

Identifying Opportunities to Improve Smoking Cessation Among Women Veterans at a Veterans Hospital

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ABSTRACT While women Veterans have a higher prevalence of smoking than civilian women, little is known about their quitting behavior. Via a chart review, we characterized referral and enrollment patterns in tobacco cessation services (TCS), and quit attempts among 366 women Veteran smokers at a Midwestern Veterans Hospital. Cases receiving referrals to TCS ($n = 183$) were matched 1:1 to controls who did not ($n = 183$), by year of referral. Variables included age, marital status, urbanicity, smoking status, comorbidities, pregnancy, packs per day, number of prior smoking cessation medications, provider gender, provider type, and clinical location of referral placement. Of women Veteran smokers, 24% were referred to TCS, and tended to be older, heavier smokers, with more comorbidities, more prior cessation medication prescriptions, and more likely seen by a resident or attending physician. Only 54% of referred women enrolled, and these women were older, had more medical comorbidities and prior cessation medication prescriptions than nonenrolled women. Primary care providers were more likely to have patients enroll versus inpatient providers. Only 8% of enrolled women achieved abstinence at 6 months. Quit attempts were associated with the number of cessation medication prescriptions for enrolled women, and lighter smoking histories for nonenrolled women.

INTRODUCTION

There are over 2 million women Veterans in the United States,¹ 20% of whom are estimated to be current smokers.² This equates to over 440,000 women and is notably higher than the 15% of civilian women who smoke.³ Some studies that have demonstrated even higher prevalence rates of smoking in women Veterans (up to 29%),⁴ and it has been estimated that 30% of women start smoking during their military service.⁵ Given the enormous morbidity, mortality and economic costs of smoking,⁶ this disparity needs to be better understood.

Veteran status is associated with lower socioeconomic class and having poorer overall health, especially mental health^{7,8}; factors that are independently associated with a higher prevalence of smoking.^{3,9} Combat situations are also associated with higher rates of smoking,¹⁰ and Veterans returning from recent conflicts report that smoking continues to be part of the military culture and serves as a coping mechanism for stressful periods.¹¹ Mental health disorders, particularly post-traumatic stress disorder (PTSD) often compound the cessation process, making quitting more difficult for some Veterans and requiring more intensive and integrated clinical services.¹²

Female sex/gender also may contribute to women Veterans' higher prevalence of smoking. Women smokers in general consume fewer cigarettes daily and metabolize nicotine faster than men.^{13–17} Women tend to have a higher degree of behavioral dependence on smoking than men,¹⁸ and possibly a lesser degree of nicotine dependence.^{14,18} Women also tend to be less successful at quitting than men,^{15,17–22} more likely to relapse in times of stress, and more sensitive to the negative affect associated with nicotine withdrawal.^{23,24}

In sum, being both a woman and a Veteran results in an apparent “double disparity” with respect to smoking. Despite this double disparity, there have been relatively few studies dedicated to understanding and mitigating its effects. One study found that older women Veterans with more quit attempts, fewer years of tobacco use, and a younger age at initiation of smoking would be more likely to quit smoking.⁵ It also demonstrated that these smokers had higher rates of depression symptoms compared to nonsmokers.⁵ A limitation of this study was that it was published in 1995 before the more recent rapid growth of the women Veteran population,²⁵ and more recent efforts by the Department of Veterans Affairs to improve smoking cessation clinical practices.²⁶ Although rates of tobacco counseling and treatment have improved within the Veterans Hospital (VA) for women Veteran smokers,^{4,27} the prevalence of smoking continues to be elevated.⁴ And while focus groups and expert panels have been used to design and implement a smoking cessation clinic specifically for women Veterans, utilization rates for these clinics remain low.²⁸

The current study aimed to better characterize this vulnerable population by describing the demographics, smoking characteristics and medical and psychiatric comorbidities of women Veterans at a Midwestern VA. We also examined tobacco cessation service (TCS) referral and enrollment

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Previously presented in an earlier form at the University of Wisconsin School of Medicine and Public Health, Department of Medicine Research Day, Madison, WI, May 29, 2015.

The contents of this study do not represent the views of the Department of Veterans Affairs or the U.S. Government.

doi: 10.7205/MILMED-D-15-00469

patterns as they related to demographics, smoking histories, medical histories, and health care provider characteristics. Finally, this study sought to examine quit attempts dependent on enrollment in TCS, and related to demographics, smoking and medical histories, and health care provider characteristics.

