Mental health utilization of new-to-care Iraq and Afghanistan Veterans following suicidal ideation assessment

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ABSTRACT

We evaluated the impact of brief structured suicidal ideation (SI) assessments on mental health care among new-to-care Operations Enduring Freedom and Iraqi Freedom (OEF/OIF) veterans. National datasets provided military, demographic, and clinical information. For all new-to-care OEF/OIF veterans administered depression screens (PHQ-2: Patient Health Questionnaire-2) and structured SI assessments in primary care or ambulatory mental health settings of three Veterans Affairs (VA) Medical Centers between April 2008 and September 2009 ($N=465$), generalized estimating equations were used to examine associations between SI and number of subsequent-year specialty mental health visits and antidepressant prescriptions. Approximately one-third of the veterans reported SI. In multivariate models, PTSD and anxiety diagnoses, severe depression symptoms, being married, and SI assessment by a mental health clinician were associated with more mental health visits in the subsequent year. Depression, PTSD, and anxiety diagnoses, and SI assessment by a mental health clinician were associated with receiving antidepressants. Presence of SI did not significantly affect subsequent year mental health utilization when adjusting for diagnostic and clinician variables, but inaugural visits involving mental health clinicians were consistently associated with subsequent mental health care.

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1. Introduction

Suicidal ideation (SI), defined as, "thoughts of engaging in suicide-related behavior," (Brenner et al., 2011; Crosby et al., 2011) is among one of the best predictors of suicide attempts (Nielsen et al., 1990; Szanto et al., 2003; Mann et al., 2008; Britton et al., 2012). Population estimates of SI vary considerably due to methods and sample selection, yet there is evidence that rates are high among Veterans Affairs (VA) healthcare-seeking veterans with mental health symptoms; up to 46% of Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) veterans referred for VA mental health services (Jakupcak et al., 2009) and 32% of OEF/OIF veterans with depression symptoms in VA care report SI (Corson et al., 2013).

The VA, which operates the largest integrated healthcare system in the United States (Department of Veterans Affairs, 2009), has designated assessment of SI among veterans with positive depression or PTSD screens as a national performance goal since 2008. The main goal of this initiative is to identify at-risk veterans to engage them in appropriate mental health treatment. VA recommendations for such care include pharmacological treatment of acute symptoms, such as anxiety, insomnia, and psychosis as well as careful evaluation, treatment, and monitoring of any underlying mental health disorders, especially depression (Department of Veterans Affairs, 2008).

However, the relationship between suicide screening, or risk detection, programs and treatment utilization, is not well understood (Gaynes et al., 2004; O'Connor et al., 2013). In a community setting, one study detected small associations between SI and subsequent receipt of further assessment, specialty mental health referral, and psychotropic medication (Bauer et al., 2013). One prior study in VA primary care revealed those with SI attended more primary care visits than those without SI (Lish et al., 1996). Given the significant time and financial burden routinized screening or assessment programs place on a healthcare system, it is imperative we understand the relative contribution of these structured SI assessments in meeting the desired objectives. In this retrospective study, we sought to evaluate the impact of VA's structured SI assessment procedures on veteran engagement in

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mental health treatment. Among new-to-care OEF/OIF veterans who screened positive for depression in VA outpatient settings, we identified the correlates of subsequent-year VA mental health care utilization, with particular interest in examining the relationship between SI and utilization. Based on recommended follow-up for SI, described above (Department of Veterans Affairs, 2008), we hypothesized that veterans with positive SI assessments would have an increased number of subsequent mental health specialty visits and/or psychiatric medication prescriptions, as compared to veterans with negative SI assessments.

2. Methods

We conducted a multi-site study of the SI assessment process and 1-year outcomes among OEF/OIF veterans screened for depression between April 1, 2008 and September 30, 2009 at three VA Medical Centers (VAMCs), representing the Northwestern, Southwestern, and Northeastern census regions of the US. Methods have been reported in detail elsewhere (Corson et al., 2013; Dobscha et al., 2013).

2.1. Settings

Each of the VAMCs has metropolitan and rural-based primary care clinics, is closely affiliated with a local university, and provides a full range of patient care services. All VAMCs utilize the VA's electronic Computerized Patient Record System (CPRS). A clinical reminder system embedded within CPRS facilitates the routine administration of screens and assessment tools for a variety of conditions and disorders (Department of Veterans Affairs, 2007), including depression and SI. Items are administered by clinicians or clinic staff, and responses, with results, are listed in the electronic progress note. Positive results generate new reminders to prompt clinician follow-up.

2.2. Data sources

The OEF/OIF Roster File, maintained by the Department of Defense and the Defense Manpower Data Center, contains demographic and service-related data on all OEF/OIF veterans discharged after September 11, 2001 who enrolled in or accessed VHA services after discharge. We used social security numbers to match the OEF/OIF Roster to VA Decision Support System data. Methods related to collection of depression screen and SI assessment results and inter-rater reliability are described in recent manuscripts (Corson et al., 2013; Dobscha et al., 2013).

2.3. Sample

We limited our sample to new-to-care patients (no VA healthcare visits during the 5 years prior) because depression and suicide risk assessment results may have less effect on continuity of care than on initiation of care, especially among established patients with diagnosed psychiatric disorders. Also, at some VAMCs, patients currently engaged in mental health may be exempt from mental health screens. At the three medical centers during the study period, 600 new-to-care veterans screened positive for depression in a primary care or mental health outpatient setting. Within this group, 465 (77.5%) had a same-day structured SI assessment using one of two widely-used structured SI assessment tools (used in 98.2% of all structured SI assessments completed during the study period (Dobscha et al., 2013)). This group constituted the sample for the current study, with the date of the positive depression screen and SI assessment representing the patient's index date. The majority of the sample was under 34 years of age (80.2%), non-Hispanic white (60.4%), and male (87.5%). The study was approved by the Institutional Review Boards of each participating site. Patient data presented here were obtained as part of routine clinical practice and thus waivers of informed consent were granted.

