Evidence-Based Practice With Comorbid Substance Abuse, Mental Illness, and Suicidality: Can the Evidence Be Found?

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Evidence-based practice (EBP) comprises a number of “tools” in its toolbox. These include (1) being able to phrase a question in such a way that you can carry out a useful literature search; (2) knowing how to do the search; and (3) having an understanding of the basic terminology, such as absolute risk reduction (ARR) and number needed to treat (NNT). This paper introduces the concepts of ARR and NNT and explains why they are necessary to supplement the more widely used statistic, the relative benefit ratio. Using an example of a realistic clinical question, we show how to conduct a literature search to find the best available evidence and how to translate the findings into a meaningful decision about the effectiveness of a therapeutic intervention. Next, we show how a secondary analysis of an administrative database of 2,525 psychiatric inpatients can be used to identify self-harm risk factors in a group of suicidal substance-abusing patients. Finally, we examine significant findings among the 740 former patients who were readmitted within 31 days of discharge, owing to evidence of clear and present risk of harm to self or others. [Brief Treatment and Crisis Intervention 4:123–136 (2004)]

KEY WORDS: evidence-based practice, major depression, substance abuse, suicide ideation, self-harm, rehospitalization, absolute risk reduction, computer-based searching.
This article examines evidence-based search strategies, including how to phrase the research question, understand the terminology of absolute risk reduction and number needed to treat, use data sets to predict patients’ likelihood of harm to self or others, and utilize the best evidence available to improve clinical decision making. The purpose of this article is threefold:

1. to examine statistical formulas for absolute risk reduction (ARR), numbers needed to treat (NNT), and the relative benefit ratio (RBR), to improve practice decisions;
2. to use an evidence-based search strategy of the literature on comorbid substance abuse and mental illness and their impact on suicidality; and
3. to show how analysis of electronic medical records and quality assurance data at a large psychiatric inpatient facility can be used to determine suicide risk factors among two groups of patients: first, the comorbid substance abuse and mentally ill patients who were discharged; and, second, the subgroup of patients readmitted within 31 days of discharge.

Roberts and Yeager (2004) underscore the rapid societal changes and health care revolution that has resulted in the growing importance of research- and evidence-based practice:

In the 21st century, new medical and social science advances are reported almost daily and the pace of change is breathtaking. In the midst of this, consumers of health and social services are bombarded with information about medications, surgeries, alternative health care approaches and psychosocial interventions that are “guaranteed” to ease their burden and enhance their lives each time they open their email, turn on the TV or go to the mailbox. Individuals are faced with choices of herbal remedies, gadgets, intrusive physical interventions and intriguingly named psychological treatments to manage everything from life threatening illness to embarrassing aspects of their appearance. While some view this as the age of the educated consumer, few individuals have the ability to sift through the available data and make an informed decision. Rather, those seeking and requiring treatment turn as always to health care and mental health professionals with the expectation that these professionals will have the knowledge base to determine which treatment methodology is going to result in the most positive outcome with the least cost in terms of suffering, time and money. As a result of the trust placed in them, health care and mental health professionals have a fiduciary duty to acquire the knowledge required to answer the question “What do you recommend?” based on the best available scientific information. (p. 3)

According to Rosenthal (2004), evidence-based behavioral health refers to the utilization of clinical interventions that have been systematically “evaluated by well-designed clinical research studies, published in peer-reviewed journals, and consistently found to be effective or efficacious upon consensus review” (p. 20). The objective of evidence-based prac-
Practice is to optimize the assessments, interventions, and outcomes of health care through improved clinical decision making. Ideally, clinical expertise is integrated with the best clinical evidence, gleaned from a systematic review of the research.

Often available to the clinician are electronic resources that provide access to rigorously appraised studies or meta-analyses. Such information may include systematically weighted and evaluated results from articles that meet the inclusion and exclusion criteria of the question posed and that include the response rates required for decision-making processes. For example, a clinician faced with the issue of treating depression can search an electronic database to find information for the management of a depressive disorder. This information will most likely include quantitative expression of treatment impact, such as the RBR, NNT, and ARR.