METHODS

Study Design, Setting

This study was a retrospective chart review of 366 women Veteran smokers who received care at a Midwestern VA from August 1, 2009 to December 31, 2013. The study was approved by the University of Wisconsin Health Sciences Institutional Review Board and the VA Research and Development committee.

Participants

A cohort of women Veteran smokers was generated from the VA’s computerized patient record system based on patient-reported smoking status obtained during previsit screening. Women were included if they were seen by the VA and reported that they were either current smokers or they had quit in the past 1 year. A case was defined as someone from this cohort who was referred to TCS. Cases were further broken down into an enrolled subset, including women who completed the initial assessment from TCS, and a not-enrolled subset, including women who were referred

but never completed the initial assessment. Controls were defined as women from the cohort who were not referred to TCS. Controls were randomly chosen to match cases 1:1 based on the year of referral. (See Fig. 1 for details.)

Tobacco Cessation Services

TCS at this Midwestern VA is a pharmacy-run service that offers phone-based individual counseling or group-based counseling with teleconference capabilities. Pharmacists prescribe cessation medications (nicotine patches, nicotine lozenge or gum, bupropion, and varenicline), as indicated by the patient’s medical history and preferences. Patients are referred to this service by health care providers or via self-referral. After referral, TCS arranges an initial assessment. After the initial assessment, patients are called approximately monthly, with more frequent phone calls around their quit date. Once the patient reaches 6 months tobacco free, they are discharged and considered successful. If the patient is unable to be reached by TCS, or the patient requests discharge, they are discharged and assumed to have relapsed/continued smoking.

Variables and Data Source

Patient age, smoking status (current versus quit in past 1 year), and marital status (married versus single including divorced, separated, widowed, or never married) were gathered by the VA Data Warehouse. Additional chart review was performed by KMB. Baseline variables for cases reflecting pre-TCS care

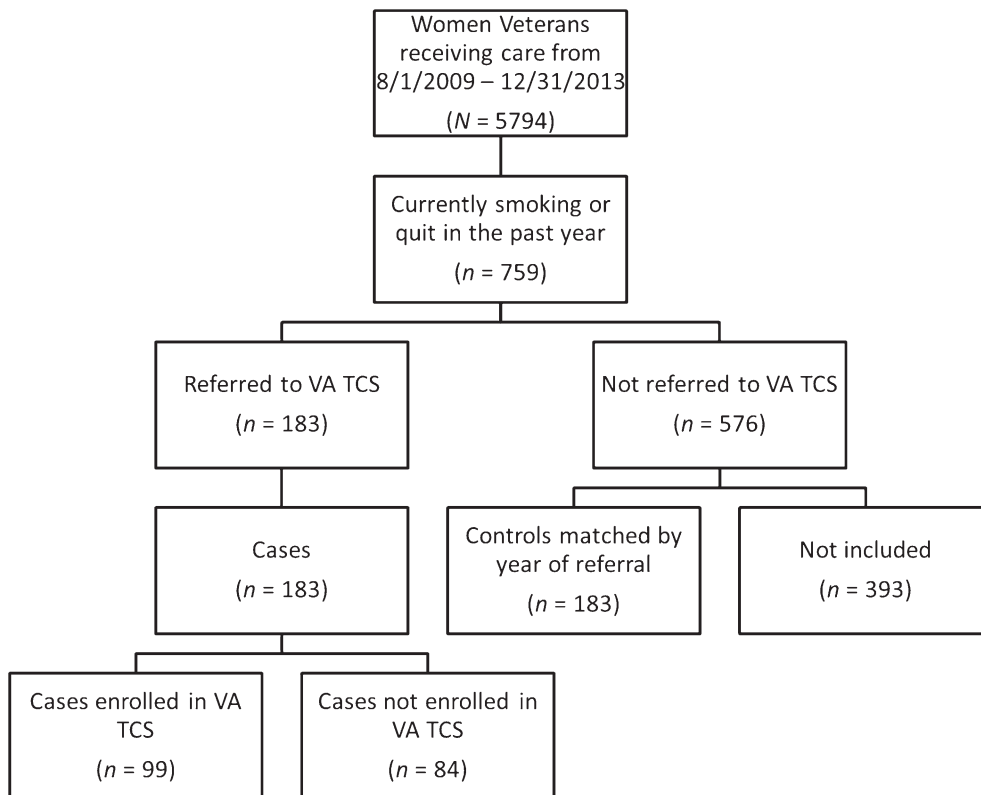


FIGURE 1. Case and control selection.

were found in the TCS initial assessment, medication histories, or notes from primary or subspecialty care dated before the referral. TCS care information was abstracted specifically from TCS notes. For controls, the most recent primary care or subspecialty notes and medication histories during the matched control year were reviewed.

