



# Substance Use and Suicide among Youth: Prevention and Intervention Strategies

## Key Messages

- Substance use and suicidality frequently co-occur among youth and share many of the same risk and protective factors.
- Substance use is a significant risk factor for suicidal ideation, attempted suicide and completed suicide.
- Suicide prevention resources have been developed for healthcare practitioners and others who come into contact with individuals who have substance use issues.
- Further evaluations are needed to determine the impact of these prevention resources and whether they are effective in youth with substance use problems.
- Although the available evidence is limited, there are some promising emerging treatment strategies for youth with co-occurring substance use and suicidality.

## Introduction

Globally, over 800,000 people die by suicide every year and many more attempt suicide. Among youth aged 15–19 years old, suicide ranks in the top five causes of death worldwide.<sup>1</sup> The prospect of suicide is thought to arise in a number of ways, including through the contribution of several risk factors and a lack of protective factors (see Table 1).<sup>2</sup> In Canada in 2011, suicide was the second leading cause of death among Canadian youth (15–19 years).<sup>3</sup> Completed suicides represent only a portion of this public health issue. For example, in 2002 it was reported that approximately 7% of youth (15–19 years) experienced suicidal thoughts in the past-year, compared to less than 4% of all Canadians over the age of 15.<sup>4</sup> Increases in the number of Canadian youth being admitted to hospitals for self-harm can largely be attributed to a 102% increase in hospitalizations among girls 10–17 from 2009 to 2014.<sup>5</sup> While suicide is often viewed primarily as a mental health issue, particularly resulting from affective disorders (e.g., depression), there is a strong body of evidence that has shown that suicide and suicidal behaviour are consistently tied to substance use and substance use disorders. The results from a meta-analysis among adults indicate that the risk of suicide is elevated among individuals with an alcohol use disorder by approximately 9.8 times, 13.5 times for opioid use disorder and 16.9 times among those with polysubstance use.<sup>6</sup> Due to the strong association between substance use and suicide, there is a need to identify whether effective prevention and intervention strategies exist for youth who present with these co-occurring issues. This summary was conducted to inform a broad audience on this issue, including substance use treatment providers, those working in suicide prevention and those who regularly work with youth, as well as researchers who are interested in co-occurring suicidality and substance use.



**Table 1. Examples of potential contributing risk and protective factors for suicide and suicidal behaviours**

<b>Risk Factors</b>	<ul style="list-style-type: none"><li>• Limited access to health care</li><li>• Access to means to complete suicide</li><li>• Stigma</li><li>• Trauma or stressors (e.g., discrimination, abuse)</li><li>• Interpersonal issues (e.g., conflict, isolation, lack of support)</li><li>• Biological factors (e.g., genetics, neurochemical alterations)</li><li>• Hopelessness</li><li>• Mental health or substance use disorders</li><li>• Previous suicide attempt</li><li>• Familial history of suicide</li></ul>
<b>Protective Factors</b>	<ul style="list-style-type: none"><li>• Positive interpersonal relationships</li><li>• Religious or spiritual beliefs</li><li>• Positive coping strategies (e.g., problem solving, help-seeking)</li><li>• Self-esteem and self-efficacy</li></ul>

Source: World Health Organization<sup>2</sup>

## Substance Use and Suicide among Youth

Suicidality and problematic substance use often emerge in adolescence, making this developmental period an important target for efforts in prevention and intervention.<sup>7</sup> Many studies have consistently shown a relationship between adolescent alcohol and other substance abuse and suicide.<sup>8,9,10</sup> Despite this, one prominent but often ignored risk factor for suicide attempt is a high incidence of alcohol and drug use disorders.<sup>11</sup> Among adolescents who died by suicide, 27%–50% met the criteria for a substance use disorder. Further, the rate of alcohol abuse was seven and a half times higher and illicit drug abuse was nine times higher among adolescents who died by suicide compared to community controls.<sup>12</sup> Substance use is also evident among those who attempt suicide. For example, adolescents who presented to an emergency room following a suicide attempt and who reported substance use were approximately three times more likely to make another attempt compared to those who reported no substance use.<sup>13</sup> Additionally, in some studies rates of alcohol and other substance use disorders are as high as 50% among those who attempted suicide.<sup>12</sup> This data makes it clear that identifying ways to prevent suicide among those with substance use issues is critical to addressing the overall public health issue of suicide.