Most research with a dichotomous outcome (e.g., improved/not improved), at least in the medical literature, is reported in terms of the RBR. To illustrate, imagine a trial with 100 people, 50 in the treatment group and 50 in the control group. In the treatment group, 30 patients improve, whereas only 15 do in the control condition. The benefit of therapy for the treatment group is \( \frac{30}{50} = 0.6 \); and the benefit in the control condition is \( \frac{15}{50} = 0.3 \). Therefore, the relative benefit is \( \frac{0.6}{0.3} = 2.0 \). That is, patients in the treatment group are twice as likely to improve as those in the control group—a promising result.

However, if 5,000 patients were in each group, rather than 50, and if the same results presented (30 in the treatment condition improved whereas only 15 did so in the control condition), then the RBR would be \( \frac{0.006}{0.003} = 2.0 \). In this case, however, we would make a different decision about adopting this therapy, despite the identical RBRs. What we need is an additional way to summarize how much better one treatment is when compared to a control or comparison condition. We do so by first computing the absolute risk reduction and then the number needed to treat.

The ARR is the percentage difference in treatment response rate between the selected treatment and the comparator (e.g., the placebo or another treatment). The more “relatively effective” the treatment, the greater the ARR. In the first example, the ARR is \( 0.6 - 0.3 = 0.3 \), whereas in the second, it is \( 0.006 - 0.003 = 0.003 \).

The NNT is an analytic measure of effectiveness. It indicates the number of people who would have to receive the given treatment so that the statistical circumstances dictate that one additional person will improve by such treatment over the comparison treatment. A lower NNT indicates a relatively more effective treatment. The NNT is simply the inverse of the ARR (rounded up, if the result is a fraction):

\[
NNT = \frac{1}{ARR}
\]

In the first example, the NNT is \( \frac{1}{0.3} = 3.33 \approx 4 \), whereas in the second it is \( \frac{1}{0.003} = 333.33 \approx 334 \). In other words, in the first example, we would have to treat four people for there to be an additional improvement (the other three would either fail to benefit from the therapy or would fail to improve even without therapy); in the second example, we would have to treat 334 people to have one additional success. Despite the fact that these therapies’ RBRs are identical, the decision to adopt one would be quite different from the decision to adopt the other.

In addition to summary statistics such as these, clinicians may find practice guidelines outlining (in algorithm form) first-, second-, and third-line treatment for the diagnostic categories. Many guidelines provide recommendations for primary and ongoing maintenance, not only for the first episode, but also for additional or recurrent episodes requiring interventional care.

In 2001, approximately 15 million adults (ages 18 and over) were estimated to have
suffered from a severe mental illness during the past year (National Institute of Mental Health, 2001; Institute of Medicine, 2002). Recent research has demonstrated that in many cases severe mental illness can be successfully managed if the patient receives treatment. However, in 2001, National Institute of Mental Health (NIMH) data revealed that less than one-half (47%) of persons with a severe mental illness received treatment or counseling intervention within the past year. Within this population, adults aged 26 and older were most likely to receive treatment. Females were more likely to receive treatment (52%) than their male counterparts (38%), and Whites were more likely to receive mental health treatment or counseling than either Hispanics or Blacks (National Institute of Mental Health, 2001).

The NIMH data indicate that adults with a severe mental illness were more likely to use illicit drugs during the past year when compared with those without a severe mental illness. Within the population without a diagnosis of mental illness, incidence of illicit drug use was more than twice as high among adults with an identified severe mental illness (27% vs. 11%; Jacobs 1999; National Institute of Mental Health, 2001).

**Finding a Systematic Review and Developing New Evidence**

The essence of evidence-based practice is based on being able to phrase a realistic clinical question and knowing how to conduct a search to find the best available evidence and utilize it to optimize effective clinical decisions. In the following hypothetical example, assume that you are a social worker working with a multi-disciplinary team at a large psychiatric hospital. Your facility has recently begun to analyze intake data, psychiatric evaluations, progress notes, and discharge summaries of patients with comorbid presentation and suicidality. One of your associates is an ardent advocate of a thorough triage and psychosocial assessment, including administering lethality measures and a validated suicidality scale. Other members of your team are reluctant to establish a new policy that would require 60-min intake assessments on all new patients with comorbid mental illness and substance-abuse disorders on presentation. A committee is formed with an agreed-on goal to systematically search for, and summarize the evidence on, the best practices for these comorbid patients. You and a colleague agree to find the evidence and prepare a summary report; however, both of you must first formulate a clear and answerable clinical question deriving from a patient’s presenting problem (Rosenthal, 2004). Although the clinician usually tries to find the best treatment for the presenting problem on the basis of a literature review of the evidence, with some mental health disorders it is difficult to structure the question in a way to facilitate finding such statistically robust evidence.

