Chapter 13

ALCOHOL, SUBSTANCE ABUSE AND SUICIDE

Jacob Ruiz and Stephanie J Stockburger*
Division of Adolescent Medicine and Young Parent Programs, Kentucky Clinic, Department of Pediatrics, Kentucky Children’s Hospital, University of Kentucky College of Medicine, Lexington, Kentucky, US

ABSTRACT

Suicide is a national public health issue and its two most significant risk factors, mental illness and substance abuse disorders must be viewed in the same respect. The prevalence of suicidal ideation and suicide attempts in adolescents is high. Suicide is the second leading cause of death for young people between the ages of 10 and 24 and accounted for 5,178 deaths in this age group in 2012.

INTRODUCTION

Alcohol intoxication increases suicide risk up to 90 times, in comparison with abstinence from alcohol (1, 2). It has been suggested that alcohol may play an important role in the events leading to suicide amongst individuals with no previous psychiatric history (3). The disinhibition produced by intoxication may facilitate suicidal ideas and increase the likelihood of suicidal thoughts being put into action, often impulsively.

Clinicians need to be vigilant about both substance abuse history and history of mental health problems among patients being seen for either or both illness. They speak to the ongoing need to consider and treat both substance abuse and mental illnesses simultaneously in persons with co-occurring disorders to help reduce the risk for suicide when one of the co-occurring disorders is left untreated.

* Corresponding author: Stephanie Stockburger, MD, FAAP, Adolescent Medicine, University of Kentucky College of Medicine, 740 S Limestone, Lexington, KY 40536, United States. E-mail: stephaniestockburger@uky.edu.
A focus on the primary prevention of alcohol and drug use disorders and other psychopathological disorders associated with suicide, as well as intervention for those showing early indication of such disorders, are needed in order to have a meaningful impact on the population rate of suicide (4).

Suicide is a national public health issue and its two most significant risk factors, mental and substance abuse disorders, must be viewed in the same respect. Of individuals with a mental illness and/or substance use disorder, 95% will never complete suicide. However, several decades of evidence consistently suggest that as many as 90% of individuals who do complete suicide experience a mental or substance use disorder, or both (5-10). The majority experience a mood disorder such as depression (7) and as many as 25% experience alcohol abuse disorders (10). Many experience co-occurring mental and substance use disorders.

Although there are ongoing efforts to educate the public about suicide, mental disorders, and substance use disorders, the social stigma surrounding suicide continues to stand between many people with mental and substance use disorders and the care they need. This is the care that could potentially prevent suicide and suicidal behavior. According to the Substance Abuse and Mental Health Services Administration’s (SAMHSA) 2013 National Survey on Drug Use and Health (NSDUH), of the 22.7 million people aged 12 or older in need of treatment for an illicit drug or alcohol use problem, only 2.5 million received treatment at a specialty facility (11).

The gap between those that need and receive care for mental disorders and substance use problems is significant. Actions need to be taken culturally and politically to ensure those that need help are able to receive help, in terms of insurance coverage and social acceptance. Looking at mental illness, substance abuse and suicide individually, each have a profound impact on individuals, families, schools, workplaces, communities and society as a whole. The economic costs of these public health problems are significant and can be reduced if resources are available. There are many instances of individuals struggling with two or all three problems, inferring that each one is in some way, related to the other two. Therefore, the co-occurrence of mental and substance abuse disorders today is the expectation rather than the exception (10).

**Suicide**

The prevalence of suicidal ideation and suicide attempts in adolescents is high. Suicide is the second leading cause of death for young people between the ages of 10 and 24 and accounted for 5,178 deaths in this age group in 2012 (1). The most common methods used in suicides are firearms (45%), suffocation (which may be in the form of hanging) (40%), and poisoning (8%) (12). However, more young people survive suicide attempts than actually die from the attempt. A national survey of youth in both private and public schools, grades 9-12, found that 16% of students reported considering suicide (12). Thirteen percent reported having a plan for suicide, and 8% had a suicide attempt within the last 12 months preceding the survey (12).
AGE AND GENDER

It is well established that rates of suicide and suicide related behaviors increase with age. When it comes to gender, suicide rates are higher among boys than girls. According to the CDC, in 2010, suicide among males was four times higher than among females and represented 79% of all United States suicides (13). However, females are more likely than males to have had suicidal thoughts and attempted suicide (14). In general, males tend to use more fatal means to attempt suicide, and are more likely to use a firearm (56% of males use a firearm for a suicide attempt) (13).