The disinhibition caused by certain substances, such as alcohol, can facilitate suicidal ideation and increase the risk that individuals will act on suicidal thoughts.<sup>14</sup> Moreover, alcohol impairment has been implicated in more lethal forms of suicide attempts.<sup>15</sup> Almost half of adolescents who have attempted suicide reported having consumed alcohol at the time of the attempt.<sup>16,17</sup> The link between suicide and other more widely used substances, such as cannabis, is less established. However, in a longitudinal study among 1,265 youth ages 14–21 years, regular cannabis use was associated with an increased risk of suicidal behaviour.<sup>18</sup> Additionally, a 13-year longitudinal study among more than 2,000 young adults observed a significant relationship between cannabis use at age 21 and suicidal ideation and attempts when assessed at age 27, even after controlling for many confounding factors. Specifically, young adults who reported using cannabis eleven times or more in the past year at age 21, were close to three times more likely to report ideation and a previous attempt at age 27.<sup>19</sup> Among young adult men, heavy consumption of cannabis (greater than 50 occasions) was associated with a four-times greater likelihood of suicide compared to the general population.<sup>20</sup> However, the strength of the association between cannabis and suicidal risk is unclear,

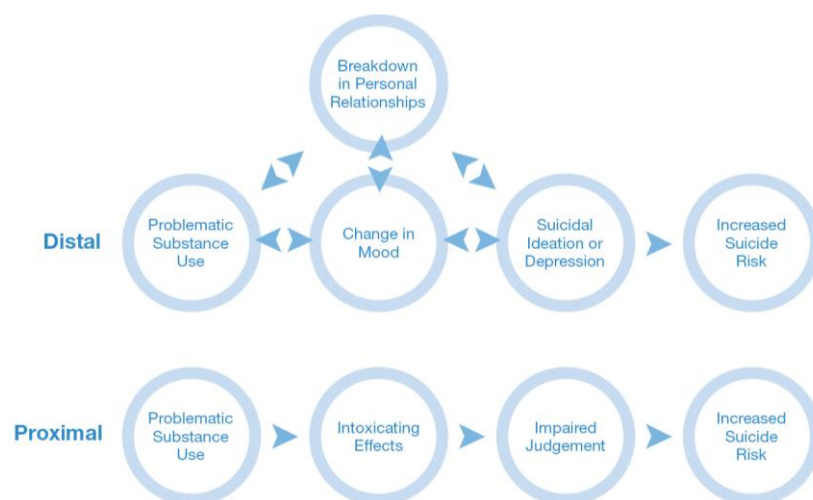


and a large cohort study of approximately 50,000 males initially assessed during 1969–1970 at ages of about 18–20 years for cannabis use did not observe a later increased risk for suicide (up to the year 2003) once confounding factors were taken into account.<sup>21</sup> Although not the focus of the current review, non-suicidal self-injury, defined as deliberate harm to an individual’s own body without suicidal intentions, has also been associated with substance use, and like substance use might serve as a maladaptive coping mechanism for youth.<sup>22,23</sup> It should also be acknowledged that the directionality and causality between adolescent substance use and suicide behaviour is unknown.

## Understanding the Relationship between Substance Use and Suicide

Several theories have been proposed as to why the relationship between substance use and suicide exists. Briefly, it is plausible that individuals who are experiencing a depressed mood are more apt to self-medicate using substances. Alternatively, it is possible that substance use is associated with higher levels of disinhibition, impulsivity and aggression that in turn are associated with conduct problems that could promote risk for suicidal behaviours. For example, sometimes the strength of the relationship between substance use and suicidality decreases when other risky behaviours are considered (e.g., sexual behaviours, shoplifting, gambling, etc.).<sup>24</sup> A third factor (e.g., genetics, stressor experiences, etc.) might underlie both behaviours. In most cases, an interaction of multiple factors is most likely responsible for the relationship.<sup>25</sup>

