Suicidal ideation and behavior in US veterans with schizophrenia or bipolar disorder[☆]

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ABSTRACT

Objective: Using data from a Department of Veterans Affairs study of schizophrenia (SZ) and bipolar I disorder (BP), we evaluated lifetime risks for suicidal ideation and behavior. We were interested in the prevalence and correlates of these outcomes, in populations of patients with severe mental illness (SMI), who have not been compared directly in previous studies despite data on high risk in each group separately.

Method: Data were collected on demographic factors, medical and psychiatric comorbidity, cognitive and functional status, and lifetime suicidal ideation or behavior in a study of veterans with SZ (N = 3942) or BP (N = 5414). In-person diagnosis and evaluation, including performance-based assessments of cognition and functional skills, make this study unique compared to studies of completed suicide. Multinomial logistic regression examined how risk factors, including major depression and negative symptoms in SCZ patients, correlated with ideation and behavior.

Results: A lifetime history of suicidal ideation or behavior was reported by a majority of Veterans with SZ (69.9%) or BP (82.3%). Lower risk was found for patients with SZ vs. BP (odds ratio [OR] = 0.82 for ideation; OR = 0.81 for behavior). The highest risk was found for patients with multiple psychiatric comorbidities (OR = 2.61 for ideation; OR = 3.82 for behavior). Clinical factors (e.g., psychiatric comorbidity) contributed more of the variance in the predictive model than demographic factors.

Conclusions: A history of suicidal ideation or behavior is common among US Veterans with SZ or BP, and specific demographic and clinical attributes correlate with variation in risk. These findings underscore the need for continuous monitoring for suicidal ideation and behavior in veteran populations with SMI, as well as the development of better risk predictions, including genomic factors. Although PTSD is a major current focus in veteran populations, the large number of veterans with SZ or BP and their high suicide risk suggests a greater clinical focus may be warranted.

1. Introduction

Suicide is a major cause of death worldwide and disproportionately affects people with severe mental illness (Goldsmith et al., 2002). In particular, both schizophrenia and bipolar disorder are marked by high rates of lifetime suicidal ideation, suicidal behavior, and completed suicides (Harris and Barraclough, 1998; Simon and Hales, 2012), and bipolar depression has the highest risk of death by suicide among neuropsychiatric conditions (Tondo and Baldessarini, 2015). Veterans

of the U.S. military are at particularly high risk for death by suicide (US Department of Veterans Affairs, 2017). Posttraumatic stress disorder (PTSD) is closely studied recently as a major risk factor for suicidal ideation and behavior, especially in veteran populations (Black et al., 2011; Conner et al., 2014; Ilgen et al., 2010; Panagioti et al., 2009) and substance abuse is another component of risk (Posner et al., 2014). In contrast to deployment-related concerns that are a major focus of current attention, suicidal ideation and behavior veterans diagnosed with schizophrenia or bipolar disorder are less well-studied, despite being

known to being very vulnerable to suicidal ideation or behavior. Comparative studies of in-life suicidal ideation or behavior across schizophrenia and bipolar disorder are quite rare. In fact, veterans with schizophrenia and bipolar disorder have higher risk for suicide than veterans with PTSD (McCarthy et al., 2015), highlighting the high risk in this population and the need to examine them to identify any preventable risk factors. These two patient populations are also likely to be affected by comorbidities that can further increase lifetime risk.

Various risk factors for, and correlates of, suicidal ideation or behavior have been reported previously—involving sex, age, income level, educational attainment, substance abuse, and the above-mentioned neuropsychiatric factors. Prior studies have been limited, however, by challenges in directly and contemporaneously measuring and analyzing multiple factors across different psychiatric diagnoses. Many studies have used archived data and focused on deaths by suicide. A related but distinct consideration involves how various easily-measurable risk factors correlate with overall risk for suicidal ideation or behavior.

The current study examines individual and cumulative correlations between demographic and clinical factors that are associated with suicidal ideation or behavior in a large sample of veteran patients with schizophrenia or bipolar disorder who were currently actively receiving mental health treatment. This latter attribute enhances the potential for suicide prevention in current clinical settings, given suggestions that people who have a mental health diagnosis and die by suicide are often not receiving treatment (Murphy et al., 2012). This study also has the potential to identify actionable risk factors in these specific populations, in contrast to factors that are not amenable to intervention easily (e.g., education) or at all (e.g., sex, age, or race).