**Searching for and Finding the Evidence**

You begin your literature search by accessing medical databases, such as the Cochrane Library, the Campbell Collaboration, Medline, PsychINFO, CINAHL, EMBase/Excerpta Medica, EBSCO Psychological and Behavioral Sciences Collection, and EBSCO Health Source Nursing/Academic Edition. In each source you enter, one at a time, search terms such as dual disorders, mentally ill substance abusers, mental illness and suicidality, substance abuse and suicide attempts, drug dependence and suicide, and drug abuse and suicide ideation. If you are unfamiliar with these databases, review the glossary of 500 key terms as well as the EBP World Wide Web resource directory in the recently published *Evidence-Based Practice*.
Literature Assessment. Background. The next step is to develop some criteria for organizing the information. Substance dependence and misuse in the context of comorbid mental illness can have detrimental effects leading to suicidal ideation and hospital readmission. Although many treatments exist, what remains vague is the evaluation of the clinical effectiveness of concurrent treatment for substance-abuse/dependence and mental illness.

Question. Is there an emerging, documentable pattern of increasingly severe suicide risk, including acts of harm to self and others, both before and during readmissions to the inpatient psychiatric facility within 31 days of initial hospitalization? Does the literature permit evaluating the effectiveness of treatment programming designed to address not only concurrent mental illness and substance-abuse/dependence but also potential for self-harm?

Search Strategy and Selection Criteria. We searched the databases listed here and found the reference lists of published trials and their authors, for further citations, trials, and studies. Although this produced a significant list of citations and research studies, one is never guaranteed that such a list is all-inclusive. In selecting studies, we developed specific criteria to narrow our general selection conditions. The major criterion was that we included all randomized clinical trials of any program of substance-abuse/dependence and treatment programming for persons with serious mental illness. We also included cross-sectional and longitudinal surveys examining risk factors and, because of a paucity of RCTs, studies of “weaker” design (such as cohort studies).

Data Collection and Analysis. Independent reviewers inspected citations and, where possible, abstracts; furthermore, they reinspected papers ordered or electronically retrieved, for quality of information assessed. For homogeneous dichotomous data, the Peto odds ratio (OR), as well as 95% of the confidence intervals (CI), were calculated on an intention-to-treat basis.

Main Results. In sum, 16 relevant studies were identified, of which 9 were small. Prigerson, Desai, Liu-Mares, and Rosenhek (2003) presented the strongest evidence, a well-designed survey that examined 7,224 mentally ill chemical abusers who presented risk factors within the 30-day period of interest. Second, regarding the level of evidence was research completed by Soyka, Albus, Immner, Kathmann, and Hippius (2001) that compared significance of self-harm between 447 chemical addicted and nonaddicted schizophrenics and that indicated minimal differences between using and nonusing populations. Five studies demonstrated a Level 4 criterion of well-designed quasi-experimental studies (nonrandomized, noncontrolled studies), with sample sizes ranging between 25 and 99 participants. The remaining 9 studies consisted of case series and clinical examples and of respected authorities’ opinions based on clinical experience. Certain clinically important outcomes were not consistently reported, such as client’s recidivism or emergence of suicidal ideation and subsequent rehospitalization; incidence of violence toward self or others; social functioning; or methodology of proposed self-harm. There were no clear indicators of effectiveness of programming, nor were there clear indicators of contributing factors of comorbid mental illness and substance-abuse/dependence leading to rehospitalization.

Reviewers’ Conclusions. The problems posed by comorbid substance abuse within the context of severe mental illness are growing.
The impact of the current movement toward an integrated approach to comorbid substance abuse and mental illness is not well understood in terms of outcome or effectiveness of approach. Additionally, there appears to be a lack of evidence directed toward management of comorbid substance dependence and subsequent withdrawal across a variety of diagnostic categories of mental illness. In this case, the information presented through the literature review provides only a foundation for building an evidence-based approach to the treatment of comorbid substance dependence and mental illness.