Indeed, there are several priority areas of research that could help inform prevention efforts. For example, there is a lack of data on the influence of acute use of substances on suicidal risk and the progression of suicidal risk across substance using events.<sup>26</sup> Additionally, a better understanding of motivations for substance use prior to suicide is important, particularly as substances might be used deliberately to reduce psychological barriers (e.g., fear) in an effort to unleash suicidal behaviour.<sup>26,27</sup> Figure 1 shows some of the potential pathways through which problematic substance use might escalate to suicidal risk among adolescents



**Figure 1.** The diagram represents the potential pathways through which problematic substance use might increase suicidal risk among adolescents.<sup>25,29</sup> These pathways represent a small portion of the potential ways substance use might contribute to suicidal risk. These relations might be strengthened by additional risk factors such as an early onset of substance use, being female or belonging to an at-risk population (e.g., Indigenous youth, lesbian, gay, bisexual, transgender [LGBT] youth).



## At Risk Youth

### *Early Onset of Substance Use*

Not all youth who use substances are at risk of suicide. Being aware of the contextual and cultural factors that might put youth at increased risk for co-occurring suicide and substance use issues could help inform targeted prevention initiatives. As depicted in Figure 1, there is some emerging evidence to suggest that early onset of substance use is one factor that might contribute to elevated suicide risk and finding ways to delay or prevent substance use among youth could be explored to determine whether it has an impact on suicidal outcomes. In a cross-sectional study of 13,917 high school students, earlier age of onset of alcohol use was associated with greater reports of suicidal ideation and attempted suicide.<sup>8</sup> Additionally, individuals who began having alcohol abuse issues during their teens were four times more likely to have experienced a suicide attempt than those who began later in life.<sup>30</sup> Among adults who had a heroin use disorder, those who had attempted suicide had a significantly earlier age of onset than those who had a heroin use disorder, but did not attempt suicide.<sup>31</sup>

### *Comorbid Conditions*

In adult populations, the presence of comorbid affective and substance use disorders among those who die by suicide has been described as the rule rather than the exception.<sup>32</sup> Tri-morbidity, when individuals present with three disorders, such as depressive disorder, alcohol use disorder and cocaine use, is associated with an especially high suicide risk.<sup>33</sup> Among adolescents, comorbid affective disorders and substance use disorders greatly increase the risk of death by suicide.<sup>34</sup> For example, compared to matched controls, the risk of having a substance abuse history was 8.5 times higher for adolescents who died by suicide and the risk for death by suicide for individuals with both a substance abuse and affective disorder was 17 times higher.<sup>35</sup> Healthcare providers need to be especially vigilant in monitoring suicide risk among youth who present with such issues.

### *Gender*

In Canada, as in many other countries, suicide is a gendered issue. Males outnumber female suicide victims by three to one, although females attempt suicide more often.<sup>3</sup> However, when it comes to substance use and suicide, females might be at an increased risk. A meta-analysis of several cohort studies that included adults indicated that females with an alcohol use disorder had a 17-fold mortality rate for suicide, whereas males had a five-fold mortality rate.<sup>6</sup> This increased vulnerability might be particularly marked among females who use multiple substances (poly-drug use), as adult females with poly-drug use and a history of suicide attempts had an 87-fold increase in suicide risk compared to the general population.<sup>36</sup> Furthermore, the use of substances as a method of suicide is particularly prevalent among females. Among Ontarian youth (ages 16–25), deaths by suicide due to alcohol and drug toxicity were significantly higher in females.<sup>37</sup> In Canada in 2013–2014, intentional self-harm by girls accounted for 45% of all hospitalizations among this group. As well, the recent 102% increase in self-injury among girls between the years 2009–2014 was largely attributed to intentional poisoning (88% of the cases) with substances such as prescription medications, illicit drugs and alcohol, among others.<sup>5</sup> With respect to suicide prevention, this fact raises a key area of intervention through the restriction of means to complete suicide. For example, ensuring safe storage and monitoring of prescription medications and other drugs in the home should be a cautionary approach for parents to adopt.



