterans of other military eras (44% versus 14%, respectively, in 2008 VA administrative data).[3] Despite this greater VA use, we found that OEF/OIF women veterans still experience barriers to healthcare access. To

comprehensively address access to care for women veterans, it is critical to understand the barriers to healthcare in both VA and community settings for OEF/OIF veterans. Re-integration concerns, while recognized within the VA, may be barriers to non-VA care. Within VA, gender-sensitivity of healthcare personnel has been identified as an area for improvement;[26] we found that gender-sensitivity issues were independent predictors of healthcare access. Coordination of obstetrical and mental healthcare has been identified as an issue as well.[27] Further research should explore patient perception of and navigation among the many VA clinical sites that serve as entry points for OEF/OIF women veteran (e.g., post-deployment clinics, women's clinics, primary care clinics, and mental health clinics).[28]

A limitation of this study is that we did not assess the seriousness of the condition for which healthcare was delayed or not obtained, the length or number of delays over 12 months, or the health consequences. Nonetheless, our measure allows comparison with non-veteran populations, and is a useful starting point for a follow-up study to better characterize unmet need and to address potential solutions. Future research should also characterize unique access barriers for women in rural settings. Our measure of caregiver responsibilities did not distinguish among childcare, elder care, and other caregiver responsibilities. Given women's age-related caregiver roles, it is possible that the trend we observed for higher rates of caregiver responsibility in the youngest and oldest age groups, represented childcare and elder-care responsibilities, respectively, which may have been apparent had we assessed these caregiver functions separately.[29] A limitation of our sampling method is under-coverage of those without a telephone – a group likely to have significant access barriers. Though we could verify VA use with the administrative databases used to construct our sampling frame, a similar assessment of care-seeking behavior for VA nonusers was beyond the scope of this study. Despite these limitations, this study contributes a comprehensive assessment of access to care and healthcare utilization issues of women veterans, that is providing an evidence base for national VA strategic planning for programs and services for women veterans.[30]

Many of the access barriers that we identified are potentially modifiable through expanded VA healthcare and social services. However, since barriers to care varied by age and other population characteristics, no one blanket remedy is likely to comprehensively address all access issues for women veterans. The VA provides care for women veterans across their lifespan, and women's entry into and preference for VA healthcare varies by age group (including through women's health, primary care, and geriatrics clinics), therefore interventions need to be designed and targeted to specific age groups and risk categories of women veterans.[31] Healthcare affordability was a barrier for age groups under 35 and 50–64, therefore affecting large numbers of OEF/OIF women veterans and women who do not meet age criteria for Medicare. Since demand for obstetric care and menopause-related care, respectively, is likely greatest in those age groups, it's possible that healthcare delays may be related to reproductive needs in these cohorts.[27] Inability to take off from work was a barrier for those under age 50, and transportation difficulties were a barrier for those 65 and older. History of military sexual assault was a barrier that was independent of age group and other factors, suggesting that general and veteran-specific barriers are especially important for our most vulnerable women in VA and non-VA settings.

To address healthcare access barriers for women veterans, VA after-hours care should be considered, as should expanded VA transportation services and tele-medicine alternatives to current settings for care. Efforts are also warranted to improve women veterans' knowledge of availability and affordability of VA healthcare. Increasing knowledge of VA services is a marketing issue, and the VA has recently launched a telephone call center to reach women veterans. In addition, greater use of social marketing such as peer support and social networking internet sites could expand the potential for reaching different segments of the women veteran population. Outreach, education, and expanded VA access, to reduce barriers to entry into VA care, must be coupled with actions to enhance the gender-sensitivity and gender-appropriateness of this care. Veteran-centered care is a focus of current VA transformation activities to improve VA care. Future research should be directed toward assessing and adapting these VA transformation activities to further improve the fit between the VA environment, VA healthcare, and the needs and healthcare delivery preferences of women veterans.

Acknowledgements: *This study was funded by the Department of Veterans Affairs (VA) Office of Public Health and Environmental Hazards, Women Veterans Health Strategic Healthcare Group, and the VA Health Services Research and Development (HSR&D) Service (#SDR-08-270). Dr. Yano is supported by a VA HSR&D Research Career Scientist award (#RCS-05-195). Dr. Bean-Mayberry was supported by a VA HSR&D Research Career Development Transition award (#RCD 02–039) during this study. Dr. Washington had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. The authors gratefully acknowledge Mark Canning for project management, Julia Yosef, MA for assistance with survey fieldwork, Su Sun, MPH for assistance with data management, and Michael Mitchell, PhD, for statistical assistance. The views expressed within are solely those of the authors, and do not necessarily represent the views of the Department of Veterans Affairs or the United States government.*

Conflicts of Interest: *All authors are employed by the Department of Veterans Affairs. Drs. Washington, Bean-Mayberry, and Yano receive research funding from the VA Health Services Research and Development Service. Drs. Washington and Yano receive funding from the VA Office of Patient Care Services.*

Corresponding Author: *Donna L. Washington, MD, MPH; VA Greater Los Angeles Healthcare System, 11301 Wilshire Blvd., 111G, Los Angeles, CA 90073, USA (e-mail: donna.washington@va.gov).*

REFERENCES

1. Department of Veterans Affairs. Veterans Health Care: Leading the Way to Excellence. Universal Services Task Force Report. Washington, DC: Department of Veterans Affairs; Feb. 2009.
2. Department of Veterans Affairs, Office of Public and Intergovernmental Affairs. President Obama's 2010 Spending Plan Initiates Transformation for VA Services. Available at: http://www1.va.gov/opa/pressrel/pressrelease.cfm?id=1671, or http://www.prnewswire.com/news-releases/president-obamas-2010-spending-plan-initiates-trans formation-for-va-services-61794857.html. Accessed June 8, 2011.
3. **Hayes P, Krauthamer M.** Changing the face of health care for women veterans. Fed Pract. 2009;26(2):8–10.

