

Concussions and BC youth's mental health



The 2023 BC Adolescent Health Survey (BC AHS) was completed by 38,488 students aged 12–19. This fact sheet focuses on students in Grades 7–12 who reported experiencing one or more concussions (i.e., a head injury severe enough that they had lost consciousness, were dazed, confused, or suffered memory loss) in the past 12 months.

The BC AHS asked about concussions in the past 12 months, whereas some of the mental health and well-being items asked about experiences in the past 30 days, past week, or previous day. Also, youth may still have been experiencing symptoms from a concussion they received more than a year ago but this would not have been captured in the survey.

For more information about the BC AHS, please visit mcs.bc.ca/about_bcahs.

Introduction

"I was playing ice hockey when I was hit along the boards and received a concussion."

12-year-old male

Concussions are a form of traumatic brain injury that can impair young people's ability to engage in daily life, such as school, sports, and socializing with peers (Choudhury et al., 2020; Djukic et al., 2022; Kita et al., 2020; Rieger et al., 2019).

Experiencing mental health challenges (including anxiety, depression, stress, self-harm, and suicide) after a concussion can be common (Gornall et al., 2021; Ledoux et al., 2022; Smith et al., 2021; Yang et al., 2019). Experiencing multiple concussions has been linked to worse mental health (e.g., Chizuk et al., 2022).

Receiving treatment for concussions has been found to have a positive impact on mental health (e.g., Ledoux et al., 2022), but most BC adolescents with a concussion do not receive treatment for their injury (Ramsay et al., 2024). Studies from other parts of North America have also found more positive mental health among youth recovering from a concussion when they had good quality sleep (Chrisman et al., 2021; Moseley et al., 2025); supportive friends; and adults to help them access health care, resources, and provide practical assistance such as transport to medical appointments (Kita et al., 2020).

This fact sheet uses population-level data to look at the prevalence of mental health challenges among BC youth who experienced a concussion, as well as their access to treatment and the supports linked to more positive mental health.

Youth who experienced a concussion

"I do contact sports [and got a concussion]. I'm bound to get hurt."

17-year-old-male

"I was playing soccer and was knocked out from being kneed in the face."

16-year-old-female

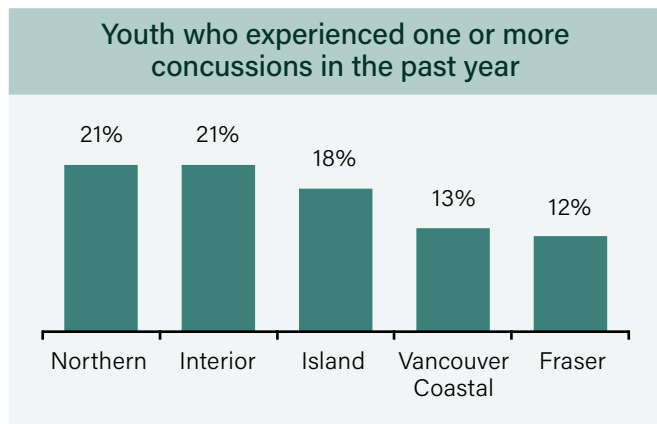
"I got drunk and gave myself a concussion."

14-year-old-female

In 2023, 15% of BC youth reported they had experienced at least one concussion in the past 12 months. This was higher than the rate in 2018 (13%) but lower than a decade earlier (16% in 2013). The 2023 rate included 3% of youth who had two concussions in the past year and 2% who experienced three or more (vs. 1% in 2018).

Male and non-binary youth were more likely than females to have been concussed in the past year (e.g., 16% of males vs. 14% of females), and non-binary youth were the most likely to have experienced three or more concussions during this time (3% vs. 2% of males and females). Also, youth aged 14 to 16 were the age group most likely to have had a concussion (e.g., 16% vs. 14% of youth aged 13 or younger).

Overall, rural-based youth were more likely than those from urban communities to have had a concussion (22% vs. 15%), including three or more concussions (3% vs. 2%). There were also regional differences with youth in the North and Interior more likely to have experienced a concussion than those in other parts of the province. At the Health Service Delivery Area level, the percentage of youth who had sustained a concussion ranged from 10% in Vancouver to 23% in Kootenay Boundary and Thompson Cariboo Shuswap.