Urbanicity

Participants were classified as living in an “urban” area if their 5-digit zip code had over 50% of its population documented as urban, as defined by the Missouri Census Data Center, a partner with the U.S. Census Bureau²⁹.

Smoking History (Packs Per Day, Longest Length of Abstinence Previously Achieved)

Based on patient report.

Cessation Medications

Defined as medications either self-reported or prescribed before enrollment in TCS, or before the matched control visits, including long-acting nicotine replacement therapy (LA-NRT, i.e., nicotine patch), short-acting nicotine replacement therapy (SA-NRT, i.e., nicotine lozenge or gum), bupropion, or varenicline.

Medical and Psychiatric Comorbidities

Included lifetime history of coronary artery disease, asthma, chronic obstructive pulmonary disease (COPD), malignancy other than skin for medical comorbidities, and anxiety, depression, PTSD, other mental health condition, and lifetime history of substance use/abuse for psychiatric comorbidities based on provider documentation or the problem list. If available, mental health notes were used for diagnosis of psychiatric comorbidities classified as Axis I or II disorders.

Pregnancy

Positive if the patient self-reported as pregnant at the time of smoking cessation discussion.

Health care Provider Information (Gender, Provider Type)

Provider type defined as attending physician, resident physician or mid-level provider. Gender was inferred based on provider’s first name or identified by internet searches if unclear.

Location of Referral Placement

Clinical locations included primary care (or a colleague of the primary care provider), outpatient medical subspecialty or surgical service including pharmacy providers or emergency medicine, inpatient medical or surgical service, mental health, other (VA intake assessment, podiatry, nutritionist), or patient self-referral.

Quit Attempt

In enrolled cases, “quit attempt” was defined as the patient self-reporting that they were abstinent from tobacco during

enrollment in TCS. For the control and not enrolled populations, quit attempt was defined as the patient self-reporting that they were currently abstinent as a result of an on-going quit attempt that occurred in the past 1 year during previsit screening (i.e., listed as “quit in past 1 year” from previsit screening).

TCS Cessation Medications

Defined as medications prescribed during TCS enrollment and included LA-NRT (i.e., nicotine patch), SA-NRT (i.e., nicotine gum or lozenge), bupropion, or varenicline.

TCS Attrition Status

Defined as “lost to follow-up” if the patient was not able to be reached on 2 or more attempts from TCS and was assumed to have relapsed/continued smoking.

TCS Length of Quit

Number of days the patient was able to maintain abstinence while enrolled in TCS. 180 days is a successful quit attempt.

Statistical Methods

Prediction of Referral, Enrollment

Univariate logistic regression analyses of age, marital status, urbanicity, packs per day, smoking status, medical and psychiatric comorbidities, length of longest prior abstinence, numbers of prior cessation medication prescriptions, pregnancy status, health care provider gender, and provider type were examined to quantify likelihood of referral to TCS (binary outcome variable), and reported as odds ratios (ORs) between the case and control populations. The aforementioned variables plus the location of referral placement were used as univariate predictors of enrollment in TCS for the case population (binary outcome) and reported as ORs between the referred/enrolled and referred/nonenrolled populations. Variables with *p* values < 0.25 in univariate analysis were tested together in multivariate logistic regression analyses to predict referral and enrollment into TCS. Regression equations were built using Hosmer and Lemeshow approach for the selection of predictors.³⁰

Patient Outcomes

For those patients enrolled in TCS, the length of quit attempts, probability of any quit attempt, and probability of attrition were modeled using multivariate regression analyses built using Hosmer and Lemeshow approach.³⁰ Predictor variables included age, marital status, urbanicity, smoking status, packs-per-day, number of medical/psychiatric comorbidities, pregnancy, number of prior cessation prescriptions, longest prior abstinence, number of TCS cessation medications, provider gender, provider type, and location of referral placement. For those patients not enrolled in TCS, prediction of any quit attempt was modeled in a logistic regression analysis using Hosmer and Lemeshow method,³⁰ using the aforementioned

variables as well as an additional predictor variable of being referred to TCS.