Research Evidence on the Association Between Substance Abuse, Mental Illness, and Suicidality. A number of studies have found an association between persons who present suicidality and persons who have a serious psychiatric diagnosis and receive inpatient hospitalization (Beck, Brown, Steer, Dahlsgaard, & Grisham, 1999; Dori & Overholser, 1999; Kaplan & Harrow, 1996; Lambert, 1995, 2002; Lambert & Fowler, 1997). However, longitudinal studies have indicated that, among those with substance abuse and suicide ideation who are discharged from their first psychiatric hospitalization, specific factors distinguish the recidivists from the nonrecidivists.

Joiner, Walker, Rudd, and Jobes’s longitudinal research (1999), as well as that of Joiner (2002), indicate that “single-suicide attempters” were much less likely to commit suicide than “multiple attempters.” Lambert (2002), in his 7-year longitudinal study, found that those who expressed their suicidal intent and desires and who requested hospitalization were much less likely to have committed suicide during the 7-year posthospitalization period than the group of psychiatric patients who had suicide attempts and who were verbally resistant about going to the inpatient unit. These studies have consistently indicated that the majority of psychiatric patients discharged from hospitals have survived and have made no suicide attempts several years posthospitalization. Therefore, it is useful to review the longitudinal outcome studies to determine whether certain events or behavior patterns are more likely than others to result in suicide.

It is also useful to know what social workers and psychologists believe to be the appropriate outpatient treatment behaviors and standard of care. According to Greaney’s survey (1995), psychologists should assess the patient’s availability of weapons (e.g., guns, ropes, and pills), history of suicidal behavior, current drug use and alcohol use, reasons for living, and level of perturbation (i.e., how disturbed, agitated, sane/insane, or decompensated the patient is). According to King and associates (1999), the 219 social workers responding to a national randomized survey highly endorsed the following steps in preventing clients’ suicide:

1. Determine whether the patient has a positive support system.
2. Determine the patient’s ability to manage recurring suicidal feelings.
3. Give the patient a 24-hour, crisis or emergency hotline number.
4. Let the person who is doing backup coverage know specifically about the case, for those times when the primary clinician is unavailable.
5. Ascertain whether the patient has recently been released from a psychiatric hospital.
6. Assess the patient’s marital and family relationships.
7. Evaluate the appropriateness of a no-suicide contract or agreement.

This standard of care seems to be based on estimations of what reasonable and experienced clinicians are likely to do when treating clients. In actuality, however, clinicians and their
behavior are evaluated after the fact, often when a wrongful-death lawsuit or some other type of litigation is filed against them. Since knowledge-based standards of care are still developing, we recommend further research on evidence-based studies and expert consensus panels. This effort can best be accomplished through studying the effectiveness of treatment approaches, comorbid substance abuse, and mental illness; and through examination of baseline data within the population being treated.

In this case, the treatment team began searching within the treatment environment. Treating clinicians began questioning the feasibility of evaluating baseline data collected within quality assurance programming and within the information warehouse database. The purpose of such was to compare and contrast risk factors for recidivism following completion of treatment and suicide risk across different types of mental disorders. In doing so, the treatment team was effectively implementing an evidence-based approach throughout the process: they asked questions; they found and appraised relevant data; and they harnessed such information in the form of reliable estimates of benefit and harm for everyday clinical practice—all of which was via a systematic research approach to clinical problem solving that integrates individual clinical expertise with the best available clinical evidence (Rosenberg & Donald, 1995; Rosenthal, 2004).

Data Collection. The exemplar that follows seeks to demonstrate the process of systematically examining secondary data to utilize practice-based research. The purpose of the examination is to point to the contributing factors that lead to rehospitalization among the psychiatric and substance-abuse/substance-dependent population.

