Factors Associated with Accepting Assistance for Smoking Cessation Among Military Veterans

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Abstract

Introduction: Cigarette smoking remains a significant health risk for Veterans. Increased understanding of factors that influence the tobacco cessation referral process within Veterans Affairs medical facilities is useful for enhancing utilization of smoking cessation treatment. The present study examined the association of demographic and health variables with whether smokers accepted referral for medication and/or tobacco cessation clinic.
Methods: Electronic medical record data (2011 - 2013) were obtained for a sample of US military Veterans who accepted cessation assistance from their health care provider. Demographic and diagnostic variables were examined to identify predictors of the types of assistance accepted (medication only, clinic referral only, or both).
Results: The sample includes 2,941 Veterans, 10.3% female, 19.9% African American, 10.7% Hispanic, and 57.9% Non-Hispanic White. Veterans averaged of 50.69 years of age (SD=14.01), 31.5% had a substance use disorder diagnosis and 54.1% had a psychiatric diagnosis. Demographic and diagnostic information was compared across types of assistance accepted. Significant differences were found between those who accepted medications only and those who accepted either clinic referral or both medication and clinic referral. Veterans in the latter two categories were younger and more likely to have a psychiatric diagnosis than those accepting medication only. Women Veterans were significantly more likely than men to accept clinic referral plus medication. However, in contrast to men, almost none of the variables examined were associated with the type of assistance accepted by women.
Conclusions: These findings indicate significant gender differences in influences on accepting assistance for smoking cessation among Veterans.

Implications:
Existing research identifies factors associated with unassisted quitting. However, little is known regarding the referral process, which is critical in connecting smokers with treatment. The present work is unique in employing electronic medical record data to examine factors associated with accepting different types of smoking cessation treatment referrals. This study represents an initial effort to elucidate the smoking cessation treatment referral process. These findings highlight the need to examine sex specific influences on smoking cessation treatment utilization and the importance of focusing on smokers with psychiatric disorders.

Introduction

The smoking rate among Veterans enrolled in the Veterans Affairs (VA) Healthcare System is comparable to that of the general public[1], yet prevalence is as high as 30 percent among active duty military personnel[2]. Existing research suggests elevated rates of smoking among those returning from deployment to Iraq and Afghanistan[3], a population with high rates of psychiatric disorders[4]. This is a concern because smokers with psychiatric disorders have poorer cessation outcomes[5,6]. Therefore efforts to encourage the use of evidence-based treatment is particularly important within the VA Healthcare System.

Cessation without assistance is less effective than with, and cessation with counseling and medication is found more efficacious than either approach individually[7,8]. However, the majority of adult smokers reporting a quit attempt do so unassisted, with only a small minority employing a combination of behavioral and pharmaceutical assistance[9-11]. Studies to date have identified higher levels of nicotine dependence, female sex, greater age and White ethnicity associated with use of assistance[11-14].

A VA study found smokers reported that physicians consistently advised them to quit smoking[15]. However White veterans were more frequently advised to quit than Latinos, and were more likely to have medication recommended than Black and Latino Veterans. Older Veterans were less likely to report receiving a quit referral, a finding in contrast to studies in the general population[16-18]. Finally, with the exception of Veterans with schizophrenia, smokers with other mental disorders reported receiving smoking cessation services at rates similar to Veterans without mental illness. Overall, these data indicate a high level of attention to smoking behavior in the VA Healthcare System, yet also reveal some discrepancies by ethnicity, age and psychiatric diagnosis.

Several gaps in the literature exist regarding smoking cessation treatment utilization by Veterans. The low population level rates of utilization for evidence-based treatment suggest the value of increased understanding of the referral process. This knowledge is important for identifying strategies to increase interest in quitting and accepting referral for treatment, as well as to enhance utilization of treatment by those referred[15]. The present study examines a sample of US military Veterans who were offered cessation assistance during an annual tobacco counseling clinical reminder. Variables found to influence treatment utilization in the literature (e.g., nicotine dependence and demographics) were examined in relation to the type of assistance accepted. Medical and psychiatric comorbidities were examined as these have been found associated with higher motivation for quitting among Veterans[19,20]. Because prior research indicates differences in treatment utilization rates and in receipt of services[21,22], we

examined these processes separately for male and female Veterans. The study aims to inform strategies for enhancing engagement in evidence-based tobacco cessation treatment in the VA Healthcare System by identifying variables associated with accepting treatment referrals.