RESULTS

From August 1, 2009 through December 31, 2013, a total of 5,794 women Veterans were served in this Midwestern VA, of which 759 (13%) reported currently smoking or having quit in the past 1 year. The average age of women in this study was 44 years (SD = 13.14). See Table I for detailed characteristics. Some variables had significant proportions of missing data, which are noted in the Table.

TCS Referral and Enrollment Patterns

Of 759 women Veteran smokers, 183 had referrals to TCS: a 24% referral rate. Source of referrals included primary care ($n = 96, 52\%$), medical or surgical inpatient service ($n = 25,$

14%), medical subspecialty or surgical outpatient clinic including emergency medicine and pharmacy providers ($n = 18, 10\%$), mental health ($n = 29, 16\%$), VA intake, podiatry or nutritionist ($n = 6, 3\%$), or self-referral ($n = 9, 5\%$). Sixteen referrals (9%) were from mid-level providers, 92 (53%) from residents, 57 (33%) from attending physicians, and 9 (5%) from social workers and dietitians. In univariate analyses (see Table II), older age, higher packs per day, more medical and psychiatric comorbidities (specifically, presence of COPD and substance use or abuse), and having 2 or more previous prescriptions for cessation medications were predictive of a referral to TCS. Residents were most likely to refer patients, followed by attending physicians as compared to mid-level providers. Female providers were less likely to refer than male providers, but this was confounded with the large percentage (97%) of mid-level providers being female. Excluding mid-level providers, provider gender was no longer associated with referral to TCS. In multivariate logistic regression to predict referral, significant predictors ($p < 0.05$) included packs per day, previous number of cessation medication prescriptions, and provider type (see Table III). Greater packs per day and having been prescribed more prior cessation medications were predictive of being referred, as were patients of residents or attending physicians instead of mid-level providers. The model had a Cox-Snell $R^2 = 0.29$, and the Hosmer and Lemeshow goodness of fit test was not significant ($p = 0.7692$).

Of the 183 women who were referred to TCS, 99 enrolled: a 54% enrollment rate conditional on referral, but only a 13% enrollment rate for all women Veteran smokers. In univariate analyses (Table IV), it was found that age, medical comorbidities, number of cessation medication prescriptions, provider type, and the location of referral placement were significantly associated with enrollment into TCS. Older age, more medical comorbidities and more prior prescriptions had a positive association with enrollment.

TABLE I. Baseline Characteristics of Reviewed Cohort ($N = 366$)

	<i>n</i>	Percent
Married	87	23.8
Urban	280	81.6
Currently Smoking	333	91
Comorbidities		
CAD	8	2.2
COPD	32	8.7
Asthma	35	9.6
Malignancy	17	4.6
Anxiety	74	20.2
Depression	205	56
PTSD	90	24.6
Other Mental Health Condition	80	21.9
Substance Use/Abuse	105	28.7
Currently Pregnant	8	2.2
Prior Cessation Medications		
SA-NRT	146	39.9
LA-NRT	206	56.3
Bupropion	143	39.1
Varenicline	60	16.4
None	100	27.3
Longest Prior Abstinence		
Less Than 30 Days	23	6.3
31–180 Days	33	9
Greater Than 181 Days	54	14.8
Missing Data	256	70
Provider Gender		
Female	241	67.3
Provider Type		
Midlevel	67	18.3
Resident	160	43.7
Attending	121	33.1
Other	18	4.9
	Mean	Standard Deviation
Age (Years)	44.5	13.1
Packs Per Day	0.63	0.4
Total Number of Comorbidities	1.77	1.3
Total Number of Prior Cessation Medications	1.52	1.2
Length of Longest Abstinence (Days)	765	1350