## ***Indigenous Youth and Other Minority Groups***

Substance use as a risk factor for suicide among Indigenous youth has been examined. For instance, among Inuit youth who have rates of suicide that are among the highest in the world,<sup>38</sup> suicide attempts were tied to recent alcohol, cocaine or crack use for females, whereas for males recent life events and solvent use were the strongest correlates of suicide attempts.<sup>39</sup> However, it is uncertain if or to what extent substance use contributes to the amount of deaths by suicide among Inuit youth. Death by suicide in Canada is five to six times higher among First Nations youth and 11 times higher among Inuit youth compared to the national average.<sup>38</sup> Despite these high rates, a recent systematic review on suicide prevention strategies for youth indicated a lack of reviews addressing First Nations, Inuit and Métis populations. In spite of the growing body of research indicating high rates of suicidal behaviours in minority cultures, there is limited information on effective, culturally sensitive, problematic substance use interventions for minority groups with elevated suicide risk.<sup>40</sup>

Finally, there are other at-risk groups for substance use problems. A meta-analysis assessing substance use among lesbian, gay and bisexual (LGB) youth indicated that, on average, the likelihood of substance use was 190% higher among LGB than heterosexual youth, and even higher among certain subpopulations (e.g., bisexual youth, 400%).<sup>41</sup> Elevated suicide risk has been consistently reported among LGBT youth populations.<sup>42</sup> Moreover, elevated suicidal behaviour among LGB youth has been associated with substance use disorders,<sup>43</sup> indicating a great need to explore how substance use might contribute to suicidal behaviours and effective strategies to address the two among these youth.

## **Prevention and Intervention Approaches**

The current evidence-base for effective prevention strategies is lacking and there remains substantial gaps in our knowledge about how to prevent suicide among youth in general, let alone in those with co-occurring substance use problems. A recent systematic review indicated that few randomized controlled trials (RCT) on youth suicide prevention programs exist. The review did observe that certain school-based programs, as well as some interventions that promote contact between youth and trained professionals, have been successful in preventing suicide attempts and ideation, but statistical analyses on death by suicide are not typically reported because of their low incidence.<sup>44</sup> However, it is not known whether such programs are also effective for youth with co-occurring substance use problems. There are a variety of risk and protective factors (see Table 1) that should be considered when developing youth suicide prevention programs, and the extent to which such factors are related to suicide differ depending on the individual and their environmental context. Because of the numerous factors that can contribute to suicide risk, effective ways to prevent suicide and suicidal behaviours will likely require a comprehensive and multifaceted approach.<sup>2</sup>

## ***Increasing Awareness and Training for Healthcare Practitioners***

To address suicide prevention among youth with co-occurring substance use, healthcare providers must be trained to identify and address the signs of both suicide risk and substance use.<sup>45</sup> One systematic review of evidence estimated that 45% of suicide victims had contact with primary care providers within one month of their death.<sup>46</sup> Helping healthcare providers to understand the link between suicide and substance use and to enhance their capacity to address this issue is important as data suggest that adult patients seen to have a suicide risk associated with substance intoxication are discharged sooner than those who are judged to have a suicide risk unrelated to substance use.<sup>47</sup> The American Academy of Pediatrics has recommended that pediatricians and family practitioners routinely assess adolescents for risk factors on suicide, including substance use.<sup>48</sup> Although training primary care providers on the link between substance use and suicide among





youth has not been evaluated, an RCT that involved training primary care providers to deliver evidence-based treatment for adolescent depression was tied to fewer suicide attempts, suggesting that primary care providers could be an important target group for future prevention initiatives.<sup>49</sup>

Given the increased risk of suicide among those with problematic substance use, one approach to suicide prevention is to ensure that individuals working in addiction services have the training to identify and manage clients at a higher risk for suicide. However, research on workforce suicide prevention training has primarily focused on curricula for mental health services.<sup>50</sup> Indeed, few approaches to training those working in problematic substance use services on suicide prevention have been evaluated to determine best practices.

