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Alcohol and Suicidal Behavior:

What Is Known and What Can Be Done

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Abstract

Research on associations between substances of abuse and suicidal behaviors is a large, complex area. Herein, alcohol, the most commonly abused intoxicant worldwide, is examined with a focus on two topics: (1) acute use of alcohol (AUA) shortly prior to suicidal behavior; and (2) more chronic alcohol use disorder (AUD) and suicidal behavior. First, a brief summary of what is known about AUA, AUD, and suicidal behavior is provided. Next, we draw on preliminary evidence, practical considerations, and our own experience to offer recommendations for intervention research that may lower risk associated with AUA and AUD. The literature on AUD and suicidal behavior is more developed, thus we discuss separately research designed to: (1) prevent individuals with AUD with suicidal ideation from engaging in suicidal behavior; and (2) prevent individuals with AUD who have made a suicide attempt from reattempting. Our focus is on clinical intervention strategies for individuals at risk for suicidal behavior that use alcohol or have developed AUD. We also focus on applied research that may directly lead to practical prevention efforts. Although clinical interventions are important components of a comprehensive suicide prevention strategy, they should be complemented with primary prevention efforts.

Introduction

Acute use of alcohol (AUA) and alcohol use disorder (AUD) are correlated but distinct constructs. For example, AUA is a potent risk factor for suicidal behavior after adjusting for drinking pattern or AUD,¹ and many acts of suicide among individuals with a history of AUD occur outside periods of acute intoxication.^{2,3}

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An empirical review of published studies reported that a median of 37% of suicides and 40% of suicide attempts are preceded by AUA.⁴ The reviewed reports were primarily uncontrolled descriptive studies, and only a handful of studies of AUA and suicidal behavior have included a non-suicidal control group⁵⁻⁷ or used a case-crossover design where cases served as their own controls.^{8,9} These controlled reports were limited by the small number of suicidal acts preceded by AUA, with fewer than 50 such cases in each study.

Nonetheless, each controlled study demonstrated that AUA confers increased risk at a statistically significant level, with point estimates in the range of 5–10-fold risk. There are also data indicating that risk for suicidal behavior is increased at high drinking levels^{5,6,8} and that use of firearms and hanging, deadly methods of suicide, are associated with high drinking levels,¹⁰ underscoring the importance of alcohol dose in the link between AUA and suicidal behavior.

Psychological autopsy investigations worldwide show that substance use disorders, most often AUD, are the second most common group of mental disorders among suicide decedents and that AUD is a risk factor for suicide.¹¹ Epidemiologic studies¹² also show that AUD is a risk factor for suicide attempts. Several reports¹³⁻¹⁵ have examined risk factors for suicide attempts and suicide among individuals with AUD.

These studies show that, compared to non-suicidal individuals with AUD, those with AUD who attempt or die by suicide are more likely to have (or show greater levels of) depressive disorder, drug use disorder, AUD symptoms or severity, low social support, aggression, interpersonal stressful life events, medical illness or complaints, and unemployment or other indications of economic adversity. Among comorbidities, depression is particularly salient and associated with risk in this population, regardless of whether it is caused by AUD or other drug use (i.e., substance-induced depression) or occurs independent of AUD (i.e., primary depression).^{16,17}

What Can Be Done to Understand and Lower Risk Associated with AUA

There are a number of breakthroughs that would need to occur to best inform prevention and intervention efforts concerning the association between AUA and suicidal behavior. There is a paucity of data on drinking shortly prior to suicidal behavior beyond estimates of the number of drinks consumed in a general period of time (e.g., within 3 hours of death). Missing are data pertinent to understanding the progression or escalation of suicidal risk during drinking bouts. Research is needed on whether alcohol use (and degree of use) and suicidal ideation (and degree of ideation) covary generally. Such event-based analysis of drinking and suicidal thoughts and behavior would inform theory and prevention efforts targeting alcohol-involved acts of suicide.

