



APRIL 2015

**ALCOHOL
+ SUICIDE**

A REVIEW OF THE LITERATURE

INJURYFREE
NOVA SCOTIA

SANDSTONE
health promotion

Background

Suicide and suicide attempts are one of the top three causes of injury and injury related death in Nova Scotia. Recent work undertaken by Injury Free Nova Scotia (IFNS) in the area of suicide prevention, in discussions with our health promotion, mental health, and community partners provincially, and through review of some initial research findings, led to our increased awareness of and concern for the significant role that alcohol plays in suicide, across the lifespan.

In the fall of 2014 IFNS engaged in a collaborative, comprehensive literature review process to explore what is known, internationally, about the relationship between alcohol and suicide. Areas of potential pursuit identified for this review included exploration of suicidal behaviours, including suicide attempts and deaths, in the context of alcohol use, within the following groups:

- Those with concurrent disorders
- Those with no diagnosed mental illness
- Youth/ adolescents
- Older adult males
- Impact of gender, both within the general adult population, and particularly in youth
- Other groups to be determined through available literature

A final report and infographic have both been created as part of this literature review project.

This literature review will be followed up by a knowledge translation event hosted by IFNS in Spring 2015. This will be followed by presentations at various other conferences, including the Atlantic Collaborative for Injury Prevention Conference in June 2015, and the Communities Addressing Suicide Together Annapolis Valley Conference in September 2015.

Methodology

We conducted searches use the SIEC Database (Centre for Suicide Prevention) and Google Scholar and the search terms: *suicide + alcohol*; along with the following: *acute; chronic; women; men; adolescents; youth; older adult; concurrent disorders; prevention; and policy*. Several additional articles were identified from the references cited in the original articles. The total number of articles found, including reports, et cetera, was 72; after exclusions due to relevance and repetition, a total of 46 articles were used.

Introduction

Alcohol consumption is viewed as a sociological phenomenon that has a deep, worldwide impact on suicidal behaviour. The large population of individuals who harmfully use alcohol, the relative frequency of suicides and suicide related behaviours in this population, and the devastating effects of these outcomes on individuals, families and society, make this an issue that requires our attention.

It is well accepted that both acute and chronic alcohol use are associated with suicidal behaviour. However, it must be said that while use of alcohol, and having an alcohol use disorder, both increase risk for all types of suicidal behaviour, the majority of those who use alcohol, even harmfully, will not be impacted by suicidal behaviour. Suicide is not inevitable, although it is significantly more likely.

Estimates are that acute use of alcohol increases risk of suicide by 5 - 10 times. Being intoxicated, with a blood alcohol level of 0.08% or more, increases risk up to 90 times. Alcohol use disorder has lifetime mortality due to suicide as high as 18% and one third of suicide decedents meet criteria for AUD.

Although estimated risk factors and rates vary from study to study, one thing is certain: alcohol use, both acute, and chronic, is a significant risk factor for suicide; and we must determine how best to address this complex and serious issue in Nova Scotia.



Limitations of the Research on Suicide + Alcohol

Although significant research and publication has been completed on the topic of suicide, in the context of alcohol, there are significant gaps in the knowledge base. The following are some of the limitations expressed by those doing research in the area of alcohol and suicide.

Sex bias. Much of the research focuses on completed suicides, encouraging an unintended sex bias, because men are much more likely to die by suicide. Small sample sizes have plagued investigations of suicide in women in Western cultures; this is compounded in the study of AUD and suicide due to the lower base rate of AUD in women.

Suicide ideation. Suicidal ideation is generally an exclusion criterion for participation in intervention studies involving suicidal alcoholics, due to:

- Extensive clinical efforts to treat this group
- Ethical issues in providing less than hypothetically optimal treatment
- Difficulties designing methodology and ethically sound studies

Alcohol use disorder treatment. Most studies of AUD are carried out in clinical settings. It usually takes from 6 – 8 years after onset of AUD to start treatment and only a minority of those with AUD ever use such services. And, in fact, such services are associated with ethnic disparities and severity of AUD; most people with AUD never seek treatment.

Conceptual framework. There is a lack of conceptual frameworks to integrate existing research, which in turn could serve as a foundation for the development and evaluation of suicide interventions and policy.

Homogenous studies. Most studies completed have predominantly, or only, Caucasian samples; and many studies fail to specify the ethnic breakdown of their samples, limiting insight into risk factors among different cultures and ethnic minority groups. The dearth of information on Indigenous persons (of Canada in particular), in the context of alcohol and suicide, directly impacted ability to include this group in this review.

Alcohol Use

In most Western societies 90% of people consume alcohol; and 30% or more of drinkers develop alcohol related life problems.

Use of alcohol, and its impacts, are discussed in relation to *temporality*. Proximal, or acute use of alcohol, refers to alcohol use on an occasion, its effects/ consequences, within minutes or hours, and the impact. Distal, or chronic use of alcohol, refers to patterns of drinking, longer periods of 'regular' drinking, including alcohol use disorder, and the accumulated symptoms and effects.

ALCOHOL USE IN NOVA SCOTIA

- 74.0%-80.7% of Nova Scotians currently drink alcohol, 5.4%-10.4% have never drank, and 13.8%-16.9% formerly did.
- Men (80.5%-82.9%) are more likely to be current drinkers than women (71.5%-78.8%).
- Nova Scotians aged 60 years and older (55.5%-64.7%) were least likely to be current drinkers.
- Adults aged 25-29 years had the highest current drinking rates (90.9%-91.1%) followed by young adults aged 19-24 years (89.2%-92.3%).
- Among all drinkers, the average number of drinks consumed at a sitting was 3.2 drinks. Seniors consumed the least at a sitting (1.9 drinks) and young adults consumed the most at a sitting (5.5 drinks).
- Of NS students in grades 7, 9, 10 & 12: 29.4% reported never drinking alcohol; among those students who had tried alcohol, the average age of first use was 13.4 years of age.

From *Changing the Culture of Alcohol Use in Nova Scotia*, 2007 & 2012 Nova Scotia Student Drug Use Survey: Technical Report



A DRINK IS... a standard drink in Canada is a beverage containing 13.6 g of pure alcohol. Each of the following is representative of a standard drink containing 13.6 g of alcohol: one bottle or can of beer (12 oz/341 ml of regular strength beer at 5% alcohol), one glass of wine (5 oz/142 ml of wine at 12% alcohol), one drink or cocktail with one-and-one-half ounces of liquor (1.5 oz/43 ml of spirits at 40% alcohol).

Harmful Drinking in NS

One in five current drinkers, or approximately 117,144 Nova Scotians, can be classified as a high-risk drinker. High-risk drinkers consume alcohol in such a way that it impacts negatively on their own health and well-being, as well as that of their families and communities. Harmful alcohol use is a major contributor to chronic disease, injury, risky sexual behaviour, crime, violence, and other social problems. There are three facets to high-risk drinking: volume of alcohol consumed, frequency of drinking occasions, and context of drinking.

Acute Use of Alcohol

Acute use of alcohol (AUA) refers to having one, or more, drinks of alcohol. Acute use of alcohol spans a range of drinking behaviours including having a social drink, or two, to binge drinking (5 or more drinks in a single session), to intoxication (blood alcohol level of 0.08%, or more). When discussing the impacts of acutely using alcohol, we refer to outcomes caused directly by the immediate effects of alcohol in the body, such as intoxication and aggression.