Data from a university medical center was reviewed for characteristics of inpatient hospitalization and for the potential contributing factors that increase the patients’ risk for suicide attempt following inpatient-psychiatric/substance-dependence hospitalization. It is important to understand this population, and the potential diagnostic pattern changes occurring within the population, to provide the most effective management of psychiatric illness. This paper outlines an emerging pattern of comorbid diagnosis within a recently evaluated secondary data set, reviewing admissions to a metropolitan psychiatric and substance-dependence treatment facility. Within this population, the impact of multiple psychiatric diagnoses, the presence of multiple-substance dependence, and the effect of comorbid psychiatric and substance-dependence diagnoses were examined in the context of contributing to rehospitalization within 31 days and to the presence and severity of suicidal ideation in those rehospitalized.

Within the day-to-day function of the psychiatric facility, data are gathered on an ongoing basis and are collected for purposes of registration, assessment, and quality and operational improvement. Initially, demographic information is collected during the initial call, during emergency department admission, or upon intake. Data collected are utilized to create an electronic file for each patient and are stored in the information warehouse (a computer for the medical center).

The next step in the data collection process is completion of the psychiatric screening, which consists of the patient’s presenting problem; a review of the symptoms; the suicidal risk assessment; the current functionality status; and an assessment of the individual’s current life circumstances, including living arrangements, ability to care for self, and any potential risk for self-harm. The initial screen data are reviewed with the attending psychiatrist, and the patient is accepted for admission to the most appropriate level of care. For most patients, this
process takes approximately 60 to 90 min. Again, information gathered is stored in the electronic record in the information warehouse.

If it is determined by the psychiatric pre-screeners and the psychiatrist that the patient meets criteria for inpatient admission, a complete biopsychosocial assessment is completed by a professional social worker (MSW) or a psychiatric nurse (MSc, RN) as part of the admission process. The patient’s diagnosis, as previously established during the screening and intake process, is confirmed during the more complete biopsychosocial assessment and treatment-planning process, which is electronically recorded. Once the patient’s treatment is complete, the length of stay, primary discharge diagnosis, and other rank diagnoses are recorded into the information warehouse. It is important to note that the electronic medical record and categorization are monitored and updated throughout the patient’s hospitalization; this provides for optimal data collection, as the data are based on the actual care experience. Utilization of the electronic medical record minimizes common errors in electronic data collection, such as missing data, data entry errors, and poorly timed data entry. Additionally, data verification includes, but is not limited to, data comparison by patient and encounter; by diagnostic coding between billing ICD-9 codes and medical-record rank ordering of diagnoses; and by frequency analysis, to facilitate elimination of multiple entries for the same patient.

Secondary Data Analysis. Secondary data analysis is done using quality assurance data and the electronic medical record, to search for evidence on treatment of comorbidity and suicidality. This type of analysis demonstrates how hospital quality-assurance programming can be combined with data analysis from medical records to determine the presence of an emerging pattern of increasing severity of suicide risk, including acts of harm to self and others both before and during readmissions to the inpatient psychiatric facility within 31 days of initial hospitalization. Specifically, within the process of quality improvement initiatives, three cases of remarkable patient acts of harm to self or others in the inpatient psychiatric facility led to completion of a root-cause analysis of each situation.1

Figure 1 is the simplified fishbone diagram completed as a portion of the root-cause analysis documenting common factors among these three cases. This analysis led to further investigation into the occurrence of comorbid diagnosis among the presenting population. The findings of this “drill down” analysis indicate that an identifiable group of nominal variables were present in each case and may be indicative of other issues working among the patient population.

As a result, further analysis was conducted on the patient population of this facility to determine the prevalence of high-risk behaviors, such as suicidal ideation among those readmitted within 31 days. The data were examined to determine the presence of any emerging patterns of increasing comorbid diagnostic categories. Analysis indicates a .79 correlation between the presence of comorbid diagnosis and the increased risk of harm to self and others.

1 The next four sections of this article are adapted from K. Yeager and A. Roberts’s Evidence-Based Practice Manual (2004; New York: Oxford University Press).
A study reviewing secondary data collected over a 6-month period examined a total of 4,467 cases evaluated for inpatient psychiatric and substance-dependence disorders. Within the population evaluated, 1,942 patients either did not present with clearly identifiable diagnostic criteria on Axis I within a major diagnostic category or were under 18 years of age, thereby excluding themselves from this data set. A total of 2,525 cases met criteria for inclusion in the study—that is, they presented with either a substance-dependence diagnosis or a major diagnostic category for mental illness as defined by the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV-TR) and as assessed by licensed independent social workers and psychiatric nurses. An overview of the primary diagnostic categories is listed in Table 1.