Methods

Design: The present study utilizes cross-sectional data gathered through retrospective medical record review.

Procedures: Data were extracted from electronic medical records of the VA San Diego Healthcare System for Veterans administered the Tobacco Cessation Counseling clinical reminder between October 2011 and September 2013.

Sample: Examined were records of 11,045 Veterans administered the annual Tobacco Cessation Counseling clinical reminder. Included were 2,941 Veterans (26.6%) who accepted assistance, while those declining assistance (n=8,104) were excluded. The sample consisted of 10.3% female, 19.9% African American, 10.7% Hispanic, 8.3% Other, and 57.9% Non-Hispanic White Veterans. Veterans ranged from 21 to 91 years of age, with an average of 50.69 (SD=14.01). Within this sample 31.5% had an Substance Use Disorder (SUD) diagnosis, 54.1% had a psychiatric diagnosis and 24.1% had a tobacco-related medical diagnosis.

Measures:

The Tobacco Cessation Clinical Reminder is an annual assessment administered in person or by telephone to Veterans previously screened as tobacco users. The counseling portion of the reminder was completed for self-reported current smokers, consisted of the Five A's Model (Ask, Advise, Assess, Assist, Arrange)[7] including offers of medications (which would be ordered immediately) and referral to the tobacco cessation clinic (which provides medications to enrolled Veterans). Finally, pack years, **included as a proxy for nicotine dependence,** were assessed and classified as 0-14, 15-29 or 30 or more.

Additional data extracted included demographics (age, race/ethnicity, sex), SUD and psychiatric diagnoses, and diagnoses for some common medical conditions caused or exacerbated by smoking (e.g., lung and esophageal cancers, chronic lung disease, diabetes, cardiovascular disease[23]). In the VA System primary care providers and mental health clinicians enter psychiatric diagnoses in medical records. Diagnoses may have been established at any time since enrollment in the system, thus may not reflect current diagnoses.

Analytic plan: The dependent variable for all analyses was type of smoking cessation assistance accepted: clinic referral; medication; and both medication and clinic referral. Characteristics of smokers were compared across these three categories. Univariate associations between predictors and referral group were examined using Chi-square and

Analysis of Variance, as appropriate. Next, all predictors were simultaneously entered into a multinomial logistic regression model. Non-significant predictors were sequentially removed and the resulting model re-estimated. Finally, the sample was stratified by sex and the model was reexamined separately for men and women.

Results

Of Veterans included in the analyses (n=2,941), 37.3% accepted medications, 39.4% accepted referral to the tobacco cessation programs and 23.2% accepted both.

As seen in Table 1, those accepting clinic referral plus medications were significantly younger and more likely to be female than those in the medication or clinic referral only categories. Veterans who accepted medication only were significantly less likely to have an SUD or psychiatric diagnosis. No differences emerged by race/ethnicity and those accepting clinic referral only were somewhat more likely to have a tobacco-related medical diagnosis. The pack-year variable was only available for a subset of Veterans (1652 of 2941). Pack-years were compared across treatment assistance categories, finding no differences (p=.607). Therefore remaining analyses were conducted on the full sample, omitting the pack-year variable.

The full model significantly fit the data (X^2 (14) = 65.03, $p < 0.001$) and all independent variables were significant predictors except for race/ethnicity. The model was re-estimated without race/ethnicity (X^2 (8) = 67.21, $p < .001$). All remaining variables significantly distinguished between accepting a clinic referral versus accepting medication only. Women were 1.5 times more likely than men to accept a clinic referral rather than only medication (OR = 1.52, 95%CI: 1.13-2.04, $p = .006$). Similarly, those with a psychiatric diagnosis were approximately 55% more likely to accept a clinic referral over medication only (OR = 1.55, 95% CI: 1.30-1.84, $p < .001$). Veterans with an SUD (OR = 1.31, 95% CI: 1.09-1.58, $p < .001$) or a medical diagnosis (OR = 1.27, 95% CI: 1.03-1.56, $p < .001$) were each approximately 30% more likely to have accepted a clinical referral over accepting medication than those without a diagnosis. Age, although a significant predictor, showed minimal effects (OR = 0.99, 95% CI: 0.99-1.00, $p = .045$).

Fewer variables distinguished between accepting medication plus clinic referral and medication alone. Women (OR = 1.50, 95%CI: 1.12-2.03, $p = .007$) and Veterans with a psychiatric disorder were significantly more likely to accept both medication and clinic referral than only medication. Although significant, age again had a minimal effect (OR = 0.99, 95% CI: 0.98-0.99, $p < .001$).