In terms of this literature review we are looking at the impact of acute use of alcohol on suicide related behaviour. How does drinking alcohol affect suicide ideation, attempts and death?

Terminology. Some of the terms used in the literature to refer to *acute use of alcohol* include: *positive blood alcohol level, heavy episodic drinking, intoxication, and binge drinking*. You may see these used within this review to ensure consistency with the original source.

Chronic Use of Alcohol

Chronic use of alcohol refers to long term use of alcohol. For the purposes of this review it refers to use of alcohol resulting in accumulated life problems that may be from mild to severe in nature, and that directly or indirectly impact suicide related behaviour.

Alcohol Use Disorder. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5®) all disordered use of alcohol is now referred to as *Alcohol Use Disorder (AUD)*, and ranges from mild (starting with meeting at least 2 diagnostic criteria) to severe, depending on the number of criteria (of 11 total) that a person using alcohol meets.

Up to 10% of men, and 3-5% of women, develop moderate to severe symptoms of alcohol use disorder (AUD) with an additional 5-10% of each gender developing mild to moderate symptoms of AUD.

Terminology. Some of the terms used in the literature to refer to *chronic use of alcohol* include: *chronic use, abuse, misuse, dependence, alcoholism, long-term use, addiction, problem drinking, and at-risk drinking*. Generally speaking, when used in peer reviewed literature, *dependence, addiction* and *alcoholism* refer to what would now be considered severe alcohol use disorder.

ACRONYMS

AUA Acute use of alcohol **AUD** Alcohol Use Disorder



Suicide

Suicide is the act of taking one's own life on purpose. Suicidal behaviour is any self-inflicted action that could cause a person to die, and ranges from ideation, or having thoughts of suicide (including planning for suicide), to suicide attempts, to death.

The term suicidality is often used to describe the range of suicidal behaviours, recognizing the fluctuation between having thoughts and acting on them, as well as that it may end with completed acts of suicide.

Suicide attempts, though reversible, are directly connected with completed suicide. Suicide attempts and deliberate self-harm, which can directly lead to completed suicide, have been very strongly associated with suicide risk, increasing odds by 16.33 times. It is also very important to recognize that attempts often have severe adverse effects on their own.

Suicide attempts could be the foci of better research and suicide prevention efforts; although it may seem more important to focus on completed suicides, than suicide attempts or suicidal ideation, such ideation and attempts are precursors of suicide; and in fact the strongest predictor of a future suicide attempt is a past suicide attempt.

Terminology

A variety of terms are used in the literature to describe suicidal behaviours, ideation, suicide attempts and suicide deaths, and related behaviours. Some of these terms include:

- To describe *suicidal behaviour*: *suicidality, self-harm, deliberate self-inflicted or self-directed harm, and intentional injury*
- To describe *suicide ideation*: *thoughts of and planning for suicide*
- To describe *suicide attempts* include: *parasuicide, suicide gestures, medically serious suicide attempts, and self-inflicted injury*
- To describe *suicide deaths*: *completed suicide, suicide* (verb: *suicided*)
- To describe a *person who has died by suicide*: *decedent, and victim*

The Role of Culture in Suicide

Suicide itself is strongly affected by cultural differences and value systems. These differences in value regarding suicide in various ethnic groups are, of course, closely connected with attitudes against suicide, and risk factors for suicide, especially social factors. This creates significant limitations in conducting research, especially meta-analyses (reviews of multiple studies), although there is often significant commonality as well. Multiple sociocultural and environmental factors influence suicide rates. Studies in one nation are not always applicable to other nations.

SUICIDE IN NOVA SCOTIA

Deaths. From 2007 – 2014 there were 888 suicide deaths in Nova Scotia, an average rate of 111 suicide deaths per year. The ages of those who died by suicide ranged from 11 – 104 years of age, with a mean age of 47 years.

During the period of 1995-2004 Nova Scotia rate of suicide death averaged at 9 per 100,000 with a range of 7 – 11 per 100,000. Suicide frequency as a cause of death was most pronounced amongst those aged 15–44. Eighty-four percent of those who died were male, and 16% were female.

Attempts. During the period of 1995-2004 the Nova Scotia hospitalization rate due to suicide attempts ranged from 54 – 77 per 100,000. Fifty-five percent of those hospitalized for a suicide attempt were female, and 45% were male.

From *Suicide and Attempted Suicide in Nova Scotia*, 2009



Alcohol + Suicide

In the context of suicide that includes alcohol as a factor, *temporality*, or the timing of when, and for how long drinking has/ did take place, is very important. Acute use of alcohol (AUA) and alcohol use disorder (AUD) are discussed in the literature as two distinct aspects of this complex issue; each play a major and non-redundant role in risk.

Acute use of alcohol is a potent independent risk factor for suicidal behaviour; even after adjusting for the drinking pattern of AUD. And, many acts of suicide among individuals with a history of AUD happen outside of periods of acute intoxication.

AUD increases the likelihood of suicidal behaviours: with increases in suicide ideation, planning, attempts, and death. Rates of AUD were substantially higher among male and female suicide decedents who were acutely intoxicated at the time of death.

In *Alcohol & Injury in Atlantic Canada* (2010), key informants reported witnessing the link between alcohol and suicide in their positions; and many recognized the connection.

Directionality

It is well known that alcohol use increases the risk for suicidal behaviour, however the direction of causality for the relationship remains unclear: does alcohol use cause suicide? Does suicidality lead to alcohol use? Are other factors the issue, and alcohol use and suicide just consequences of those?

Direction of causality can be looked at in these three ways:

Alcohol → Suicide: the extent to which involvement with alcohol leads to suicide. This can be broken down into:

- proximal: being *under the influence of alcohol* causes thoughts or attempts, &
- distal: the toll of chronic drinking on the brain and social environment

Suicide → Alcohol: the extent to which suicidality leads to drinking.

This can be broken down into:

- proximal: after a plan/decision is made to attempt suicide, alcohol serves several functions, such as: expectancies related to alcohol use (e.g. gaining courage, numbing fears, or anesthetizing the pain of dying), alcohol use becomes part of the plan; and drinking may serve as a means, or part of the means, of suicide (e.g. used along with pills to increase effects)
- distal: in the aftermath of suicidal behaviour, drinking patterns emerge: due to altered interpersonal environments (e.g. peer rejection, new 'deviant' peers), changes in environment, such as home, or school or social environment (e.g. rejection, policy issues, etc.), and self-medication (of negative feelings or social consequences)

A spurious relation: based on the possibility that alcohol and suicide are not causally related, but correlated due to an independent third variable which precedes them both. For example, individuals may engage in both behaviours due to poor impulse control, as a dysfunctional coping strategy, due to a traumatic life event (e.g. a relationship break up or sexual assault), or as a manifestation of a mental illness.

Protective Factors

The following are some protective factors for suicide, in relation to use of alcohol. An unfortunate effect of alcohol use disorder is that it can erode many of these factors, especially by the middle years of life.

- Perceptions of clear reasons to live
- Employment
- Child at home/ child rearing responsibilities
- Intact marriage/ primary relationship
- Sobriety, with attendance to peer support groups
- Optimistic or positive outlook
- Trusting relationship with a counsellor, physician or HCP
- Religious attendance and/or belief in religious teaching against suicide



Impulsivity & Aggression

Impulsivity and aggression are strongly implicated in suicidal behaviour. Impulsivity has been linked to suicidal and self destructive behaviours within many different mental illnesses and substance use disorders. Studies have consistently shown aggression and impulsivity confer additional risk of suicidal behaviour among persons with AUD/ substance use disorder. Aggression and impulsivity are associated with suicidal behaviour even after controlling statistically for psychiatric disorders.