Additionally, a subpopulation of 740 cases—those in the initial data set and subsequently readmitted within a 31-day period—was examined to determine potential trends of suicide risk factors (American Psychiatric Association, 2000).

It is important to note that criteria for inpatient admission to this facility require presence of clear and present risk of harm to self or others and/or the inability to care for self, secondary to psychosis or impending substance withdrawal requiring medical intervention. Hence, the prevalence of suicidal ideation will be greater when applied to the general population than to that described here.

**Prevalence of Suicidal Ideation Among the Mood Disorder Population**

The writers conducted electronic case reviews of patients presenting for psychiatric and substance-dependence treatment. The first examined group was the population presenting with depressive disorder and suicidal ideation.
(see Figure 2). Within this population 72% presented with current suicidal ideation; of this population, 23% reported ideation without plan or intent, whereas 49% were able to verbalize plan and intent.

Prevalence of suicidal ideation among the Bipolar I and II population was conducted in much the same manner, demonstrating slightly higher rates of suicidal ideation upon inpatient hospitalization, with 86% presenting with active suicidal ideation at the time of admission (see Figure 3). In sum, 57% verbalized a plan with intent to carry out; 17% verbalized suicidal ideation; and only were 12% admitted without suicidal ideation. The remaining 14% were omitted secondary to extreme manic and delusional states that made determination of suicide risk impossible.

Expressed Planned Method. Within the population verbalizing suicidal ideation, interest was taken in the expressed plans of suicide, resulting in the emergence of four clear categories (see Figure 5):

**poisoning:** taking a known toxic substance or a dose of a substance believed to create a toxic and lethal outcome (overdose was included in this area);

**suffocation:** hanging or suffocation by plastic bag;

Among the population presenting with the schizophrenia grouping of diagnosis, the reporting of suicidal ideation was less than expected (see Figure 4). In addition, the reporting of ideation without a plan was higher than expected. In all, 29% of the population admitted had verbalized no plan of suicide; rather, they were admitted secondary to an inability to care for self. Of those admitted with suicidal ideation, 37% reported ideation with no specific plan, and 34% reported specific plan with intent.

### TABLE 1. Inpatient Psychiatric Population Overview by Primary Diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>#Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol dependence</td>
<td>495</td>
</tr>
<tr>
<td>Drug dependence</td>
<td>490</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>470</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>436</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>317</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>317</td>
</tr>
</tbody>
</table>

*Note. Substance abuse as a prevalent secondary diagnosis presented in 740 cases. Although alcohol abuse was identified in 114 cases, it was considered to be underdiagnosed. Alcohol abuse is defined as frequent consumption of greater than six drinks per occasion with the absence of physical dependence (per the diagnostic criteria of the DSM-IV-TR).*
firearm: using a gun, which included numerous methods of execution; and other: including cutting oneself and participating in motor vehicle accidents.

Gender and Race Issues. Among the population examined, the sex ratio favored female admissions, but only by 2%. Of those admitted, females represented 51% of the population whereas males represented 49%. Females had higher rates of verbalizing self-injury. Men and women between the ages of 18 and 45 demonstrated the highest rates of verbalizing self-harm. When examined in terms of ethnicity, females of all races and ethnicity verbalized the highest rates of suicidal ideation with plan. Black women verbalized higher rates of verbalized desire for self-harm than White or Hispanic women.

The Impact of Comorbid Diagnosis on Rehospitalization for Suicide Risk. Within this study, comorbid diagnosis was examined in a psychiatric population rehospitalized within 31 days following discharge, to determine the impact of comorbid substance abuse and mental health diagnosis on suicide risk. The most significant findings were among the substance-dependent population, in which approximately one-third of initial admissions demonstrated suicidal ideation on admission via verbalization of plan or presence of suicide attempt or gesture.

Opioid-dependent persons verbalized the highest prevalence of suicidal risk, at 41.5%; alcohol-dependent persons, at 39.7%; and sedative-hypnotic and polysubstance abusers, at 34.6% and 16.6%, respectively.