4. Dept of Veterans Affairs, Office of Policy and Planning. Market Penetration: Current Year Users Divided by Projected Living Veteran Population that Year. VetPOP 2003–2007. Washington, DC: US Dept of Veterans Affairs, Office of Policy and Planning; 2008.
5. Department of Veterans Affairs. Provision of Primary Care to Women Veterans. Report of the Under Secretary for Health Workgroup. Washington, DC: Department of Veterans Affairs; Nov. 2008.
6. **Washington DL, Yano EM, Simon B, Sun S.** To use or not to use – What influences why women veterans choose VA healthcare? J Gen Intern Med. 2006;21(Suppl 3):S11–8.
7. **Hoff RA, Rosenheck RA.** Female veterans' use of department of Veterans Affairs health care services. Med Care. 1998;36:1114–9.
8. **Romeis JC, Gillespie KN, Thorman KE.** Female veterans' use of health care services. Med Care. 1988;26:589–95.
9. **Washington DL, Sun S, Canning M.** Creating a sampling frame for population-based veteran research: Coverage and overlap of VA and non-VA databases. J Rehabil Res Dev. 2010;47(8):763–71.
10. **Andersen R.** A behavioral model of families' use of health services. Research series No. 25. Chicago: Center for Health Administration Studies; 1968.
11. **Aday LA, Andersen R.** A framework for the study of access to medical care. Heal Serv Res. 1974;9:208–20.
12. **Andersen R.** Revisiting the behavioral model and access to medical care: does it matter? J Health Soc Behav. 1995;36:1–10.
13. **Washington DL, Kleimann S, Michelini AN, Kleimann KM, Canning M.** Women veterans' perceptions and decision-making about VA health care. Mil Med. 2007;172:812–7.
14. United States Department of Agriculture, Economic Research Service. Measuring Rurality: Rural-Urban Continuum Codes. Updated April 28, 2004. Available at: http://www.ers.usda.gov/briefing/rurality/ruralurbcon/. Accessed June 8, 2011.
15. Agency for Healthcare Research and Quality (AHRQ). CAHPS Health Plan Survey 4.0: Adult Commercial Instrument, CAHPS® Health Plan Survey and Reporting Kit 2008. Rockville (MD): AHRQ; 2008. Available at http://www.cahps.ahrq.gov/cahpskit/Healthplan/HPChooseQx2.asp. Accessed June 8, 2011.
16. National Committee for Quality Assurance. HEDIS Protocol for Administering CAHPS 20H Survey. Washington, DC: HEDIS; 1999.
17. StataCorp. Stata: Release 11. Statistical Software. College Station, TX: StataCorp LP; 2009.
18. Millman M, ed. Access to health care in America. Washington, DC: National Academy Press; 1993.
19. 111th United States Congress. Patient Protection and Affordable Care Act (Public Law 111–148), and Health Care and Education Reconciliation Act of 2010 (Public Law 111–152). Available at: http://www.gpo.gov/fdsys/browse/collection.action?collectionCode=PLAW. Accessed June 8, 2011.
20. **Chen J, Hou F.** Unmet needs for health care. Health Rep. 2002;13(2):23–34.
21. **Diamant AL, Hays RD, Morales LS, et al.** Delays and unmet need for health care among adult primary care patients in a restructured urban public health system. Am J Public Health. 2004;94:783–9.
22. **Hussey P, Anderson G, Berthelot JM, et al.** Trends in socioeconomic disparities in health care quality in four countries. Int J Qual Health Care. 2008;20(1):53–61.
23. **Raleigh VS, Hussey D, Seccombe I, Hallt K.** Ethnic and social inequalities in women's experience of maternity care in England: results of a national survey. J R Soc Med. 2010;103(5):188–98.
24. **Washington DL, Villa V, Brown A, Damron-Rodriguez J, Harada N.** Racial/ethnic variations in veterans' ambulatory care use. Am J Public Health. 2005;95(12):2231–7.
25. **Washington DL, Bean-Mayberry B, Mitchell MN, Riopelle D, Yano EM.** Tailoring VA primary care to women veterans: association with patient-rated quality and satisfaction. Women's Health Issues. 2011 Jul-Aug;21(4 Suppl): S112–9.
26. **Vogt DS, Stone ER, Salgado DM, King LA, King DW, Savarese VW.** Gender awareness among Veterans Administration health-care workers: existing strengths and areas for improvement. Women Health. 2001;34 (4):65–83.
27. **Mattocks KM, Skanderson M, Goulet JL, et al.** Pregnancy and mental health among women veterans returning from Iraq and Afghanistan. J Women's Health. 2010;19(12):2159–66.
28. **Bean-Mayberry BA, Chang CH, McNeil MA, Whittle J, Hayes PM, Scholle SH.** Patient satisfaction in women's clinics versus traditional primary care clinics in the Veterans Administration. J Gen Intern Med. 2003;18:175–81.
29. **Bird CE, Rieker PP.** Gender and health. The effects of constrained choices and social policies. New York, NY: Cambridge University Press; 2008.
30. Department of Veterans Affairs, Women Veterans Health Strategic Healthcare Group. Findings from the National Survey of Women Veterans – Brief Summary Report for Senate Veterans Affairs Committee. Washington, DC; July 2010.
31. Department of Veterans Affairs, Veterans Health Administration. VHA Handbook 1330.01, Health care services for women veterans. 2010, May 21. Available at: http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=2246, or http://www.veteranprograms.com/sitebuildercontent/sitebuilderfiles/VHAHandbook1330.DOC. Accessed June 8, 2011