Often, alcohol use leads to increases in both impulsivity and aggression. Multiple lines of evidence suggest that lower serotonin activity is tied to long term alcohol use and to increased aggression/ impulsivity, which in turn enhances the probability of suicidal behaviour.

There is some question about causality as persons with certain genetic profiles may have a predisposition toward low serotonin levels that may make them susceptible to use of alcohol and suicidal behaviour. Heavy drinking is also associated with increases in aggressive behaviour.

In the events leading up to suicide, alcohol use can create an effect of disinhibition, which in turn can facilitate suicidal ideas, and increase the thoughts of suicide being put into action, often impulsively. One important characteristic, of attempted and completed suicide, is the extent to which it was planned. Unplanned or impulsive acts of suicide involve little preparation or premeditation. Impulsive suicides constitute a substantial proportion of suicides; prevalence estimates vary significantly, but in one study were estimated to exceed 50% among both adults and adolescents.

Research has found that use of more than one substance does not increase the risk of an impulsive attempt above the use of one substance; this is consistent with disinhibition as a mechanism.

Risk Factors

The prediction of suicide is complicated by the fact that little is known considering the predictors of imminent suicide. Patients with AUD have been shown to fall into the category of increased chronic risk. Many purported risk factors for suicide have not been consistently identified from one study to another, limiting our ability to identify definitively predictors of suicide.

Any distinction between categories of risk factors is bound to be somewhat arbitrary. Individual risk factors can often be placed in all, or multiple, categories, depending on how they are looked at. The purpose of such categorization is to help us gain more understanding of how the factors affect risk.

Risk factors for suicide in the context of alcohol use (both acute and chronic) are understood to include two distinct categories, based on what is called a stress-diathesis model. These are:

Predisposing factors. Also known as vulnerabilities to suicide, diathesis or traits. These are chronic or longer term risk factors, often seen 'through life'. They relate to a potential that can be expressed as statistical risk making a person more vulnerable to precipitants.

Precipitating factors. These acute, or shorter term factors, are also known as stressors or triggers. They play a role in determining the time of suicidal behaviour, increasing risk in the moments immediately before a suicidal behaviour.

Some of the other ways that risk factors are categorized include:

- personal and social factors
- personality traits, sociodemographic factors, and negative life events
- distal and proximal risk factors



Acute Use of Alcohol

Acute use of alcohol (AUA) is described as having a positive blood alcohol level, or having consumed one or more drinks of alcohol. Acute alcohol consumption is a greater risk factor for suicide than a habitual pattern of alcohol consumption, and increases risk of suicide by 5 - 10 times. Studies of suicide and suicide attempts indicated that both the presence of alcohol and the amount of alcohol consumed were key considerations in understanding their link with suicidal behaviour. Acute alcohol use serves an intermediate or facilitator factor between the reason for suicide and its consummation, not only as a risk factor itself.

Rates in studies of those who have died by suicide and have a positive blood alcohol level range from 10 - 69%; and a meta-analysis of descriptive reports calculated a median of 37%. Another study found alcohol was detected in 36% of male and 28% of female decedents, which was surprisingly similar.

Risk for suicidal behaviour is increased at high drinking levels: the more alcohol consumed, the greater the risk of suicidal behaviour. Blood alcohol content levels in persons who died by suicide demonstrate that those who drank alcohol before suicide drank heavily. The degree of risk increases with the amount of alcohol consumed, consistent with a dose-response relationship. Alcohol intoxication (a blood alcohol level of 0.08% or higher) increases suicide risk up to 90 times, in comparison with abstinence.

Gender and Age

In general, women and older adults are less likely to drink before suicide compared with men, and younger age groups. Differences in acute drinking before suicide may reflect patterns of alcohol consumption in the general population in drinking; for example, men generally drink more often and more heavily than women.

STATISTICS RELATED TO AUA & SUICIDE

Suicide attempts. In suicide attempts, one meta-analysis of data from 16 studies conducted in 12 different countries, reported a mean percentage of alcohol use of 40%, with a range of 10% to 73% immediately before an attempt. Acute use of alcohol increases risk for suicide attempts by 6.2 - 9.6 times.

Suicide deaths. In death by suicide, the average acute alcohol use was 37% and the range was 10 to 69%. These data came from a total of 37 studies from 12 different countries, and were based on coroner's case-series studies and psychological autopsies. Acute use of alcohol increases risk for suicide death by 5.9 times.

Gender and age. Studies report that up to 24% of male and 17% of female decedents were intoxicated at the time of death. Prevalence of acute intoxication peaked between 35 and 44 years, and then decreased with older age for both genders.



Mechanisms of Increased Risk

Preliminary genetic research suggests that suicidal acts preceded by AUA may be a distinct phenotype of suicidal behaviour. The hypothesis being that acute 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. Alcohol may be used deliberately prior to suicidal behaviour in order to remove psychological barriers by increasing courage and numbing fears, anesthetising the pain of dying, or to make death more likely (e.g. mixed alcohol and pills). A large case study estimated that approximately one quarter of suicide attempters with AUA fit this pattern, suggesting it is common.

Other possible mechanisms responsible for increased risk with AUA:

- AUA may lead to acute interpersonal conflict and disruption that may serve to increase risk for stress reactive suicidal behaviour
- Suicidal behaviour takes place in the context of considerable psychological distress, including hopelessness, loneliness and depression; alcohol intoxication leads to increased distress
- Suicide has an element of aggression toward self; alcohol intoxication facilitates aggressive behaviour, adding to risk
- An individual's expectancy regarding intoxication play an important role in alcohol's effects on emotion, cognition and behaviour; these expectancies can propel someone into suicidal action
- Increased cognitive constriction (alcohol myopia) that limits the production of alternative coping strategies

AUA and Clinical Practice

Research is lacking on how to best provide support to someone with acute alcohol intoxication who is having thoughts of suicide. When is it safe to release an intoxicated individual who sought health care for suicidal ideation?

Risk assessment can only be done when someone is sober: assessments for intoxicated individuals are needed, followed by brief interventions tailored to hospital emergency department. A re assessment should take place once the person is sober. Current practice 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. The connection with and follow up by a care provider is crucial.

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.

Use of Lethal Means

The interaction of a BAC positive result and age showed that during young and middle adulthood, individuals were more likely to be drinking at the time of suicide when their means was a firearm or hanging (compared with poisoning); with lowered probability of survival.

In older adulthood (those aged 65 years and older), the reverse was true, with drinking more likely with use of self-poisoning than firearm or hanging. In particular, BAC levels were highest among men using firearms, in all age groups except 65 and older.

Impulsivity and AUA

Impulsivity is a significant factor in acute use of alcohol and suicide. Alcohol intoxication may play a particularly important role in unplanned suicides because of increased disinhibition and impulsivity, disinhibition making the act of suicide not the result of 'sober' reflection. It has been observed that individuals, when arrested and jailed while intoxicated, may experience acute distress, and when impulsivity is factored in, suicide deaths occur. There is a tendency of employed alcohol misusers to suicide during the weekend; explained in part by the direct effect of alcohol intoxication on impulsivity.