RACE AND ETHNICITY

In the United States, rates of attempted and completed suicide are highest among Native Americans (15, 16). White youth traditionally have had higher suicide rates than non-whites, but the gap has been decreasing due to an increase in suicide among African American males (17, 18). Compared with non-Hispanic youth, Hispanic youth in the US show higher rates of suicidal ideation and attempted suicide (19), but are not disproportionately represented among suicide completers (20).

Using data from the Mexican Adolescent Mental Health Survey, Borges and colleagues reported the first representative estimates of the lifetime prevalence of suicidal ideation (11.5%), plan (3.9%), and attempted suicide (3.1%) in 12 to 17 year-olds in metropolitan Mexico City (21). Corroborating with previous studies, the presence of one or more mental disorders was closely linked to suicide ideation, plan, and attempt. Among youth with a history of suicidal ideation, only dysthymia was consistently related with making a suicide plan and attempted suicide (21).

PSYCHOPATHOLOGY

Numerous risk factors are associated with youth suicide. Psychiatric disorder is present in up to 80-90% of adolescent suicide victims and attempters from both community and clinical settings (22). Both in completed and attempted suicide, the most common psychiatric conditions are mood, anxiety, conduct, and substance abuse (alcohol and drug) disorders. Comorbidity of psychiatric disorders, particularly of mood, disruptive, and substance abuse disorders, significantly increases the risk for youth suicide and suicidal behavior (23-28).

FAMILY FACTORS

Family factors, including parental psychopathology, family history of suicidal behavior, family discord, loss of a parent to death or divorce, poor quality of the parent-child relationship, and maltreatment, are associated with an increased risk of adolescent suicide and suicidal behavior (22).
There is strong and convergent evidence that suicidal behavior is familial, and perhaps, genetic, and that the liability to suicidal behavior is transmitted in families independently of psychiatric disorder (29). A recent prospective study of early-onset suicidal behavior found a higher relative risk (RR = 4.4) of incident suicide attempts in offspring of parents with mood disorders who made suicide attempts, compared with offspring of parents with mood disorders who had not made attempts (30). Offspring mood disorder and impulsive aggression and parental history of sexual abuse were independent predictors of incident suicide attempts.

**SUBSTANCE ABUSE AND SUICIDE**

There are a growing number of studies that identify alcohol as a prominent risk for suicide. However, this section analyzes the effect drug use, alcohol and co-occurring disorders have on suicide. However, it must be recognized that there are studies and literature that make the argument that the relationship between alcohol and suicide is not a clear one and needs to be reevaluated (31, 32).

In an assessment of data from the National Comorbidity Survey, done by Molnar and colleagues, concluded that alcohol and drug abuse disorders are associated with a risk 6.2 times greater than average risk of suicide attempts. According to a recent SAMHSA’s Drug Abuse Warning Network (DAWN) report on drug related emergency department (ED) visits, in 2011, an estimated 228,366 ED visits resulted from drug-related suicide attempts (33). Almost all (94.7%) of these attempts involved a prescription drug or an over-the-counter medication (33). Approximately two thirds (64.4%) of these attempts involved multiple drugs, and over a quarter (29%) involved alcohol (33). Less than one fifth (14.8%) of the attempts involved illicit drugs. The most commonly involved illicit drugs were marijuana (6.8%) and cocaine (6.3%) (33). From 2004 to 2011, the number of drug-related suicide attempts rose 41 percent (33).

The data does not suggest that all of the individuals who attempted suicide were experiencing substance abuse disorders; rather the data inform only that alcohol or drugs were used in what was characterized as a suicide attempt.

**ALCOHOL AND SUICIDE**

An extensive body of literature—primarily retrospective studies—has established that active alcohol use or abuse is a powerful risk factor for suicide (34). One of the more significant reasons hypothesized for this association is the disinhibition resulting from alcohol use that occurs shortly prior to a suicide attempt (2, 4). Hufford’s literature review (2001) suggests alcohol intoxication appears to play a more significant role as a proximal, rather than distal, risk factor for suicide.

As stated above, alcohol plays a role in impulsivity. Impulsivity and aggression are strongly implicated in suicidal behavior (35-38). Impulsivity has been related to suicidal and self-destructive behaviors within different psychiatric conditions, including alcohol and substance use disorders, mood disorders, conduct disorder, impulse control disorder, antisocial personality disorder, and borderline personality disorder. Studies have consistently
demonstrated that constructs related to aggression and impulsivity confers additional risk for suicidal behavior among persons with alcohol dependence and other substance misusers (39).

Alcohol intoxication increases suicide risk up to 90 times, in comparison with abstinence (2). It has been suggested that alcohol may play an important role in the events leading to suicide amongst individuals with no previous psychiatric history (3). The disinhibition produced by intoxication probably facilitates suicidal ideas and increases the likelihood of suicidal thoughts being put into action, often impulsively.