Treatment Improvement Protocol (TIP) 50 from the U.S. Substance Abuse and Mental Health Services Administration provides guidelines to help front-line substance abuse counsellors, supervisors and program administrators deal with suicide risk.<sup>51</sup> TIP 50 has not been evaluated for addiction service providers who work with youth; however, among 273 treatment providers for veterans with substance use disorders, TIP-50 was associated with significant increased knowledge and self-efficacy immediately after training and higher self-efficacy and use of suicide risk management behaviours two months after training.<sup>52</sup>

The brief standardized community gatekeeper training for suicide prevention, called Question, Persuade, Refer (QPR), is meant to teach a wide range of staff how to identify and refer individuals into care. It is a one-to-two hour instructor-led lesson with opportunities to practice gatekeeper skills in small groups using standardized actor scripts.<sup>53</sup> The QPR method was pilot tested among 50 problematic substance use treatment professionals and was associated with significant gains and higher perceived self-efficacy immediately following training; however, it is uncertain whether the gains promoted greater use of the approach on the job or had any impact on clients.<sup>54</sup>

Other programs such as Preventing Addiction Related Suicide (PARS) have been developed and pilot-tested to address the co-occurrence of substance use and suicide prevention. PARS is a group-based suicide prevention program that includes two to three hours of training for addiction counsellors based on a workbook. The counsellors then use an adapted workbook to lead a two-to-three hour group discussion among clients in their outpatient treatment program. PARS teaches information on the risk factors of suicide, the warning signs of suicide, and the links between suicide and addiction, as well as steps to address suicide risk in oneself and others. Among 78 clients in treatment in an outpatient addiction group, the PARS program was associated with significantly more help-seeking behaviours when suicide issues arose for the client or their family and friends at one month after training.<sup>55</sup> Although this approach has not been tested with adolescents, it might be applicable to adolescents in day hospital or residential addiction programs. Moreover, despite the potential of all of the outlined suicide prevention programs for problematic substance use service workers, their efficacy in enhancing suicide risk management among youth is unknown.

## Policy

Another potential approach to help prevent suicides in youth is to examine policies surrounding the regulation of substances. For example, Estonia implemented various approaches to reduce alcohol use and related harms, such as media campaigns, restrictive policies aimed at reducing alcohol production and increasing prices, and improved treatment for alcohol use disorder. These policies were associated with a 40% decrease in suicides in which blood alcohol was detected among all ages. Following the end of the campaign, the number of suicides where alcohol was detected began to rise.<sup>56</sup> An anti-alcohol campaign in Russia involving strategies such as increasing alcohol prices, restricting time of sales and stricter punishment for public intoxication was related to a 33% decline



in violent deaths, including suicide, during its duration.<sup>57</sup> However, it is not clear if such effects could be generalized to Canada.

Among youth specifically, the association between policies on minimum legal drinking age and suicides has been examined. In the United States, an analysis of state laws from 1970 to 1990 indicated a strong association between minimum legal drinking age and suicides among youth age 18–20 years old: states with a minimum drinking age of 18 had an 8% higher rate of suicide than states that had a minimum drinking age of 21, even when controlling for confounding factors.<sup>58</sup> Additionally, legislation that was passed in Slovenia in 2003 to limit the availability of alcohol products and establish a minimum drinking age of 18, revealed an immediate and persistent reduction in male suicide mortality following implementation.<sup>59</sup>

### **Community-based Initiatives**

Postvention is the provision of supports or interventions for those exposed to a suicide and is an important component to suicide prevention among youth, especially as effective postvention could decrease the risk of suicide contagion. Suicide contagion is when a subsequent suicide attempt is thought to occur because an individual had a relationship to someone who died by suicide, either by knowing the deceased or through media. Incidents of suicide contagion among youth have occurred nationally and internationally,<sup>60</sup> and are thought to arise for various reasons, such as media attention, increased community awareness, identification with the deceased and negative emotions provoked by the death.<sup>61,62</sup> A Canadian study observed an increased risk of suicidal behaviours in youth exposed to suicide.<sup>63</sup> Youth tend to be more affected by suicide contagion than adults, with some reports indicating that clusters of suicide account for 1% to 5% of adolescent suicide deaths.<sup>64</sup> Following a cluster of 11 suicides linked to problematic substance use and 10 deaths by opiate overdoses among youth (ages 16–24) in a community in the United States, a comprehensive approach to respond to the crisis was initiated.<sup>65</sup> The report on this initiative is one of the only reports on a community-based prevention strategy for a series of suicides linked to substance use.