Promising Practices Related to Acute Use of Alcohol

TIP 50 Manual for Substance Use Care Providers. Developed with the most up to date standards of care, this manual will ensure substance use clinicians have the information they need to assess and intervene for suicide with someone using alcohol.

Means restriction. Limiting access to lethal means, through: following firearm legislation around safe storage, current gun control legislation, and a more targeted approach of removing any lethal means when someone is having thoughts of suicide; all have significant implication in the prevention of suicide.

Availability of alcohol. Regulating the availability of alcohol, through limiting bar and alcohol outlet density, especially in geographically isolated communities, has promise as an effective public health intervention to reduce alcohol associated suicides.

Alcohol pricing strategies. As the price of alcohol goes up, the consumption of alcohol, and associated harms, go down.

Chronic Alcohol Use

Persons with Alcohol Use Disorder (AUD) are of great public and clinical concern as suicide and suicidal behaviours are an extreme but possible course of these disorders. AUD, is a critical risk factor for suicidal behaviour, and is second only to mood disorders as the most common condition of suicide decedents. Studies suggest that 7% of all alcoholics die by suicide. Persons with AUD have higher suicide ideation, and higher risk for attempted and completed suicide.

It is suggested that lifetime mortality due to suicide in alcohol dependence is as high as 18%, and that up to one third of all suicide decedents meet criteria for AUD. One study determined the range of current prevalence of alcohol dependence/ abuse preceding suicide was from 15 – 56%. Yoshimashu and colleagues (2008) found that risk of suicide for those with alcohol/ substance related disorders was 5.24 times that of those without such disorders. Suicide accounts for between one fifth and one third of the increased death rate among alcoholics compared to the general population.

Alcoholics have a 60 – 120 times greater suicide risk than the non-psychiatrically ill population. The lifetime risk of suicide among alcoholics treated in an outpatient and inpatient substance use treatment setting was 2.2% & 3.4% respectively. 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.

Rates of Risk for Suicide in AUD

Ideation. AUD increase the risk of suicide ideation (fleeting, vague thoughts → chronic preoccupation → planning for suicide) by 2 – 2.5 times.

Attempts. Attempt risk with AUD is increased by 2.5 – 3.7 times.

Death. Death risk with AUD is increased by 5.2 times.

Age and AUD

AUD can be “matured” out of, as sometimes healing happens, and wellness is achieved. The highest risk for AUD is with college-aged youth, and risk of having AUD declines with age. More severe forms of AUD are seen with older adults.



Acute Use of Alcohol and AUD

Instances of acute use of alcohol prior to suicidal behaviour may be expected to be prevalent among individuals who engage in problematic alcohol use, and particularly those meeting criteria for AUD, indicating the critical importance of addressing risk associated with both chronic and acute use of alcohol in individuals with AUD.

Risk Factors for Suicide with AUD

Of note

- The objective severity of psychiatric disorders does not assist in identifying patients who are at high risk versus those at lower risk.
- Chronic alcohol use results in changes in the social network, culture and traditions.
- There is evidence of changes in biological correlates, including serotonin levels, which is directly connected to enhanced impulsivity, a precipitating factor for suicidal behaviour.

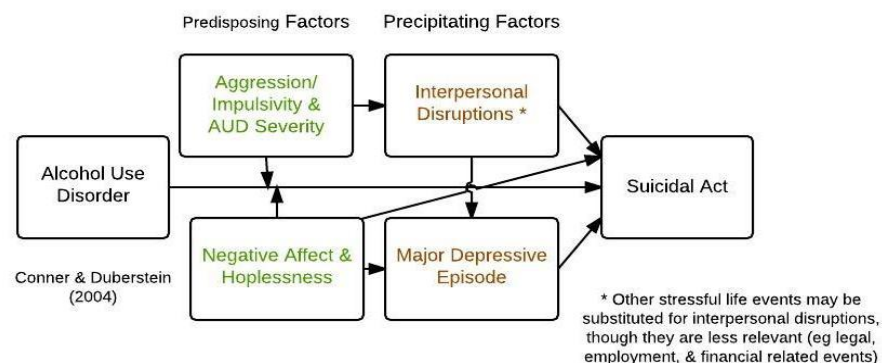
Suicide attempts. Those with AUD who attempt suicide demonstrate different clinical features than those with AUD who do not attempt suicide. Suicide attempts are associated with a more severe course of alcohol dependence, a higher rate of psychiatric comorbidity or other substance use disorders, current unemployment, separation or divorce, and fewer years of education.

Among those with AUD, medically serious attempters were more likely to have a mood disorder and financial difficulties than controls. There was also a trend for anxiety disorders; they were also more likely to be female, and younger.

Suicide deaths. Partner-relationship disruptions are most common with those with AUD who die by suicide, and medical and employment difficulties have also been shown to confer risk. Suicide decedents with AUD were older, male, had a mood disorder, and had more stressful life events and partner relationship difficulties than controls.

The following model of suicidal behaviour, developed by Conner & Duberstein (2004), distinguishes factors in persons with AUD who are at high risk for death by suicide. Arrows denote the influence of a particular factor directly on suicidality, or indirectly on another variable, which then influences risk for suicide.

Risk Factors for Suicide with AUD



Some of the main risk factors for suicide in persons with AUD, and the associated risk (as compared to those without AUD):

- female: 2.86 times
- not employed: 1.34 times
- separated/ divorced: 1.26 times
- independent depression: 3.39 times (not caused by drinking)
- induced depression: 2.30 times (due to alcohol use)
- # illicit substances dependent on: 1.09 times
- proband (genetic) status: 1.16 times
- negative life events, especially interpersonal stressful events and/or loss
 - Interpersonal event: 4.85 times
 - Partner relationship disruption: 4.6 times



Risk Factors for Suicide with AUD, Continued

The following risk factors are also factors for the severity of substance use disorder:

- # of DSM alcohol dependence criteria: 1.12 times
- # of alcohol related physical problems : 1.38 times (i.e. poor liver, high BP, diabetes, neuropathy)
- # of alcohol related violence: 1.18 times (bars, parties, agitated/aggressive with heavy drinking)

Suicide Attempts

Those with AUD who attempt suicide, as compared to those with AUD who do not, are more likely to have (or show greater levels of):

- low social support
- aggression
- impulsivity
- feelings of isolation (and related feelings such as not belonging) (which may or may not be connected to interpersonal loss)
- unemployment or other indications of economic adversity

Of Note

- Empirical evidence confirms that alcoholics are at greatest risk for suicide during active periods of drinking.
- Relapse to drinking can also serve as an important distal risk factor for alcoholics. It has been tied to the experience of more negative life events compared to alcoholics who do not relapse.
- Patients with active alcohol dependence are at higher risk of suffering from chronic family problems, marital problems and divorce.
- The number of comorbid diagnoses is not associated with an increased risk for suicide among patients with alcohol dependence unless depression is present.
- Many alcoholics who died by suicide experienced an interpersonal loss within 6 weeks of their death.

Care for Those with AUD and Suicidality

A comprehensive review of cohort studies estimated that individuals with AUD who come to clinical attention are at approximately nine times higher risk to die by suicide than the general population. Patients with AUD should be assessed for suicidal ideation whenever they exhibit significant levels of depressive symptoms and whenever they have a relapse of alcohol and/or drug use. Suicidal ideation and other depressive symptoms are often overlooked in treatment settings involving individuals with AUD, because both are stigmatizing conditions, and because staff is inadequately trained to manage suicide risk.