Among the 31-day readmission population, two significant changes occurred. First, identified suicidal risk via plan or attempted suicide increased 50 percentage points. Second, and possibly the more interesting point, the readmissions group did not consist of those primarily diagnosed with substance-abuse disorders. In fact, 56% of rehospitalizations are primary psychiatric diagnoses, including major depressive disorder (23%), schizophrenia (14%), and bipolar disorder (19%).

Implications for Evidence-Based Practice

The implications for practice stem from the percentage of those persons readmitted to the hospital within 31 days (in relation to the total population of admissions) who present with suicidal ideation. This study indicates that persons who work psychiatric intake should give strong consideration to the presence of comorbid diagnosis as an indicator of potential suicidal ideation and potential risk of harm to self and others once hospitalized. Patients presenting to psychiatric intake with severe levels of anxiety and agitation and with a history of substance dependence present the highest risk of harm to self and others. As a group, these patients present a 27% greater risk of violent actions on the inpatient unit versus the general admission populations.

Additionally, a cluster of symptoms emerged within the readmitted population that indicate components consistently present in those verbalizing suicidal ideation and demonstrating suicidal risk behaviors. The symptoms include the following:

- Medical illness
- Impulsivity
- Anxiousness
Within this rehospitalized group, it is important to separate two stages within suicidal ideation. The first stage consists of expressed thoughts of death. Patients frequently reported “fleeting thoughts of death,” expressing what the world would be like without them and that others would be better off without them in the world. The second stage includes the same thoughts as those in the first stage but adds the intent to die and the planning component. In the second stage, patients present with vague to well-thought-out plans of how to carry out the suicide. It is important to note, though, that there was no distinction between vague plans and concrete plans, as patients were reluctant to reveal details while waiting for an “opportunity” to act.

**Limitations and Implications for Further Investigation**

This study is exploratory in nature. It provides a baseline on psychiatric diagnosis, comorbidity, suicide ideation, and suicide attempts within an inpatient psychiatric facility. It was designed to examine emergent trends among persons presenting for initial hospitalization and among the subgroup rehospitalized within 31 days of discharge. Nevertheless, what appears prevalent is an increase of comorbid diagnoses emerging among persons at acute risk for suicide. There also appear to be alarming trends demonstrating the impact of comorbid substance and psychiatric diagnosis on risk for suicidal behaviors, demonstrated via verbalization of plan and intent and via actual suicide attempt.

Further examination is required to document the extent of the impact of comorbid diagnosis on patient suicide risk. Application of standardized measures and statistical analysis to determine correlational, contributing, and causal factors should be undertaken among a variety of settings to document on a national scale the presence of identified trends of risk. What should also be considered are examination of treatment methodology, medication management, length of stay, and follow-up planning, as well as environmental factors.

**Conclusion**

Systematic reviews of the research literature on comorbid substance abuse and mental illness and suicidality can begin to contribute to improving treatment protocols. In summary, this article provides evidence of the utility of using practice interventions based on secondary data analysis and systematic assessments of the evidence-based literature to determine the treatment protocols with the highest probability of success. In a perfect-case scenario, you would be working with data that provide sufficient numbers to complete NNT and ARR. Unfortunately, real-life inpatient and outpatient settings rarely afford that opportunity. Secondary data analysis is your fallback position, providing baseline information for clinical decision making until systematic evidence-based studies can be completed using sufficient sample sizes as well as control or comparison groups. The data analyses from one large medical center documented the impact of comorbid substance abuse and psychiatric diagnosis on suicidal behavior. In general, the most significant findings included the following:

1. evidence of an increasing prevalence of comorbid diagnosis emerging among persons at acute risk of suicide;
2. increased verbalizations of suicide plans and intent among psychiatric patients; and
3. with regard to the 740 persons readmitted to the hospital within 31 days of discharge, a 50-percentage-point likelihood that they presented with a clear suicide plan or recent suicide attempt.

Finally, among the readmissions, 44% had a substance-abuse disorder; 23%, a major depressive disorder; 19%, a bipolar disorder; and 14%, schizophrenia.

Case-control retrospective and prospective studies with large samples are needed to assess, monitor, and find the key predictors of suicide (also known as suicidal markers)—for example, increased substance abuse, sense of hopelessness, social isolation, loss of a job, specific suicide plan, history of suicide attempts, family history of suicide, and major depression.

References