TABLE II. Univariate Predictors of Referral to TCS

	Crude OR (95% CI)	<i>p</i> Value
Age (Continuous)	1.022 (1.01–1.04)	0.0079
Packs Per Day (Continuous)	5.394 (2.96–9.82)	<0.0001
Number of Medical Comorbidities (Continuous)	1.583 (1.05–2.39)	0.0294
Chronic Obstructive Pulmonary Disease	2.36 (1.09–5.14)	0.0302
Number of Psychiatric Comorbidities (Continuous)	1.189 (1.01–1.41)	0.0433
Substance Use/Abuse	1.76 (1.11–2.79)	0.0158
Number of Prior Prescriptions		
One	1.612 (0.86–3.03)	0.1376
Two	4.542 (2.47–8.35)	<0.0001
Three	6.727 (3.47–13.06)	<0.0001
Four	38.36 (4.81–305.78)	0.0006
Provider Type		
Resident Versus Midlevel	4.312 (2.27–8.2)	<0.0001
Attending Versus Midlevel	2.839 (1.46–5.52)	0.0021
Age (Continuous)	1.022 (1.01–1.04)	0.0079

TABLE III. Multivariate Prediction of Referral to TCS

Logit (Referral) = $\beta_0 + \beta_1$ (Packs Per Day) + β_2 (Previous Number Prescriptions) + β_3 (Resident) + β_4 (Attending)						
Variable	β Estimate	SE β	Wald's χ^2	df	p Value	e^β (OR)
Packs Per Day	1.614	0.346	21.81	1	<0.0001	5.02
Previous Number Prescriptions	0.692	0.117	34.77	1	<0.0001	2
Resident Physician Versus Midlevel Provider	1.473	0.373	15.59	1	<0.0001	4.36
Attending Physician Versus Mid-level Provider	1.207	0.389	9.63	1	0.0019	3.34

df, degrees of freedom.

Patients with referrals from residents and attending physicians seemed less likely to enroll compared to referrals from mid-level providers, however only the general model was significant, not individual predictors. Patients were less likely to enroll in TCS if they were referred while inpatient than referred by their primary care provider, but other services did not differ significantly from enrollment patterns due to primary care referral. In multivariate logistic regression to predict enrollment, the significant ($p < .05$) predictors included age, smoking status, previous number of cessation medication prescriptions, and location of referral placement (see Table V). Older age, being a current smoker versus recently quit, and a history of having more cessation medications prescribed were predictive of enrollment into the TCS. Having a referral placed to the TCS while inpatient was less predictive of enrollment than having a referral placed through the patient's primary care office. This model had a Cox-Snell R^2 of 0.199; and the Hosmer and Lemeshow goodness of fit test was not significant ($p = 0.8813$).

Patient Outcomes

Of the 267 women Veterans who were not enrolled in TCS, only 44 women (17%) made a quit attempt (6 women had

missing data and were excluded) during or after their year of referral, or matched control year. Only 1 woman reported making 2 quit attempts. A logistic regression analysis was performed to predict any quit attempt made by this group, with packs per day being the only significant predictor, OR = 0.016 (95%, CI = 0.003–0.083), $p < 0.001$, Cox-Snell $R^2 = 0.16$, but a significant Hosmer and Lemeshow goodness of fit test ($p = 0.0011$).

Of the 99 patients enrolled in TCS, 56 (57%) patients made a quit attempt, with the average length being 63 days (range = 2–280 days, SD = 67 days). Only 8 women (8%) reported a successful quit of 6 months. A multivariate regression analysis of characteristics to predict longer abstinence times demonstrated that only the number of prescription medications provided by TCS was significant. The β estimate was 16.06, $p = 0.0222$; $R^2 = 0.05$. The analysis was repeated using logistic regression for any quit attempt, yielding a similar result: only the number of prescription medications provided by TCS was significant (OR = 2.046, 95%, CI = 1.201–3.487, $p = 0.0084$). This model had a Cox-Snell R^2 of only 0.08, but Hosmer and Lemeshow goodness of fit was not significant ($p = 0.7684$). Modeling attrition from TCS using multivariate logistic regression showed that attrition was associated with higher numbers of psychiatric comorbidities (OR = 1.743, 95%, CI = 1.01–3.02, $p = 0.0472$). This model had a Cox-Snell R^2 of only 0.05, but Hosmer and Lemeshow goodness of fit was not significant ($p = 0.1469$).