Suicide specific interventions are needed to target other factors; as AUD treatment alone may be insufficient to reduce risk. AUD treatment programs, emergency departments and detoxification units are settings that typically do not involve much, if any, suicide related assessment or treatment. There is also a need for collaborative care across these settings. Merely targeting AUD is likely to be insufficient given that AUD often functions as a chronic, relapsing condition that requires multiple episodes of care. 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.

Promising Practices Related to AUD

Treating AUD. One approach to prevent individuals with AUD and having suicidal ideation from further suicidal behaviour is to focus on treating the AUD with the expectation that suicide risk will become reduced with successful treatment.

Focus on interpersonal relationships. Efforts to prevent completed suicide in those with AUD, if they are to be successful, must include a focus on interpersonal relationships.



Promising Practices, Continued

Effective suicide interventions. Promising effective interventions for individuals with AUD who are experiencing suicidal ideation 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.

Interventions with demonstrated efficacy to prevent suicide reattempts among individuals who predominantly or exclusively have alcohol or other drug use disorders suggest the value of skill development and problem solving, emotion regulation and distress tolerance, interpersonal effectiveness and reduction of relational and family difficulties that provide a context for much suicidal behaviour; and motivational enhancement and relapse prevention.

Suicide prevention training for substance abuse treatment providers. Substance and AUD treatment venues can play a critical role in suicide prevention. A brief, straight forward suicide prevention training curriculum designed for substance abuse treatment providers led to increases in provider self efficacy, knowledge, and suicide prevention practice behaviours.

An example of such a training and resource is: *Treatment Improvement Protocol Number 50, TIP 50: Addressing Suicidal Thoughts and Behaviors in Substance Abuse Treatment* developed by the Centre for Substance Abuse and Treatment in 2009. A study (Conner, et al, 2013) was completed on the efficacy of a 75 minute training video as part of a two hour training session on TIP 50 for substance abuse providers. The training was found to impact provider knowledge, self efficacy and increased frequency of use of suicide risk management practices with clients. The TIP 50 Manual is available free of charge through SAMHSA (www.samhsa.gov)

Concurrent Psychiatric Diagnoses

Concurrent disorders is a term for any combination of mental health and substance use disorders. They can occur at the same time or one after the other. There is no one symptom or group of symptoms that is common to all combinations. Interactions between the illnesses can potentially worsen the course of both. The term *comorbidity* is also often used in the literature to refer to concurrent disorders. It has been reported that *comorbidity is the rule rather than the exception among those who complete suicide* (Cornelius et al, 2004); and concurrent disorders are thought to precede suicide in up to 38% of cases (as compared to a rate of concurrent disorder of 6% in a control group).

Substance related disorders and mood disorders are strongly associated with an increased risk of suicide; the comorbidity of these two disorders should be paid a maximum attention. Major depression and alcohol dependence are the most commonly diagnosed psychopathological disorders among people who die by suicide. Cornelius et al. (2004) found that 85% of the completed suicides they studied involved individuals who experienced either depression or alcoholism or both.

Depression, including alcohol induced episodes, is a potent risk factor for completed suicide in those with AUD, and can dramatically increase the risk for suicide. Major depression confers risk for those with AUD, but it is also a risk factor for those in the general population. There is a stronger association between suicide and comorbid substance use disorders and depression, compared with major depression alone, suggesting that depression may amplify risks for those with AUD. Interactive effects of substance abuse and mood disorder must be paid particular attention; chronic alcohol dependence can promote depression, thereby resulting in much more drinking.

It appears that the number of comorbid diagnoses, is not associated with an increased risk of suicide among patients with AUD unless depression is present.



Gender + Alcohol + Suicide

Among suicide decedents tested for alcohol, men were more likely than women to have alcohol present at the time of death (36% versus 29%), and acute intoxication was found in 24% of men and 17% of women. While 21% of men had BACs $\geq 0.10\%$, 15% of women did. And while 9% of men had BACs over 0.20%, 7% of women did.

Men

Rates of suicide in NS between 1994 & 2005 were highest amongst males between the ages of 35 and 59. The reality of the research that exists on suicide and alcohol is that the majority of it, especially in regard to death by suicide, relates primarily to Caucasian men; therefore the majority of this review includes significant amounts of information regarding this group.

Male gender is associated with suicide but not medically serious suicide attempts, and being married or cohabiting was protective from medically serious suicide attempts but not suicide.

AUD. Yoshimashu and colleagues (2008) found that risk of suicide for men with alcohol/ substance related disorders was 3.87 times that of those without such disorders. Men with AUD have a lifetime risk of suicide of 4.83 times that of the general population. Relative risk for suicide associated with AUD for men is 4:1.

Risk factors. Kaplan and et al. (2013) report that in males who died by suicide, those with 12 years of education, or less, were more likely to be intoxicated than those with more than 12 years of education. Males were also more likely to be young, American Indian/ Alaskan Native, veterans, and residing in rural areas.

Lethal means. Men who used the most lethal means of suicide were most likely to be intoxicated at the time of death: 25% of those who used firearms, and 25% of those who died by hanging, were intoxicated.

Women

Although rates of suicide death are significantly higher in men, women attempt suicide 4-5 times more often than men. A study of women in Sweden demonstrated that women who die by suicide are more likely to have alcohol in their system or have a history of problematic drinking than women who die of other 'unnatural' causes. The association of AUD and suicide is more pronounced in women than in men. Women with AUD have a lifetime risk of suicide of 16.9 times that of the general population; as compared to men at 4.83.

Ideation and attempts. Women are significantly impacted by attempts and ideation, which may lead to suicide death, or may have severe adverse effects on their own. Nearly all women who attempted suicide also reported suicidal ideation. Rates of suicidal ideation and suicide attempts were substantially higher among women who had experienced one or more depressive episodes and among women who reported various types of hazardous drinking, including heavy episodic drinking, drinking related problems and symptoms of AUD.

Acute use of alcohol. Of women who reported having made a suicide attempt, more than one third reported that they had consumed alcohol before or during the attempt. Risks of suicide are higher for women who engage in frequent drinking and heavy episodic drinking (six or more drinks in a day), and/or three or more drinking occasions per week than women who do not.

Among women, the factors associated with a BAC of greater than 0.08% were younger age, being American Indian, Alaska Native, and using a firearm, hanging/ suffocation, falling or drowning as the means of suicide. Moreover, as a group, women who used a firearm had higher BACs compared with those who used poisoning.



Women, Continued

Chronic use of alcohol. Suicidal ideation is more prevalent among US women who report symptoms of alcohol dependence. Relative risk for suicide associated with AUD for women is 10:1. Yoshimashu and colleagues (2008) found that risk of suicide for women with alcohol/substance related disorders was 8.34 that of those without such disorders. This risk is significantly higher than for men with such disorders and comparable to 'young' people. Another study estimated the risk of suicide for females with AUD (as compared to those without AUD) to be 2.86 times.

One explanation is that women appear to be more vulnerable than men to many adverse consequences of alcohol use; the adverse consequences of alcohol consumption, including severe liver disease, develop more quickly and require lower levels of alcohol exposure for female than for males. This may be confounded by factors such as higher rates of depression in women with AUD.