It is also necessary to determine the mechanisms by which AUA may increase suicidal thoughts and behavior. These mechanisms may include, but are not limited to, alcohol-related psychological distress, depressed mood and anxiety, aggressiveness, impulsivity, and cognitive constriction.^{18,19} AUA may also lead to acute interpersonal conflict and disruption that may serve to increase risk for stress reactive suicidal behavior.²⁰ Preliminary genetic

research suggests that suicidal acts preceded by AUA may be a distinct phenotype of suicidal behavior.²¹

Prior studies of AUA and suicidal behavior have failed to consider that the circumstances and motivations for drinking prior to suicidal behavior may differ in key ways. For example, although seldom considered, alcohol may be used deliberately prior to suicidal behavior in order to remove psychological barriers by increasing courage and numbing fears; anesthetizing the pain of dying^{18,19}; or to make death more likely (e.g., “I mixed alcohol with pills”). Although the use of alcohol for the purpose of facilitating suicidal behavior has rarely been examined, a large case series estimated that approximately one quarter of suicide attempters with AUA fit this pattern,²² suggesting it is common.

We hypothesize that use of alcohol among individuals intending to make a suicide attempt, for the purpose of facilitating the suicidal act, may represent a distinct group typified by greater suicide planning, intent, lethality, and potentially co-occurring depression. Such an idea could be tested using a large sample of suicide attempts preceded by AUA whose motivations for alcohol use (among other variables) were retrospectively assessed shortly after the attempt.

After a finer-grained understanding of the role of AUA and suicidal thoughts and behavior is obtained, treatment development research may proceed to prevent attempts in acutely intoxicated individuals expressing suicidal ideation and to prevent reattempts among individuals with a history of attempt(s) while drinking. This likely will concern two phases, development of research for acute intervention (e.g., crisis-line calls, hospital presentation) and then linkage to integrated interventions that address the specific role of AUA in suicidal risk for a particular patient, and target both behaviors.

Although it is logical to pursue foundational studies at this early stage of research, there is also an urgency to explore what may work in preventing suicidal behavior based on current knowledge. For example, the current zeitgeist in emergency settings is to wait until intoxicated suicidal individuals “sober up” and reassess them for safety, with most being sent home with an outpatient appointment.

Data²³ also suggest that patients hospitalized for suicide risk who are judged to have risk related to alcohol (or drug) intoxication are discharged sooner than patients who are perceived not to have substance-related risk. Individuals who appear to be at increased risk for suicidal behavior while intoxicated provide an opportunity for researchers to explore the feasibility and promise of brief interventions that may be delivered prior to discharge including interventions to increase motivation to live²⁴ and to develop a safety plan.²⁵

The study of AUA and suicidal behavior presents many challenges. Potentially informative naturalistic studies of intoxicated suicidal states, such as during presentations to emergency departments, for example, may not be possible because of prohibitions on obtaining informed consent for research from intoxicated persons. Similarly, for ethical reasons, controlled experiments to examine the role of drinking in suicidal thoughts or other relevant cognitive or affective states may only be able to be conducted in low-risk populations, with unclear generalizability to high-risk patients known to become suicidal while drinking.

The low incidence rate of suicidal behavior in most populations may make it impractical to study drinking immediately prior to suicidal behavior using intensive prospective study designs such as experience sampling where data may be gathered several times per day. Moreover, asking an individual to continue to document their drinking during an unfolding suicidal crisis raises ethical concerns and would presumably require the investigator to intervene whenever possible, altering the course of the phenomena under study.

Understanding and Lowering Risk Associated with AUD

One approach to prevent individuals with AUD and suicidal ideation from attempting suicide is to focus on treating the AUD, with the expectation that suicide risk will become reduced with successful treatment. Indirect support for this conclusion comes from observational research indicating that non-fatal suicide attempts are approximately half as likely in the year following an episode of treatment for AUD and other drug use disorders than in the year prior to treatment.^{26,27}

However, merely targeting the AUD is likely to be insufficient given that AUDs often function as chronic, relapsing conditions that require multiple episodes of care, and many acts of suicide among those with history of AUD occur during major depressive episodes (including those that are alcohol induced) or outside periods of acute intoxication,^{2,3} suggesting that suicide-specific interventions are needed to target other factors. The fact that AUD treatment alone may be insufficient to reduce risk is highlighted by recent findings that, in the population of veterans with an established substance use disorder including AUD who died by suicide within a given year, only one third had been treated in substance use disorder treatment in the year prior to death.²⁸

There is a clear need to conduct randomized trials of interventions for those with AUDs who are experiencing suicidal ideation. Indeed, it would be a coup to prioritize the inclusion of AUD patients with suicidal ideation, insofar as suicidal thoughts and behavior has so often served as exclusion criteria in clinical trials research.