Alcohol dependence is an important risk factor for suicidal behavior (5, 40-42). It has been suggested that lifetime mortality due to suicide in alcohol dependence is as high as 18% (40) and a recent study suggests that the risk for suicide associated with alcohol dependence increases with age (43). Mood disorder acts as a more powerful risk factor for suicide among problem drinkers as age increases.

There are several different possible relationships between alcohol dependence and suicide: alcohol use may affect suicidal ideation and behavior; suicidal ideation may affect alcohol use; alcohol use and suicidal phenomena may affect each other; alcohol use may not itself affect suicide but may aggravate other factors that affect suicide; or alcohol use and suicidal behavior may each be affected by some third factor without themselves being directly affected, e.g., alcohol dependence and suicide may be manifestations of the same underlying disorder (44). The relationship between alcohol use and suicide merits future research.

The combination of depression and alcohol dependence often leads to suicidal behavior (41, 45, 46). Treatment for this fatal combination remains poor, and there is no evidence-based guidance as to the choice of medical and/or psychological treatments for this population when suicide is a primary concern. Future studies are necessary to determine what interventions may reduce suicidal behavior in individuals with comorbid depression and alcohol dependence.

**DRUGS AND SUICIDE**

The study of the relationship between drug abuse and suicide risk is substantially less well developed than that of either mental illnesses or alcohol and suicide. As researchers have pointed out in their articles beginning in the mid-1990s, relatively little is known about the impact of different drugs, drug combinations, substance-induced effects and self-medication on suicidal behavior. What is known is that there is an association between current drug use and suicidal ideation that is not entirely due to the effects of co-occurring mental disorders (47). The number of substances used appears to be more predictive of suicidal behavior than the types of substances used (4, 47). Moreover, based on a few initial studies, it also appears that drug abuse treatment may have the capacity to help reduce the risk for future suicidal actions (48). However, in the main, causal relationships between drugs of abuse—both in the aggregate and in specific instances—have not been well established (49).
**CO-OCCURRING DISORDERS**

Many works of literature suggest that substance use – both drugs and alcohol – is associated with mental disorders (50, 51). Moreover, some suggest that this linkage may be bidirectional. For example, depression may be associated with increased substance use and chronic substance abuse may be a factor in the development of depression or other mood disorders (52). It has been suggested that co-occurring disorders should be considered the expectation rather than the exception by clinicians, and should be treated concurrently to be most effective.

Further, both mental and substance use disorders are known risk factors for suicide. Secondary analysis of combined 2004 and 2005 data from SAMHSA’s National Survey on Drug Use and Health (NSDUH) reveals the large amount of co-occurring mental and substance use disorders and considerable impact they have when they occur together. According to the NSDUH analysis, an estimated 16.4 million adults, age 18 and older, experienced a major depressive episode in the past year. During their worst or most recent experience of major depression, over half thought they would be better off dead; over 10 percent attempted suicide. When alcohol abuse or the use of illicit drugs was added to a major depressive episode, the proportion of suicide attempts rose to nearly 14 percent for alcohol abuse and nearly 20 percent for illicit drug use (53).

Clinicians need to be vigilant about both substance abuse history and history of mental health problems among patients being seen for either or both illness. They speak to the ongoing need to consider and treat both substance abuse and mental illnesses simultaneously in persons with co-occurring disorders to help reduce the risk for suicide when one of the co-occurring disorders is left untreated. Unfortunately, this normally occurs for people of all ages with both substance use and mental disorders.

**CONCLUSION**

In order for people who suffer from substance abuse problems and/or behavioral health issues to receive help and treatment, the public needs to understand and acknowledge the plight of substance abuse, mental health issues and suicide. Furthermore, the negative stigma that keeps millions of people from seeking treatment that can improve and possibly save their lives needs to be removed. Public education regarding the relation between alcohol/substance consumption and suicide may also help reduce suicides among individuals with alcohol and substance misuse.

Patients suffering from substance abuse problems, be it from alcohol or drugs, should be monitored for suicide or suicidal actions. The lowering of inhibitions and increase in impulsivity is a potentially dangerous combination and the risk of suicide increases with age. Clinicians need to be cognizant and also recognize if someone is suffering from co-occurring disorders. Without treating the multiple afflictions, the patient will only be partially healed and continue to suffer.
REFERENCES

Jacob Ruiz and Stephanie J Stockburger

[40] Roy A, Linnoila M. Alcoholism and suicide. Suicide Life Threat Behav 1986; 16(2): 244–73.