Adverse childhood experiences. Adverse childhood experiences may raise women's risk of suicidal behaviour, both in adolescence and in adulthood. Numerous studies have found that experiences of early abuse, in particular childhood sexual abuse, are associated with higher rates of suicide attempts.

It is possible that adverse experiences may lead to the development of hazardous or harmful drinking patterns, which then increase longer term risks of suicidal behaviour.

Means of suicide. Women who acutely use alcohol before attempting suicide are two to five times more likely to poison themselves, and alcohol may be used as one of the poisoning agents in combination with other substances.

Other risk factors

- Women's suicide rates are higher when they are living without marital partners, particularly because of divorce or separation.
- Women who reported their mother was a moderate to heavy drinker were more likely to report current hazardous drinking, and in turn more suicidal ideation.

Promising Practices Related to Gender

Gender sensitive approaches. Utilization of more gender sensitive approaches to suicide education and prevention is recommended, which in turn may be more effective in reducing suicide behaviour in both women and men.

Increased research looking at suicide attempts. Based on the dearth of research regarding women, the fact that the focus has been primarily on completed suicide, the homogeneity of the study results and the fact that attempted suicide is the single biggest predictor of completed suicide requires a shift in how research is being done, and who is being studied.



Age + Alcohol + Suicide

Youth

Suicide among young people is a serious public health concern. Although the majority of adolescents successfully negotiate this tumultuous time, there are a significant number who exhibit suicidality, depression, and substance use. One study reported that approximately 13.8% of adolescents consider suicide each year, and 6.8% make an attempt. There is a significant association between alcohol use and suicide for adolescents. In a study conducted by Schilling et al (2009), 33,889 students were surveyed using the Signs of Suicide school based screening tool. When asked about the past year, almost 5% reported attempting suicide and 16.6% reported thoughts about suicide.

NS STUDENT ALCOHOL USE

Of students in grades 7, 9, 10, & 12 in 2012:

- 49% of students (male and female) consumed alcohol.
- Among those students who had tried alcohol, the average age of first use was 13.4 years of age.
- Alcohol use increased with higher grade level, with 10.7% of students reporting some use in grade 7, and more than three out of four students using alcohol by grade 12.
- Frequent alcohol use (drinking alcohol more than once a month) increased by grade level. In grade 7, 3.6% of students consumed alcohol frequently compared to 21.5% in grade 9, 30.4% in grade 10, and 47.9% in grade 12.
- In the 30 days prior to the survey, 26.6% of students reported at least one episode of heavy drinking
- Drunkenness was reported by 24.1% of students: 2.1% in grade 7, 21.3% in grade 9, 30.5% in grade 10, and 38.9% in grade 12.

From 2012 Nova Scotia Student Drug Use Survey

Alcohol use is strongly associated with suicide among adolescents. Adolescent alcohol abuse has been blamed for the increase in suicides among young persons from 1956-1994. Heavier alcohol use among teens is associated with a 3 to 4 times increase in the probability of a lifetime suicide attempt.

Planned attempts in youth are generally associated with higher levels of depression, hopelessness, lethality and better follow through on treatment following the attempt.

Risk factors. Based on the analysis completed by Windle in 2004, the list of risk and protective factors for adolescents in suicidal ideation, telling someone about thoughts of suicide, and suicide attempts, includes: depression*, being difficult temperament, drinking with coping motives, family support, gender, having friends who use alcohol, friend hostility, stressful life events, delinquency, and levels of alcohol use/ binge drinking. *Depression was the most prominent predictor of all three suicidal behaviours.

Stressful life events. Adolescence is considered by some to be the period with the highest rate of stressful events, a fact which may influence suicidal behaviours. Adolescence is the period:

- With the highest initial onset of mental health and substance use disorders;
- When a number of biological changes occurring having broad implication for stress and adaptation to changing roles and activities; and
- When a number of normative age specific developmental tasks occur, such as gaining autonomy from parents, beginning to date, changing peer relations, identity formation and increases in self-consciousness

Each of these developmentally important but stressful life events make adolescent significant and unique in the context of both risk and protective factors.



Impulsivity and aggression. Alcohol may promote increased impulsivity and aggressiveness, leading to intentional self harm. For youths higher in aggression and impulsivity (e.g. ADHD) research suggests that alcohol may directly or indirectly increase risk. Drinking alcohol while down is an important marker for impulsive suicidal behaviour among non-ideating adolescents.

Previous research indicates that impulsive acts constitute an important subtype of suicidal behaviour among adolescents that comprise a substantial proportion of medically serious suicide attempts. Unplanned attempts are more prevalent in early, as opposed to late, adolescence; and are more common among males and those higher in aggressiveness. They are also more likely to occur following stressful life events.

Alcohol use and substance use disorders. Yoshimashu and colleagues (2008) found that risk of suicide for the *young* (35 years or less) with alcohol/ substance related disorders was 8.55 times that of those without such disorders. This risk is significantly higher than for men with such disorders and comparable to women, in general. Studies have documented a higher proportion of AUD among younger suicide decedents, although this may just be a reflection of the age related pattern of alcoholism in the general population.

Depression. There is a movement in clinical practice to consider concurrent disorders as the expectation and not the exception when working with adolescents. Of those adolescents who think of or attempt suicide, many meet the criteria for a mood or substance abuse disorder, and co-occurrence of these disorders is the most common presentation in adolescents who die by suicide. Up to 90% of youth who die by suicide having been diagnosed with at least one psychiatric disorder, typically depression. Between 20% and 40% of adolescents report depressed mood. Estimates of the lifetime prevalence of major depressive disorder in adolescence range between 3% and 8%, and annual incidence between 3% and 11%.

Concurrent disorders. Depression is often accompanied by co-occurring mental disorders, such as substance use. Sixteen to nineteen year old females were found to be six times more likely to experience depression if they were alcohol abusers; and drug use was strongly associated with a lifetime prevalence of depression. Depression and alcohol use combined, compound the risk for suicide and with heavy alcohol use multiple suicide attempts are more of a risk.

The Canterbury study (Conner et al, 2003) found that 90% of youth who were suicidal were depressed and had a substance use disorder, including alcohol.

Adolescents who present with sub threshold depression and substance use (i.e. not meeting diagnostic criteria for 'disorder') are highly prevalent. This group is "largely ignored", and may not have their mental health needs met by providers because their symptoms/ use is not considered a serious concern. Such symptoms significantly impact risk of major depressive disorder (67%, rising to 90% with other factors including suicide ideation) and suicide attempts within adulthood. This indicates the need to identify this population at an early age.

Early onset of alcohol use. Early onset of alcohol use seems to further increase risk of suicide because patients who started abusing alcohol in their teens have been shown to be four times as likely to have attempted suicide as those who started abusing alcohol later in life.

Binge drinking & drinking while down. A large proportion of youth and young adults drink to the point of intoxication when they drink. Analysis of the 2004 Canadian Addiction Survey reveals that Nova Scotians under 30 years of age frequently consume larger quantities of alcohol than the Nova Scotia average, with no significant differences between males and females. Drinking while down and binge drinking were both significantly associated with suicide attempts in young people. Drinking while down demonstrates a potential danger of alcohol use as self-medication for depression.



