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Research report

Comorbid depression and alcohol use disorders and prospective risk for suicide attempt in the year following inpatient hospitalization

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ABSTRACT

Objective: The purpose of this study is to identify predictors of nonfatal suicide attempts in veterans discharged from acute hospitalization with depression and/or alcohol use disorder (AUD) diagnoses. We hypothesized that primary depression confers similar risk for attempt whether or not it is accompanied by secondary AUD, and that a suicide attempt in the prior year would confer greatest risk of the variables studied.

Method: Veteran Health Administration (VHA) patients discharged from acute inpatient hospitalization in 2011 with AUD and/or non-bipolar depression diagnoses ($N=22,319$) were analyzed using information from the computerized record system and national database on suicidal behavior. Proportional hazard regression models estimated unadjusted and adjusted hazard ratios (AHR) and confidence intervals (95% CI) for risk of a nonfatal attempt within one year following discharge.

Results: As hypothesized, primary depression with secondary AUD [AHR (95% CI)= 1.41 (1.04, 1.92)] and without secondary AUD [AHR (95% CI)= 1.30 (1.00, 1.71)] conferred similar prospective risk for attempt (AUD without depression, reference). Although prior suicide attempt was associated with increased risk, acute care in "general psychiatry" during hospitalization [AHR (95% CI)= 6.35 (3.48, 13.00)] conferred the greatest risk among the variables studied. Transfer to another inpatient setting reduced risk [AHR (95% CI= 0.53 (0.34, 0.79).

Limitations: Analyses were based on administrative data and did not include information on mortality.

Conclusion: When primary depression is severe enough to warrant inpatient hospitalization, a secondary diagnosis of AUD may not contribute additional prospective risk for nonfatal attempt. Within VHA, acute psychiatric care during hospitalization is a potential marker for increased risk for nonfatal attempt. Transfer to an additional inpatient setting may reduce risk for nonfatal attempt.

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1. Introduction

In the year following discharge from Veterans Health Administration (VHA) psychiatric inpatient units, veterans have been found to die by suicide at a rate of 445/100,000-568/100,000 person years (Desai et al., 2005; Valenstein et al., 2009), approximately 10 times the rate of all veterans in VHA care (Kemp and Bossarte, 2013), and roughly 20–30 times that of individuals 18 and over in the US general population (Centers for Disease Control and Prevention, 2015), indicating a time period of high risk. Interestingly, there is comparatively limited data on risk for nonfatal suicide attempts in veterans in the year after discharge from acute hospitalization. Such research is critical as nonfatal attempts are more common than suicide deaths (Crosby et al., 2011), indicative of psychological distress (Bryan et al., 2013), can result in physical injury (Stanford et al., 2007), may require expensive healthcare utilization (Goldberg et al., 2007), and are the most robust predictor of future attempts and suicide in many populations (Harris and Barraclough, 1997; Joiner et al., 2005). In veterans, a history of suicide attempt is also a potent predictor of all-cause mortality (Weiner et al., 2011). Efforts to identify predictors of nonfatal suicide attempts in the year following discharge from acute hospitalization may therefore provide critical information concerning risk for a wide range of serious outcomes including death.

Psychiatric disorders are known to increase risk for suicide and planned and unplanned nonfatal suicide attempts (Cavanagh et al., 2003; Harris and Barraclough, 1997; Ilgen et al., 2010a; Jeon et al., 2010; Nock et al., 2010; Yoshimasu et al., 2008). Depression and AUDs are among the most common psychiatric disorders in suicide decedents and individuals who make nonfatal attempts, and are also the most likely to co-occur (Cavanagh et al., 2003; Conner et al., 2013; Nock et al., 2009; Yoshimasu et al., 2008). Although depression has consistently been shown to have a stronger association

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with suicidal behavior (i.e., suicide and nonfatal attempts) than AUDs, a growing literature has begun to examine the relative impact of depression and AUDs on risk for suicidal behavior when they occur together. Case control studies in individuals with AUDs show that primary (i.e., independent) and secondary (i.e., substance induced) depression are associated with increased risk for nonfatal attempts (Conner et al., 2014; Preuss et al., 2002). However, one study found that primary depression had a stronger association with risk for attempts than secondary depression (Schuckit et al., 1997) and a second showed a similar trend (Conner et al., 2014). These studies suggest that primary depression has a stronger association with risk for nonfatal attempts than primary AUD as well as secondary depression.

The impact of co-occurring psychiatric disorders on risk for suicidal behavior can also be examined by comparing the combined contributions of co-occurring disorders to risk for suicidal behavior to their individual contributions when they occur alone. When the combined risk of two disorders such as depression and AUD is equal to the sum of their individual values, their combined risk is said to be additive. When the combined risk exceeds the sum of individual values, it is said to be synergistic (Gradus et al., 2010). Although data are limited, some studies indicate that the combined risk of depression and AUDs for suicide and nonfatal attempts is lower than the sum of their individual values, suggesting sub-additive risk (Conner et al., 2013; Flensborg-Madsen et al., 2009; Nock et al., 2009; Zhang et al., 2006). These studies suggest that AUDs confer less risk when they occur with depression than when they occur alone. Thus, primary AUDs that occur without depression are expected to have a stronger association with nonfatal attempts than AUDs that occur with depression.