Next, differences by sex in predictors of smoking cessation assistance category were examined (see Table 2). Women with a psychiatric diagnosis were 81% more likely to have

accepted a clinic referral than medication and approximately 2.4 times more likely to have accepted both referral and medication than medication alone. None of the predictors distinguished between women who accepted referral only and those who accepted both medication and a clinic referral. For men, similar to the results from the full model, having an SUD diagnosis (29% more likely), a psychiatric diagnosis (50% more likely), and having a diagnosis for a tobacco-related illness (30% more likely) were all associated with accepting a clinic referral, compared to those who accepted medication. Having a psychiatric diagnosis was associated with a 25% greater likelihood of accepting both medication and a clinic referral, compared to medication alone. Age again emerged as a significant predictor with little effect. None of the included predictors distinguished between those who accepted referral only and those who accepted both medication and a clinic referral.

Discussion

Differences were found between those who accepted only medications and those who accepted clinic referral alone or both medication and clinic referral. Veterans in the latter two categories were younger and more likely to have a psychiatric diagnosis than those accepting medication only. For Veterans with psychiatric diagnoses, greater willingness to engage in tobacco cessation counseling may have reflected familiarity with counseling interventions as well as having experienced more difficulty quitting in the past[13]. No differences emerged between those accepting a referral to clinic and those accepting both clinic referral and medications. As such, the present findings indicate distinctions between smokers who accepted lower intensity treatment (medication alone) versus those open to treatment that included both counseling and medication. Increasing our understanding of the factors associated with accepting higher intensity smoking cessation treatment can serve to inform strategies for enhancing the referral process.

Women Veterans were significantly more likely than men to accept higher intensity treatment. An unanticipated finding was the discrepancy between women and men in variables distinguishing between the types of assistance accepted. Among men, multiple variables distinguished between accepting medication versus clinic and medication. In contrast, only psychiatric disorder was associated with the form of assistance accepted by women. Further research is needed to examine other possible contributors to type of assistance accepted by women Veterans. These findings add support to previous evidence commending the value of gender-sensitive approaches when addressing smoking among women Veterans[21]. In addition, findings indicate a need to encourage male Veterans to utilize assistance when they try to quit

smoking, suggesting the value of motivational approaches to enhancing treatment engagement. Psychiatric disorders and SUD's were strongly associated with the referral process examined. Veterans with these disorders were more likely to accept higher intensity assistance. This is consistent with other studies indicating that smokers with psychiatric disorders have high motivation to quit smoking, and among Veterans are more motivated to do so than non-psychiatric smokers[20]. The present data extend these findings to suggest smokers with psychiatric disorders may be more amenable to utilizing evidence-based treatment. This is of particular importance because these smokers may require more intensive behavioral and pharmacological treatment[7]. These findings support the value of integrating smoking cessation within mental health treatment settings[24,25].

Several limitations to the present study must be considered. Foremost, we examined types of treatment referrals accepted by Veterans, but not whether these were utilized. However, better understanding of the referral process and factors that influence assistance acceptance are useful for explicating the treatment utilization process. Although the tobacco cessation clinical reminder explicitly prompts the provider to assess willingness to quit, the Veteran's response is not recorded. Therefore intention to quit is assumed in the present study. The influence of smoker characteristics such as age, race/ethnicity and psychiatric diagnosis[15] on provision of advice to quit or treatment referrals are not accounted for in the present study, commending cautious interpretation of the findings. Also, we were unable to assess additional factors that may influence this process, such as barriers to participating in clinics (e.g., transportation, child care) or attitudes toward using assistance[13,26-28]. Finally, the present data were drawn from a single VA facility with extensive smoking cessation programs in a state with very low smoking prevalence, and as such findings may not be representative of the VA system as a whole.

In conclusion, the present study is unique in examining aspects of the smoking cessation referral process among military Veteran smokers. Unexpected were substantial differences among men and women, in that several demographic and individual characteristics predicted type of assistance accepted for male but not female veterans. Half of the smokers in the present sample had psychiatric diagnoses, a characteristic found associated with accepting more intensive treatment referrals. These findings highlight the need to examine sex specific influences on smoking cessation treatment utilization and the importance of focusing on smokers with psychiatric disorders.

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Declaration of Interests

The authors declare no conflicts of interest.

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