Drinking while down & binge drinking. When students were asked about *drinking while down* and *binge drinking*:

- When asked about drinking when down, almost 18% of students who reported doing so, also reported a suicide attempt in the past year, as compared to only 3.1% of those who did not report drinking while down.
- One or more episodes of drinking while down in the past year, was associated with a threefold risk of suicide attempt in those not reporting ideation, and a 68% increase among those who did report ideation.
- When asked about binge drinking, 8.8% of students who reported doing so, reported a suicide attempt in the past year compared to 3.3% of students who did not report attempts.
- The association of binge drinking and attempts did not differ between those who reported ideating and those who did not.

Later-Life

In Nova Scotia, between 1995 & 2004, the rate of suicide for adults 65+ ranged from 5 – 9 per 100,000. The average rate of suicide death was 9 per 100,000; older adults had some of the highest rates of suicide of all age groups. Both alcohol and depression are strongly linked to suicide attempts and completions. Studies of geriatric suicide have been less extensive and rigorous than those for other age groups, and current knowledge regarding geriatric suicide is somewhat limited.

Prevalence of acute alcohol intoxication declined markedly with age; in fact it was rare among decedents over the age of 65.

Although AUD is more common during adolescence and young adulthood, it is suggested that middle aged and older adults with AUD are especially at risk for suicide. There are several hypotheses that may explain why:

1. Older individuals with AUD have had more exposure to the deleterious effects of AUD given longer duration of illness
2. Aggression/ impulsivity underlie failure to mature out of alcoholism and the risk for suicide

3. Older adults represent a subgroup with a later age of onset of AUD prone to drinking due to negative affect
4. Diminished physical reserves associated with ageing, compounded by AUD, make surviving an attempt less likely

Alcohol dependence and mood disorders are both more strongly associated with suicide as age increases, as compared to suicide risk for those with neither AUD nor mood disorder, which lowers with age.

There is a complex relationship between alcohol misuse and late life suicide. Estimates of substance use disorders among elder suicide decedents have been lower than those for young cohorts. This may reflect, in part, a decline in alcohol use in late life. However the role of at-risk and problem alcohol use in geriatric suicide may be underestimated. Potential reasons for this include: (1) difficulty assessing drinking behaviour in the population, (2) the increased effect of even light to moderate alcohol use in this age group, and (3) problems with standard criteria for the diagnosis of alcohol use criteria as they are applied to the elderly.

A combination of factors places the older adult population in a unique and vulnerable position regarding suicide. Whereas there is one completed suicide for each twenty-five attempts among all ages, one in four seniors who attempts suicide dies. Some factors that may contribute to higher lethality include:

- Compared with younger suicide decedents elderly suicide decedents are much less likely to have attempted suicide previously.
- Greater use of lethal means contributes to the higher rate of completed suicide among elders
- Older people give fewer suicide warnings and have less suicidal ideation.
- Social isolation in the elderly makes detection an intervention even more difficult.
- Because their physical health is poorer overall, older adults are less likely to survive self inflicted injuries.
- In general, older adults who attempt suicide have greater premeditation and seriousness of intent to die.



Later-Life, Continued

Acute use of alcohol in late life. Alcohol use and misuse are more prevalent among the suicidal, than the non-suicidal elderly. However, the literature exploring this link is limited. One study of the elderly found that moderate (one to two drinks per day) and heavy (3 or more drinks daily) alcohol users were each significantly more likely than non drinkers to die by suicide.

Another study of older suicide decedents found that 14.8% of 64-73 year olds and 5.8% of those aged 74 and older had alcohol in their blood at time of death. In a study of elder suicide attempts, 24.5% of 60 – 69 year olds and 13% of 70 – 79 year olds had consumed alcohol before the attempts. The issue of acute use is complex and requires further inquiry. Of note, low to moderate use of alcohol among some elderly may be an indicator of better health, whereas for others even low alcohol use may indicate problem drinking behaviour that could heighten risk for suicide.

Concurrent alcohol use disorder & depression in later-life. Alcohol use/ misuse without a co-occurring depression or other significant risk factor may not increase suicide risk among the elderly. Research has shown a strong association between depression and alcohol use disorders across all age groups; and at risk and problem drinking among the elderly is likely to exacerbate existing depressive disorders. In a US study of people aged 65 and older 13.3% of those with lifetime major depression also met criteria for a lifetime alcohol use disorder, as compared with 4.5% of those without a history of depression who had a lifetime alcohol use disorder.

Risk factors. Risk factors for elder suicide, which can be affected by at-risk and problem drinking, include:

- medical illness (including cardiovascular and liver diseases) and general poor health, which are major contributors to depression
- psychiatric problems
- negatively perceived health status
- treatment non compliance
- poor sleep quality/ sleep problems
- levels of pain and vitality
- harmful drug interactions
- injury
- memory problems and cognitive changes

Of note are influences on psychosocial risk factors for elder suicide exacerbated by problem drinking:

- strains on existing relationships
- threats to social support networks
- social isolation
- poor social support
- lack of relatives or friends in whom to confide
- impairments in emotional and social functioning

Clinicians are less likely to recognize and treat alcohol misuse or depression in older, compared with younger, individuals. Improved diagnosis may result from screening with questions about alcohol use, depressive symptoms and suicidality.



Promising Practices Related to Age

Multi targeted interventions. Combined, or multi targeted, interventions are most likely to be successful in combating suicide than single focused intervention programs. Including targeting specific risk factors such as alcohol use and depression.

Interventions to reduce stigma. Strategies that will reduce the stigma associated with mental illness and substance use, which can inhibit people from help seeking, may help to prevent suicide related behaviours.

School-based emotional resilience programs. Implementation of school based programs that teach adolescents adaptive coping responses and problem solving skills so they can effectively handle problems and stressors that characterize adolescence is needed.

Provision of resources. When someone has concurrent disorders, regardless of severity, a routine aspect of treatment should be to provide them with resources, like local crisis lines, as a step toward prevention.

Screening in youth

- **Concurrent disorders in youth.** Providers of substance use interventions should be routinely screening for typical concurrent mental health presentations and should be able to provide relevant treatment or referrals. SAMSHA promotes a “no wrong door approach” wherein assessment occurs wherever an individual with concurrent disorders presents him or herself.
- **Screening for suicidality.** Suicide risk assessment should be a routine part of screening regardless of whether the treatment provider is assessing substance use or providing mental health care for depression
- **Screening for “drinking while down”.** Alternative avenue for identification of youth at risk of suicide by screening for youth who are drinking while down and opportunities for early intervention.

Strategies to increase age of first drink. A shift from a culture that views underage alcohol use as a normal, to a culture that has meaningful rites of passage for youth, that do not involve alcohol will help in suicide prevention.

Risk recognition and prevention efforts for older adults. Suicide prevention and risk recognition efforts aimed at middle aged and older adults with AUD and mood disorder are needed.

Clinical screening for older adults. In every patient, assess for substance use or misuse, as substance abuse increases risk for suicide. Complete additional assessment for co-morbid suicidality. Refer to National Guidelines for Seniors Mental Health: The Assessment of Suicide Risk and Prevention of Suicide for general practice guidelines for suicide prevention.

Intervention for older adults. Training and support for brief interventions may increase use of evidence based methods to intervene rapidly and effectively with patients who are misusing alcohol.

Focus on physical health for older adults. Suicide prevention efforts for older individuals should focus primarily on health related issues.