As the source population, Department of Veterans Affairs (VA) Cooperative Studies Program (CSP) Study #572 (Harvey et al., 2014) assembled a study population of veterans with schizophrenia and bipolar disorder, and has assessed demographic factors, cognitive and functional status, history of PTSD, substance use, and other factors. The primary aims of this "parent" study, which is a project linked to the VA Million Veteran Program (MVP), involve genomic analyses, but the current work represents a free-standing opportunity to characterize the lifetime prevalence and severity of suicidal ideation and behavior among US Veterans with schizophrenia or bipolar disorder for future prevention efforts which have already begun. In addition, and recognizing that previous research on schizophrenia suggests that depression increases risk (Hawton et al., 2005) and that negative symptoms (e.g., flat affect) may reduce risk (McGirr et al., 2006), direct comparisons of these influences in a large study population examined in person were feasible. Further, this study was large enough so that we examined 1290 women veterans with severe mental illness, the largest such in person study ever completed. The design of this study involved in-person contact with veterans for diagnostic and suicidal ideation or behavior evaluation, with performance-based assessments of cognitive and functional skills.

Several strategic decisions were required in the design of this study with a primary focus on genomic correlates of cognition and functioning. For example, systematic data on everyday functioning were not collected, because it has repeatedly been shown in schizophrenia and bipolar disorder populations with severe mental illness that self-reporting does not depict actual abilities or activities (Moore and Fresco, 2012; Sabbag et al., 2011), and electronic medical record data regarding everyday functioning could not be independently verified. Identifying the requisite informants would have markedly increased the effort required to assess each patient and would have adversely impacted the study sample size. Similarly, structured symptom ratings were also not collected, given the logistical challenges of ensuring reliability of these ratings and the subsequent burden on sites and the study in general. Given that this project is eventually focused on genomic analyses, ensuring a larger sample size was a priority, with the option re-contacting the participants and collecting more detailed information in future research always available depending on funding.

The main objectives of the current analyses were to identify the lifetime prevalence of suicidal ideation and behavior, and to evaluate their association with demographic and clinical risk factors among male and female veteran patients with schizophrenia or bipolar disorder. Similar studies have been conducted using death records and similar demographic and clinical predictors (McCarthy et al., 2015). The results of the statistical analyses were also used to determine the proportion of variability in suicidal ideation and behavior that are attributable to lifelong vs. potentially modifiable factors. In the schizophrenia subsample (only), current negative symptoms and a lifetime history of a major depressive episode were examined for associations with the same outcomes. The corresponding analyses provide important insights into prevalence and correlates of suicidal ideation and behavior among Veteran patients with these two conditions, which could lead to information enhancing the Department of Veterans Affairs comprehensive initiative to reduce death by suicide in veterans and more broadly impact on suicide prevention in the population as a whole.

2. Methods

2.1. Participants

Schizophrenia patients (n = 3942) were required to meet lifetime (DSM-IV) criteria for schizophrenia, any subtype. For bipolar illness, only patients with bipolar type I diagnoses (n = 5414) were enrolled, involving a history of a mixed or manic episode at some prior point, regardless of subsequent affective episodes. During the study planning process, and based on consultation with experts in bipolar illness, the investigative team decided that a diagnosis of BP-I was more likely to be reliable than BP-II, presuming that accurate identification of a past mixed or manic episode was feasible.

Identifying potentially eligible Veterans was based on information contained in the VA electronic health record (EHR). Patients with diagnoses of substance abuse were not excluded, given frequent co-occurrence in the population and issues of representativeness. Patients with evidence in their EHR of major neurologic illnesses or degenerative conditions (e.g., Alzheimer's disease, Huntington's disease) that could interfere with test performance were excluded. Schizoaffective disorder was also an exclusion criterion, in that we did not anticipate being able to recruit a "confirmed" sample that was comparable in size to the other two groups for the planned genomic analyses. Potential participants were not enrolled if they appeared to be intoxicated at a study visit, but could be reassessed at a later date.

At each collaborating site, patients with diagnoses suggestive of possible bipolar disorder or schizophrenia (including those with a history of recent inpatient or outpatient treatment in the EHR) were sent an invitational mailing from the local site investigator. Non-respondents received a second mailing, followed by a postcard, from the study coordinating center in West Haven. Participants were also recruited through their clinicians and notices posted at the participating VA hospitals. A total of 27 different VA sites participated in this study at different times during January 2011 through June 2014, with an effective steady-state of 25 sites contributing research participants during the enrollment period. The sites were selected on the basis of previous successful participation in VA research involving severe mental illness, and the availability of an adequate population of veterans to recruit.

The VA Central Institutional Review Board (CIRB) approved the study, and all patients provided written informed consent. No patient who would have required the permission of a guardian to participate was enrolled. The CIRB did not allow for collection of any information on patients who declined to participate, including the number of such cases. In addition to the study visit, information from the EHR, the patients' clinicians, or other informants was used, if needed, to confirm diagnoses—with all participants receiving the Structured Clinical