This approach was community driven and included enhancing support services, media approaches and education, and youth development. Specific strategies included developing a surveillance system, designating hospital beds for those in crisis, providing post-traumatic stress management for those in contact with youth, holding educational forums to teach the signs and symptoms of problematic substance use, making efforts to link those with problematic substance use to needed resources, and providing media training for non-sensational reporting. It is uncertain to what extent any of these factors were responsible for the reduction in youth suicides in this community, but for two years following their implementation, only one suicide among 10–24 years olds occurred, self-inflicted injuries were reduced to a rate lower than the rest of the state, and non-fatal, opioid-related hospital discharges began to trend downward. Determining how such approaches could be applied to other communities is an important area for further investigation.

Community-based participatory research (CBPR) aims to involve communities in all components of the research process, and has been examined in relation to suicide prevention among Indigenous youth.<sup>66</sup> Such programs have used promising strategies such as cultural enhancement for life promotion among Indigenous youth. This approach can involve reducing the negative impact of risk factors such as a breakdown of cultural values and belief systems, loss of cultural identity and stigmatizing attitudes from the non-Indigenous culture, while also promoting protective factors such as meaning of life, self-esteem and belonging.<sup>67</sup> The magnitude of trauma that Indigenous peoples in Canada have endured at the hands of the non-Indigenous culture and have still survived attests to the resilience and strengths of their distinct cultures and people. Some programs that have been



developed for Indigenous youth have unfortunately lost their focus on such strengths, and instead have focused primarily on compensating for deficits as defined by non-Indigenous culture.<sup>67</sup>

A CBPR approach to preventing suicide and alcohol use was adopted for the Yup'ik youth in Alaska. The approach avoided being prescriptive by providing communities with a toolkit of options for enhancing protective factors, such as self-efficacy, limits on alcohol, and positive community and familial factors, among others. The program was associated with the promotion of several shared protective factors against alcohol abuse and suicide.<sup>66</sup>

What works in some communities will not necessarily work in others, and so approaches such as CBPR that acknowledge community expertise and involve culturally driven models of prevention to address the co-occurrence of substance use and suicide among Indigenous youth are promising. Furthermore, supporting communities in their efforts to evaluate ongoing prevention strategies will be helpful in informing other communities that are looking to adopt new approaches. Not all Indigenous communities have high rates of suicide, and understanding the reasons for such disparities might also be helpful for informing prevention initiatives.<sup>68</sup>

## Suicide Prevention through Treatment Provision

Following a series of suicides in New Brunswick, the provincial government commissioned several researchers to audit cases that had occurred over a 14-month period in order to produce recommendations on service improvement and prevention initiatives. Of the deaths examined, 85% of the deceased had contacted mental health or addiction services at least once in the year prior to death. Although 59% of those who died by suicide had problematic substance use or dependence issues, addiction services were only accessed by 3% in the month prior to suicide and 4% in the year prior.

The researchers also examined the unmet needs of those who died by suicide to identify programmatic and systemic gaps for each suicide case. The researchers identified two gaps that were especially relevant for most cases: first, the need for better promotion of integrated treatment for mental health, substance use and suicidal behaviours; second, the need to enhance public awareness of the co-occurrence of these issues to encourage people to access healthcare services if they or those they know have these problems. There was also substantial unmet need for healthcare personnel trained to identify, treat and refer those at risk of suicide. The audit resulted in recommendations to the province to address the unmet needs and focus efforts to reduce the risk of suicide.<sup>69</sup>

Though substance use and suicidal behaviour often co-occur in youth, the current standard of care is to treat these issues separately. Unfortunately, when youth with co-occurring substance use issues and suicidality are referred to separate addiction and mental health systems, they are less likely to receive the treatment they need.<sup>70</sup> The issue is a lack of collaboration between addiction and mental healthcare systems, as well as the burden that accessing different treatment streams places on an individual.<sup>71</sup> In Canada, the need for enhanced collaboration for addiction and mental health care has been highlighted as a priority for improving the outcomes for people with co-occurring substance use and mental health problems.<sup>72</sup>

Collaboration of care can offer many benefits, including enhanced capacity to support those who have co-occurring issues, improved access to services, reduced costs and improved outcomes.<sup>67</sup> Unfortunately, research examining such collaborative approaches to care or the efficacy of treatments for youth with co-occurring problematic substance use and suicidal behaviour is lacking.