TABLE IV. Univariate Predictors of Enrollment into TCS

	Crude OR (95% CI)	p Value
Age (Continuous)	1.039 (1.01–1.07)	0.002
Number of Medical Comorbidities (Continuous)	1.983 (1.11–3.54)	0.0203
Number of Prior Prescriptions		
Zero	Reference	Reference
One	4.286 (1.39–13.25)	0.0115
Two	2.488 (0.91–6.79)	0.075
Three	4.857 (1.75–13.51)	0.0025
Four	37.137 (4.08–338.01)	0.0013
Provider Type		
Resident Versus Midlevel	0.382 (0.12–1.19)	0.0961
Attending Versus Midlevel	0.841 (0.26–2.76)	0.7753
Location of Referral Placement		
Primary Care	Reference	Reference
Medical or Surgical Inpatient	0.235 (0.09–0.64)	0.0047
Medical Subspecialty or Surgical Outpatient	1.938 (0.64–5.87)	0.2417
Mental Health	0.917 (0.4–2.12)	0.84
VA Intake, Podiatry or Nutritionist	0.149 (0.02–1.33)	0.0878
Self-Referral	5.96 (0.72–49.58)	0.0984

DISCUSSION

This chart review intended to characterize the demographics of a sample of women Veteran smokers at a Midwestern VA, and to examine their relation to referral and enrollment patterns in a tobacco cessation clinical service as well as to quit attempts. We found that only 24% of women Veteran smokers were referred to TCS, and that these women tended to be more “in need” of services based on their age, heavier smoking histories, and presumed failed quit attempts in the past. Similarly, only 54% of referred women enrolled in treatment, again representing a more in need group compared to women who did not enroll. Finally, while 57% of enrolled women made a quit attempt, only 8% were successful to 6 months. Multiple trials of cessation medications most predicted a quit attempt in enrolled women.

TABLE V. Multivariate Prediction of Enrollment into TCS

Logit (Enrollment) = $\beta_0 + \beta_1$ (Age) + β_2 (Current Smoker) + β_3 (Previous Number Prescriptions)+ β_4 (Surgical, Medical Inpatient)						
Variable	β Estimate	SE β	Wald's χ^2	df	p Value	OR (95% CI)
Age	0.036	0.014	6.6	1	0.0102	1.036 (1.01–1.07)
Current Smoker Versus Recent Quit	1.491	0.745	4.005	1	0.0454	4.44 (1.03–19.11)
Previous Number Prescriptions	0.383	0.151	6.4	1	0.0114	1.466 (1.09–1.97)
Inpatient Service Versus Primary Care Referral	-1.398	0.5341	6.851	1	0.0089	0.247 (0.09–0.7)

df, degrees of freedom.

We found several notable demographic differences in this particular population of women Veterans. This population had a lower than expected prevalence of smoking; only 13%. However, this calculation does not take into account Veterans whose smoking status was not identified. It is possible that some Veterans may not have had a smoking status entered, and thus were not captured in this chart review. This population is also slightly younger than the general women Veteran population (median age = 47 versus 49 in the U.S. population), and less likely to be married (24% versus 47%).^{1,31} Studies have shown that younger patients are less likely to receive cessation counseling.^{32,33} This population has similar rates of diagnosed anxiety disorders as compared to a sample of women Veterans from mid-Atlantic states (smoking status not defined)³⁴; however, the rate of PTSD in this current sample is less than would be expected in a smoking population.³⁵ In this sample, 56% of women had a history of depression, which is comparable to previous studies of women Veterans categorized as heavier smokers.⁵ The presence of mental health disorders is associated both with increased prevalence of smoking, and possibly more difficult cessation attempts.⁹ There were relatively few cases of coronary artery disease and malignancy, likely due to participants' younger ages. COPD and asthma prevalence in this sample are comparable with civilian rates in the smoking population and in the general population respectively, from the same geographic region.^{36,37} Most in this sample (73%) have been prescribed cessation medications in their lifetime, suggesting that providers are counseling women Veterans on the importance of cessation and advising medications, however, the timeline for when this intervention occurred was not defined in this sample. Healthcare Effectiveness Data and Information Set measures of cessation counseling within the previous year were 77% in 2013 for commercial health maintenance organizations.³⁸