2.4. Measures

Depression: annual depression screening is conducted using the 9-item or 2-item Patient Health Questionnaire (PHQ-9 and PHQ-2, respectively). Both the PHQ-9 and PHQ-2 are well-validated and widely-used instruments for detecting and diagnosing depression and measuring depression severity (Kroenke et al., 2003). The PHQ-2 consists of the depressed mood and anhedonia items of the PHQ-9, and response options range from 0 (not at all) to 3 (nearly every day). A PHQ-2 score of 3 is the cut-point for a positive depression screen, with a sensitivity of 83% and a specificity of 92% for major depression (Kroenke et al., 2003).
Suicidal ideation: at the time of the study, two brief, structured tools were predominantly used to detect suicidal ideation at the three medical centers. The 9th item of the PHQ-9 asks patients if they have had thoughts of being better off

dead or of hurting themselves in some way. Any response > 0 (not at all) is scored as a positive result (Kroenke et al., 2001; Schulberg et al., 2005). The VA "Pocket Card" Risk Assessment (VA-PCRA) (Department of Veterans Affairs, 2008) is a four-item assessment, and a positive result requires endorsing, "thoughts of taking your life." Reliability and validity of these instruments for SI detection have not been established, though two recent studies support concurrent validity of the PHQ-9 9th item as an SI screening tool (Uebelacker et al., 2011; Bauer et al., 2013). Veterans were administered one or the other (and sometimes both) of these assessments, depending on the facility, or clinician or staff preference; some veterans received multiple assessments on one day. Veterans with any positive SI assessment result on the same day as the positive PHQ-2 were categorized into the *positive SI* group; veterans with only negative results were categorized into the *negative SI* group.
Demographic characteristics: age, sex, race/ethnicity, marital status, zip code of residence, and service connection status were obtained from the VA Decision Support System. To designate veteran rurality, we used the VA's Office of Rural Health's classifications (Urban, Rural, or Highly Rural), which are based on geo-coding and utilize a zip-code-based crosswalk system (West et al., 2010). Race/ethnicity data were frequently missing from Decision Support System databases, so race/ethnicity identification was supplemented by OEF/OIF roster data.
Healthcare data: utilization, diagnosis, and prescription data were obtained from DSS for 1 year, beginning with the patient's index date, at the VAMC of depression screening. Depressive disorder, PTSD, substance use disorder (SUD), and anxiety disorder diagnoses made on the index date were identified using International Classification of Diseases, Clinical Modification (ICD-9-CM) codes (full list available from corresponding author).

2.5. Analyses

All analyses were completed using PASW Statistics (SPSS version 18). Consistent with prior studies (Corson et al., 2013; Dobscha et al., 2013), we collapsed age into three groups (< 24, $25–34$, and ≥ 35), marital status into three groups (single/never married, married, and divorced/widowed), and education into three groups (less than high school diploma, high school/some college, and college degree or higher). We dichotomized race/ethnicity into *non-Hispanic white* vs. *other* and rurality was dichotomized by combining the *highly rural* and *rural* categories. To denote a high PHQ-2 score (severe depression symptoms), PHQ-2 scores were dichotomized at PHQ-2 ≥ 5 (vs. PHQ-2 < 5); this score cutoff requires the patient to report experiencing both anhedonia and depression, with at least one of the symptoms occurring every day during the previous 2 weeks. For this study, the number of specialty mental health visits were summed for each patient over the course of the year follow-up period, and were ordinally categorized into nine levels (0 to ≥ 8) based on the positive skew and platykurtosis of the distribution in this sample. Univariate analyses (χ^2 and Mann–Whitney U) were used to test demographic, clinical, and utilization differences between the positive SI and negative SI groups.
Generalized estimating equation (GEE) models were then constructed to identify multivariate correlates of SI, and to identify multivariate correlates of subsequent year utilization, while controlling for potential non-independence of observations with sites. For specialty mental health visits, GEE ordinal logistic models were used. As in linear regression, log-odds regression coefficients show the change expected in the dependent variable for a one unit increase in the predictor, wherein change is defined as moving from one category/level to the next; one equation is estimated across all outcome variable levels and odds ratios are calculated by exponentiating the regression coefficients (Tabachnick and Fidell, 2001). We included *a priori* in each model sex, age, race/ethnicity, rurality, marital status, SI assessment by a mental health clinician (yes/no; includes non-licensed care staff), and SI assessment positive (yes/no). We also included PHQ-2 scores, and depressive disorder and PTSD diagnoses made on the index date; we previously reported on the association of these variables with receipt of SI assessment and with SI assessment result (Corson et al., 2013; Dobscha et al., 2013). Additional diagnosis variables were included if associated with one or more outcome variables at $p \leq 0.10$.

3. Results

3.1. Sample characteristics and differences between groups

Of the 465 OEF/OIF veterans in the sample, 147 (32%) had positive SI assessment results. In univariate comparisons of the positive SI and negative SI groups, the two groups did not differ on demographic characteristics, but did differ on several clinical variables (Table 1). Veterans in the positive SI group were more likely to have high PHQ-2 scores, be assessed for SI by a mental health clinician, and be diagnosed with a depressive disorder or a substance use disorder. In multivariate analyses, only depressive