For adults, studies have been done to examine the efficacy of concurrently treating suicidality and problematic substance use using Dialectical Behaviour Therapy (DBT), a form of therapy that helps to increase emotional and cognitive regulation to change patterns of behaviour. In a study of women





with borderline personality disorder, those who received DBT had a greater proportion of days of substance abstinence at a 16-month follow-up compared with individuals who received treatment as usual, but no differences in attempts at self-harm were observed across the groups.<sup>73</sup> Another study assessed DBT among 101 adults. Higher rates of abstinence and fewer suicide attempts were observed at a 24 month follow-up for those who had received DBT, compared to those receiving community behavioural therapy.<sup>74</sup> A review of the evidence among adolescent populations on DBT and its efficacy in suicide prevention suggested that it is probable that DBT could also be effective in the treatment of co-occurring suicidal and substance use behaviours, but more research is needed as the studies to date among this age group have not simultaneously targeted the two behaviours.<sup>22</sup>

Although interventions for youth are less studied, a pilot trial for adolescents with co-occurring alcohol use disorders and suicidality was conducted with a small group of six adolescents and their families. The treatment was a 12-month integrated cognitive behavioural therapy (I-CBT) protocol that included techniques to limit maladaptive thoughts and behaviours that underlie both suicidality and substance use, as well as motivational interviewing to promote readiness for treatment of problematic substance use. The protocol also included family therapy sessions. All the adolescents in the study reported decreased alcohol use and suicidal ideation; however, two attempted suicide during the protocol, but improved after.<sup>75</sup> A similar, but more intensive protocol was employed in an RCT of 40 adolescents ages 13–17 with co-occurring suicidality and alcohol or cannabis dependence. This I-CBT protocol involved more family sessions, as well as individual parent sessions to facilitate skills such as communication, monitoring and emotional regulation. Compared to treatment as usual, I-CBT was related to fewer heavy drinking days, cannabis use days and cannabis related problems over the protocol. Moreover, adolescents who received I-CBT had fewer suicide attempts, emergency room visits, psychiatric hospitalizations, and arrests than those in the treatment as usual group.<sup>70</sup> While this protocol required substantial resources, it was also associated with a decrease in service use. Co-occurring issues are complex and difficult to treat, and, to be effective, strategies that promote positive outcomes will need to be complex and multipronged.

## Implications and Conclusion

Substance use and suicide among youth are complex issues that share many of the same underlying risk and protective factors. Current research on effective interventions and prevention initiatives is preliminary and many gaps remain in our understanding of the link between substance use and suicide. Despite these gaps, there is strong, emerging evidence supporting an association between the two. Because of this association, examining ways to promote awareness among healthcare practitioners and other allied professionals who come into contact with youth on the link between substance use and suicide, as well as finding ways to enhance their capacity to address this issue should be considered. Likewise, the findings of the current summary identify that certain groups of youth might be especially vulnerable to experiencing co-occurring substance use and suicidal behaviors, and, as such, educational efforts to raise awareness among those working with youth should also take into account these risk factors. Enhancing collaboration of care between addiction and mental health service providers is another promising approach that requires further attention and could serve to help youth experiencing problematic substance use and suicidality. In addition, prevention planners should take into account the potential contribution of substance use when developing programs aimed at identifying and managing suicide risk among youth. Finally, although research evaluating programs that prevent co-occurring substance use and suicide is lacking, there is promising evidence to suggest that through adequate and effective treatment provision clinical outcomes can improve among youth with these issues.



## Additional Resources

- [Collaboration for Addiction and Mental Health Care: Best Advice](#)
- [Substance Abuse in Canada: Childhood and Adolescent Pathways to Substance Use Disorders](#)
- [When Mental Health and Substance Abuse Problems Collide](#)



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