For practical reasons, these studies should be based in settings that frequently treat those with AUDs who may be experiencing suicidal thoughts, such as AUD treatment programs, emergency departments, inpatient psychiatry units, and detoxification units. With the exception of inpatient psychiatry treatment, these are settings that typically do not involve much, if any, suicide-related assessment or treatment; thus, even minimal increases in the quantity/quality of suicide prevention may represent an improvement in the standard of care.

There is also a need for studies of collaborative care across these settings. Effective interventions in these settings for individuals with AUD who are experiencing suicidal ideation would likely include some combination of education about suicide risk, motivational interviewing or relapse prevention to reduce substance use, and planning for how to respond to a suicide crisis. Extending such research to non-traditional settings, for example, 12-step or peer-led programs, is another important direction that carries the potential for increased social support generally as well as more targeted support designed to prevent suicidal behavior.

Once the efficacy (or combined efficacy–effectiveness) trials are completed and with positive results, the longer-term research agenda may proceed to focus on the difficult task of successful implementation in real-world clinical settings. Studies of implementation of screening in key settings (e.g., AUD treatment programs) and meaningful intervention based on screening results are also needed.

Progress may be accelerated by developing and testing treatments that, based on their characteristics (e.g., simplicity), may be presumed to have the greatest potential for successful implementation. Along these lines, a brief, straightforward suicide prevention training curriculum designed for substance abuse treatment providers led to increases in provider self-efficacy, knowledge, and suicide prevention practice behaviors,²⁹ suggesting the importance of future research on patient outcomes.

There have been few studies designed to prevent suicide attempts that have focused specifically on individuals with suicidal ideation or behavior plus AUD or other drug use disorders³⁰ or that have focused on preventing reattempts in groups with very high representation of AUD or other drug use disorders.^{31,32} Positive results from these studies indicate the need for continued study of the effectiveness of these interventions. For the purpose of case finding, it may be most practical to recruit participants for studies focused on reduction of the recurrence of suicidal behavior from acute psychiatric units and emergency departments.

Studies of interventions to prevent the recurrence of suicidal behavior that are appropriate for different age and cultural groups are especially needed. Given the fact that many individuals with AUD or other drug use disorders do not seek treatment or do not present for treatment in traditional mental health specialty settings,³³ it will be important to examine the effectiveness of these interventions and their adaptations across multiple settings, including detoxification centers, forensic settings, intensive alcohol and substance abuse treatment programs, community-based health clinics, and crisis hotlines.

Because there are very likely mutually influential interrelationships between drinking and AUD symptoms and suicidal thoughts and behavior,^{11,12,34} future development of integrated treatment interventions is essential. Interventions with demonstrated efficacy to prevent suicide reattempts among individuals who predominantly (or exclusively) have alcohol or other drug use disorders^{30,31,35} suggest the value of skill development and problem solving; mindfulness, emotion regulation, and distress tolerance; interpersonal effectiveness and reduction of relational and family difficulties that provide a context for much suicidal behavior; and motivational enhancement and relapse prevention.

It is also essential to continue studying how prevention strategies focused on the reduction of risk factors (e.g., co-occurring depression) and the promotion of protective factors (e.g., positive social support) may reduce the likelihood of AUD and suicidal thoughts and behaviors. Treatment development efforts would be enhanced by the examination of data regarding mechanisms of action, for example, the role of drinking and AUD in depression and interpersonal stressful life events, both of which are potent risk factors for suicidal behavior.

Finally, although AUD and AUA should not be conflated, instances of AUA prior to suicidal behavior may be expected to be prevalent among individuals who engage in problematic alcohol use and particularly those meeting criteria for AUD, a severe drinking population, indicating the critical importance of addressing risk associated with both chronic and acute use of alcohol in individuals with AUD.

Conclusion

Given that AUA and AUD are risk factors for suicidal behavior, it is essential that researchers turn their attention to developing and testing interventions to lower risk associated with AUA and AUD. We have made several recommendations for advancing intervention research in this area, acknowledging that solid preliminary intervention-based data on which to base our recommendations are limited. Nonetheless, there have been some informative intervention studies in high-risk populations on which to draw, particularly as pertains to AUD.

Research of practical interventions that may be applied in real-world clinical settings should have first priority. We also recommend that our clinically oriented intervention research recommendations be complemented with primary prevention strategies, for example, evidence-based strategies to lower the prevalence of AUD in the general population.³⁶

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