Alcohol Availability

Suicide is related to overall alcohol consumption. During the US prohibition era from 1920 to 1933, when alcohol was not available legally, the suicide rate declined. In Denmark, when severe constraints were placed on commodities and taxes on alcohol were raised dramatically during WWI, alcohol consumption, and suicide rates both decreased.

In a study of 49 counties in Ontario, higher rates of suicide were found to be associated with greater outlet densities (based on on- and off-premise outlets per 1,000 adults in the population) (Johnson et al, 2009). In New Mexico, a county-level regression analysis showed that increasing alcohol outlet density was significantly related to increasing suicide rates.

A study done in California analyzed 3 outlet types: bars, off premise establishments and restaurants. Completed suicides rates were higher in areas with greater bar and off-premise outlet densities, and lower in areas with greater numbers of restaurants (which actually had a protective effect). Lagged (in areas next to those with high densities) results were that a higher number of bars was also connected to higher rates of suicide, but off-premise outlet density was not.

Regarding suicide attempts, local bar densities were positively related and restaurant densities were negatively related (they were protective). Local off-premise outlet densities were unrelated. There were no lagged effects for attempts.

There are significant implications of other factors in this equation as well, including rural versus urban issues, including lack of social opportunities and rates of suicide that need to also be considered. On-premise alcohol outlets seemed to provide non-alcoholic goods and services to their patrons as well as a certain social connectivity that may have, in some ways, reduced feelings of isolation and enhanced the kind of face-to-face guardianship that can be used to potentially identify ideators and suppress short-lived suicidal impulses.

Promising Practices Related to Alcohol Availability

Limit the number of bars and off premise outlets. The number of alcohol related suicide deaths and attempts might decline if the number of bars and off-premise outlets (i.e. retail outlets) were reduced; and certainly not increased as is the current trend.

Bar staff as interveners. Training servers to recognize potentially suicidal individuals within bars and taverns and refer them to mental health services.

Prevention & Policy

Suicide prevention requires a comprehensive response to the intimate link between alcohol and suicide. Above and beyond the promising practices listed in various sections of this review, the following elements also came up.

Suicide Prevention Strategy

A comprehensive effective suicide prevention strategy is important. In general, prevention of suicide falls under three tiers, or levels:

1. **Primary prevention.** These are universal strategies that are broadly delivered.
2. **Secondary prevention.** These are targeted or indicated strategies that focus interventions on those most at risk.
3. **Tertiary prevention.** This includes the delivery of clinical and/or primary health care to those in crisis.



Alcohol Policies

Comprehensive national, and provincial, alcohol policies are needed to prevent and promptly manage alcohol related problems, including the risk of suicide. Policy is a fundamental tool for focusing, influencing, and stewarding cultural behaviour. The greater the interactivity between the public and the policy process, the greater the influence on societal norms.

Alcohol regulation. Overall alcohol regulation might be an effective universal suicide prevention strategy. Future work can address the possibility that alcohol sales are connected with social losses (i.e. PYLL) not balanced by ethanol taxes. A focus on modifiable alcohol control policies (e.g. hours of sales, price, taxes and density of outlets) may reduce the incidence of alcohol-associated suicides.

Alcohol consumption & availability. There is growing evidence that public policies aimed at reducing alcohol consumption and availability might reduce rates of suicide. Population wide policies designed to reduce inappropriate alcohol use might lower overall rates of suicide related to acute intoxication. A study in the Former USSR found that rigorous alcohol restrictions produced a decrease in BAC+ suicide mortality rates for both genders.

Health Promotion

Use of an interactive model of health promotion is important. Some aspects of which are: a comprehensive approach, partnership among concerned groups, construction of collaborative network systems, and suicide prevention programs at the community level, is important.

Attempted Suicide

Although it may seem more important to focus on completed suicides than suicide attempts or suicidal ideation, these suicidal behaviours are precursors of suicide death, and may have severe adverse effects on their own; they should be the foci of better suicide prevention efforts.

Alcohol Use Disorders

Global suicide prevention strategies should include a focus on alcohol use disorders, in terms of prevention, brief intervention by adequately trained and supported non specialist staff (including primary care), availability of multidisciplinary specialist alcohol services, and aggressive treatment of concurrent disorders.

Denormalize Underage Drinking

A shift from a culture that views underage alcohol use as a normal to a culture that has meaningful rites of passage for youth that do not involve alcohol. In the optimum strategies to target youth alcohol use, proven professional expertise in prevention and early intervention will be intrinsic in the youth culture's context and media.

Denormalize Binge Drinking & Drinking to Intoxication

Alcohol consumption among young adults (under 30 years of age) in Nova Scotia is supported by a sub-culture that normalizes and glamorizes drinking, intoxication, and alcohol related consequences such as suicide. Efforts to create a shift to a culture where binge drinking and intoxication are no longer socially acceptable are desired.

Risk Identification Strategies

Suicide prevention efforts rely, in part, on developing effective risk identification and intervention strategies specifically tailored to high risk populations, these should include both primary practitioners, and gatekeepers.

Of special note is the *Treatment Improvement Protocol Number 50, TIP 50: Addressing Suicidal Thoughts and Behaviors in Substance Abuse Treatment*. This brief, straight forward suicide prevention resource has led to increases in provider self-efficacy, knowledge, and suicide prevention practice behaviours in substance abuse treatment providers.



Increased Focus on Prevention and Early Intervention

Currently, an addiction specialist or medical doctor conducts most alcohol screening. However, it is necessary to make a cultural shift to involve a range of “helping professions” to perform alcohol screenings, provide opportunities for self-evaluation, and facilitate positive action.

Approaches to Awareness and Educational Resources

Alcohol-related educational resources are a necessary component of collective initiatives to reduce alcohol-related harm, such as suicide. There must also be a shift from one-way communication to a model of sharing information and meaningful exchange to facilitate healthy action; shifting from “telling” people to meeting people where they are, and motivating them to take control of alcohol related harms for themselves.

Social Capital

Establishment of social capital is important in the prevention of suicide. Social capital means attachment to the community and relationships of mutual trust among people by reinforcing the network system among persons or groups in the community social isolation caused by divorce or unemployment is the very opposite of complete social capital.

Violence Reduction

Violence is a potent risk factor for suicide. Given that violence and suicide share many common risk factors, interventions effective in reducing violence also reduce the potential for suicide.

Conclusion

As evidenced throughout the literature presented in this review: alcohol use, both acute, and chronic, is a significant risk factor for suicidal behaviour. Our overall learning is that this is an incredibly complex and serious issue that demands an equally complex and focused response. Bilban & Skibin (2005) said it well: “The route to the desired improvements will be long and thorny since our society is traditionally deeply rooted in the culture of alcohol drinking”.

Research consistently points to the necessity of approaching issues involving such complexity through the active pursuit of diverse and collaborative partnerships. It is certain that addressing this particular issue will require a broadening of the scope of engagement of those currently doing work in injury prevention, mental health, addictions and other related community roles in any way connected with this issue. To begin this process we must move beyond the traditional ‘silos’ that so many of us work within, and begin to ask the difficult questions. A significant investment of time and resources at levels not currently seen will be needed from all sectors.

It is our hope that this literature review and subsequent knowledge exchange opportunities are only the beginning of the work in our province to lessen the impact of alcohol use on suicidal behaviour; leading to a decrease in loss of lives, and injuries related to suicide, and ultimately increased quality of life for all those who call Nova Scotia home.



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