In referring and enrolling women Veterans to TCS, providers seemed to target women who are older, heavier smokers, sicker, and who failed multiple prior cessation treatments (and presumably quit attempts). Marital status, urbanicity, and pregnancy did not impact referral or enrollment. Marital status may have served as a better predictor if the spouse's smoking status was included. Urbanicity was predicted to impact referral and enrollment given the rural disparity in tobacco use,³⁹ however, this was not consistent. There was no effect of pregnancy; however, pregnant women may feel that they have enough motivation to quit on their own, or,

more likely, the sample size was too small ($n = 8$). Of the 8 pregnant women, 2 women were referred and only 1 was enrolled in TCS. The length of prior quit attempts was also not predictive of referral or enrollment; however, the amount of missing data prevents definitive conclusions. Provider characteristics showed that resident and attending physicians were more likely to refer, but patients referred by mid-level providers were perhaps more likely to enroll based on univariate analysis. Mechanisms for this observed difference are not clear in the current dataset, and merit further exploration. Primary care providers appear to have a much stronger influence on patient enrollment in TCS compared to inpatient providers.

The factors that predict referral and enrollment rates demonstrate that clinicians recognize patients in greatest need of assistance. However, this results in only a 24% referral rate, and a 54% enrollment rate among those referred. There remains a large portion of women veteran smokers yet to be reached and encouraged to utilize TCS. Counseling is often a forgotten piece of the cessation process, yet works synergistically with medications.⁴⁰ If confirmed, these results demonstrate areas such as provider and patient education on the importance of counseling and referring patients to evidence-based treatments to improve referral/enrollment rates among women Veterans. Although smoking cessation advice needs to occur during all patient encounters within the health system, primary care providers should be especially cognizant of their advice and their influence on patient's cessation efforts.

This study also examined successful quit attempts, and factors related to quit attempts. In this Midwestern VA, only 8% of women Veterans enrolled in TCS were successful at 6 months postquit. The analyses predicting quit attempts yielded few predictive variables, indicative of the complicated cessation process. The predictive nature of the number of TCS cessation medications demonstrates that it may take several trials before a successful medication is found. This becomes important as dedicated services may offer more frequent contacts to provide medication troubleshooting while the patient is still engaged, rather than having the patient relapse and become demoralized. For those women who dropped out of TCS, attrition was predicted by increasing numbers of mental health diagnoses, demonstrating the deep connection between smoking and mental health. The VA has recently begun integrating smoking cessation services with mental health services, attempting to target this known difficulty. In the cohort that did not enroll in TCS,

the only variable predictive of a quit attempt was fewer packs per day. It is not a safe assumption, however, that women who smoke fewer cigarettes per day need less help during a quit attempt; women typically smoke less and have more of a behavioral dependence on smoking,^{13–18} and thus are equally deserving of clinical attention.

This chart review has limitations. The first is sample size; given the amount of data and variables that could assist health care providers with their decision-making, larger samples need to be collected to allow more meaningful multivariate analyses. Additional VA populations should also be reviewed to determine if these characteristics noted in a Midwestern VA are generalizable. For the population not enrolled, the marker for a quit attempt was extremely conservative, and more sensitive markers should be investigated. Because this control population was not being actively followed for a smoking cessation attempt, the best variable available to assess quit attempts was their previsit smoking screen. For that reason, comparisons between TCS-enrolled and TCS-not enrolled populations were not performed for this outcome variable. Finally, chart reviews are limited in their predictive power given their retrospective nature, and are not able to explain why the observed differences exist.

Despite these limitations, this chart review has important clinical implications. First, while providers are capturing the most “at-risk” population of women Veteran smokers to refer to TCS, there is a disservice to the remaining 76% by not referring them sooner, potentially allowing them to fail before providing them with evidence-based treatments. This chart review also demonstrates the need for better markers of quit attempts to efficiently capture this important health outcome. Finally, this review clearly demonstrates the complex nature of a quit attempt, and future studies including qualitative approaches may delineate areas where cessation services could improve. Given the rapidly increasing size of the women Veteran population and the significant morbidity and mortality associated with smoking, this double disparity in tobacco use needs to be addressed quickly and rigorously. This chart review serves as an important first step toward improving cessation services for women Veterans.

ACKNOWLEDGMENTS

This project fulfilled degree requirements for KMB, supported by the UW Center for Tobacco Research and Intervention, the Division of General Internal Medicine, and the Advanced Fellowship in Women’s Health through the VA. During the writing of this article, author KMB was supported by a National Research Service Award from the Health Resources and Services Administration [T32HP10010] to the University of Wisconsin Department of Family Medicine and Community Health.

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