Given that depression and AUDs are potent risk factors for suicidal behavior, are the two most prevalent conditions among suicide decedents worldwide, and are commonplace in Veterans and confer marked risk in this population, the purpose of the current study is to identify prospective risk factors for nonfatal suicide attempts in the year following discharge from acute inpatient treatment among veterans diagnosed with depression or AUDs at discharge. Because of the strength of the association between primary depression and risk for non-fatal attempts, and the potential lessened risk conferred by AUD when it co-occurs with depression, we hypothesized that veterans with primary depression would be at similar risk for suicide attempt whether or not they had comorbid AUD. Based on prior findings that prior suicide attempts are a robust predictor of future suicidal behavior, we also hypothesized that an attempt within the year prior to admission would show the highest risk for an attempt of all the variables studied. All covariates (e.g., demographics, other psychiatric diagnoses) included in this study were variables that are readily available to clinicians and may further inform risk identification and treatment planning.

2. Methods

2.1. Study population

Veteran Health Administration (VHA) patients discharged from an acute inpatient setting between October 1, 2010 and September 30, 2011 (Fiscal Year 2011) with a primary diagnosis at discharge of alcohol use disorder (AUD; ICD-9 Codes 303.0, 303.9, 305.0) and/or depression (ICD-9 Codes 293.83, 296.2, 296.3, 296.90, 296.99, 298.0, 300.4, 301.12, 309.0, 309.1, 311.0) were analyzed. We excluded those whose clinical care during their index acute stay was hospice or dementia-related leaving a total of 22,319 in the final sample. Primary and secondary diagnoses were based on the last bed section prior to discharge from an acute setting. The sample was stratified into four distinct diagnostic groups: (1) primary AUD with no secondary depression diagnosis (used as the reference as it was associated with the lowest risk), (2) primary depression with no secondary AUD diagnosis, (3) primary AUD with secondary depression, and (4) primary depression with secondary AUD.

2.2. Data sources

Data on predictors, with the exception of past year suicide attempt, were derived from the VHA National Patient Care Database (NPCD). NPCD houses administrative data on inpatient stays and outpatient encounters including information on demographics, psychiatric diagnoses, treatment, and physical comorbidities for all Veterans who receive care at VHA facilities. With the exception of suicide attempts, variables were based on administrative information related to the index inpatient hospitalization. Data on nonfatal attempts within a year prior to admission (used as a predictor) and in the year after inpatient discharge (the study outcome) were obtained from the Suicide Prevention Application Network (SPAN) database. SPAN is a database of suicide attempts and other suicidal behaviors as contributed by Suicide Prevention Coordinators located at each VHA Medical Center who forward the information in a standardized format to VISN 2 Center of Excellence for Suicide Prevention where it is aggregated.

2.3. Variables

2.3.1. Suicide attempt

Suicide attempts recorded in SPAN within 365 days after discharge from acute inpatient treatment were identified. Only the first attempt was identified if there were multiple attempts. A total of 464 suicide attempts on the same day as the index admission day and 52 suicide attempts that occurred during the index stay were excluded from the analysis in light of our focus on attempts that occurred prior to admission (predictor) and following discharge (outcome).

2.3.2. Demographics

Demographic variables included sex (male, reference), age in categories including 18–34, 35–54, and 55 and older (reference), and urban or rural (reference) residence. Service connected disability was defined as the percentage of the patient's disability that was service-connected with respect to the ICD-9-CM diagnosis that was responsible for majority part of the patient's hospitalization, divided into three categories: (1) 0–9% (reference), (2) 10–49%, and (3) 50–100%.

2.3.3. Psychiatric comorbidity

Select comorbid diagnoses were defined as present or absent (reference). Diagnoses that were included were non-alcohol substance use disorder, bipolar disorder, post-traumatic stress disorder (PTSD), other anxiety disorder, and schizophrenia and other psychoses (for codes see Table 1).

2.3.4. Past year suicide attempt

A suicide attempt in the year preceding the index hospitalization as recorded in SPAN was dichotomized as present vs. absent (reference) and included as a predictor.

2.3.5. Treatment

Treatment was defined as the specialty code of the physician who managed the patient's care during all or a portion of the index stay. Each type or category of treatment was noted as being present or absent (reference) during the course of their hospitalization, and the categories were not mutually exclusive. Categories included general psychiatry (acute or short-term), residential psychiatry (long-term), substance abuse, and medical (for codes see Table 1).

2.3.6. Physical comorbidity

The Elixhauser/Gagne index, a comorbidity risk adjustment measure, was used and included 18 diagnosed illnesses identified using ICD-9-CM diagnostic codes (See Table 1 for codes and weights).