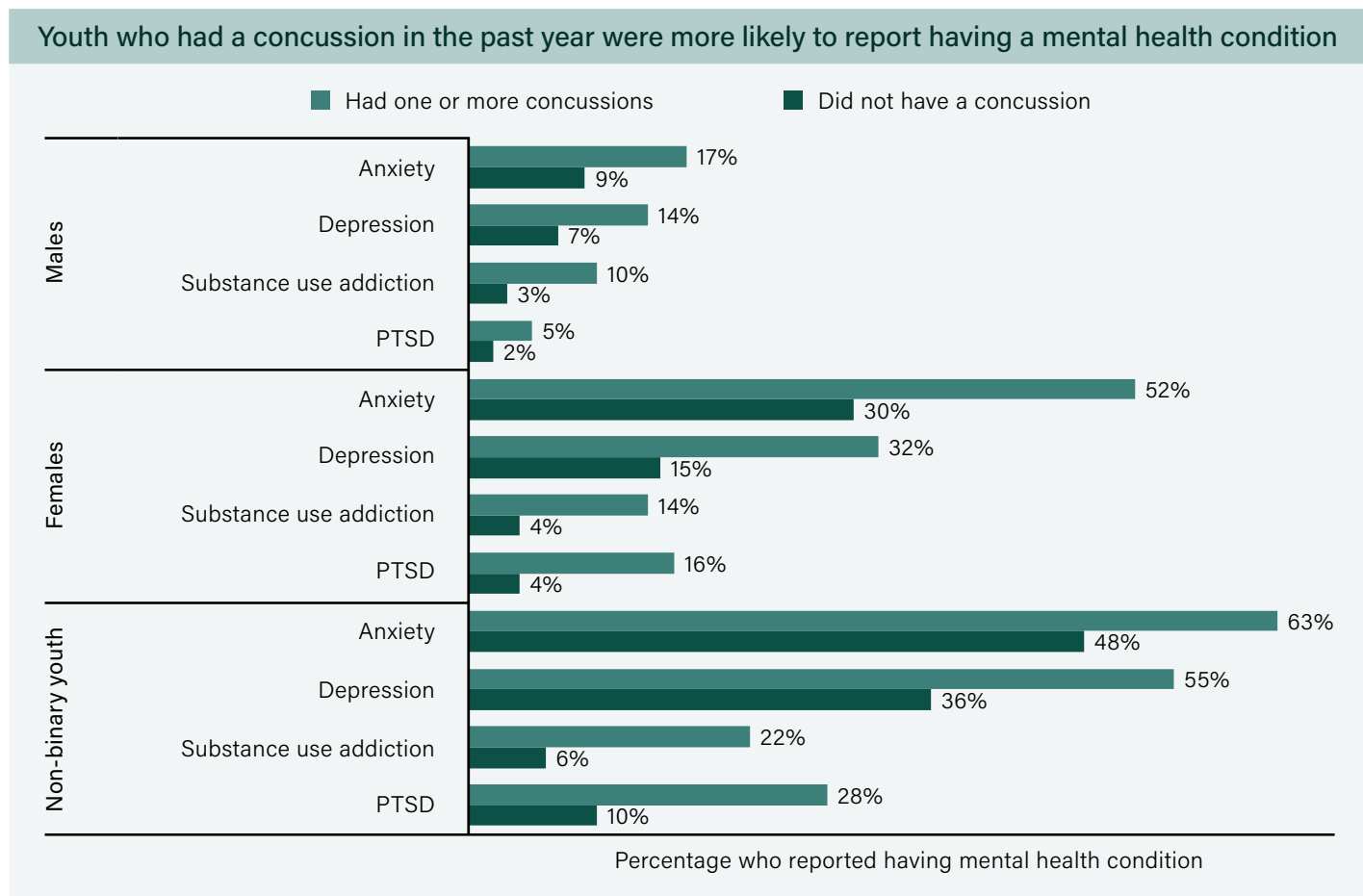
Note: The difference between Vancouver Coastal and Fraser was not statistically significant.

Concussions and mental health

Youth of all genders and age groups who had experienced a concussion were less likely to report positive mental health. For example, those who had been concussed at least once in the past year were less likely to rate their mental health as good or excellent (48% vs. 62% of youth who had not had a concussion in the past year). They were more likely to report anxiety (34% vs. 20%), depression (23% vs. 12%), post-traumatic stress disorder (PTSD; 11% vs. 3%), and an alcohol or other substance use addiction (12% vs. 3%).

Youth who had been concussed in the past year were more likely to report they:

- Missed school in the past month due to their mental health (35% missed school vs. 19% of those who had not experienced a concussion).
- Experienced extreme stress (21% vs. 11%) and despair (13% vs. 7%) in the past month.
- Self-harmed in the past year (39% vs. 21%), including on multiple occasions (e.g., 13% had self-harmed six or more times vs. 6% of those without a concussion).
- Considered suicide (31% vs. 15%) and attempted suicide (13% vs. 4%) in the past year.
- Often or always felt lonely (34% vs. 22%).



They were less likely to:

- Feel they managed their stress well or very well (42% vs. 50%; among those who experienced stress).
- Feel their life was going well (56% vs. 68% of those who had not experienced a concussion).
- Feel quite or very hopeful for their future (52% vs. 61%).
- Have felt happy most or all of the time in the past month (49% vs. 62%).
- Have slept at least 8 hours the night before taking the survey (34% vs. 43%).

Youth who experienced multiple concussions

"I have had 4 concussions. Memory gaps are normal!"

18-year-old-male

The more concussions youth experienced in the past year, the more likely they were to have experienced mental health challenges. For example, among youth who had been concussed, 52% of those who had one concussion in the past year rated their mental health as good or excellent, compared to 42% of those who had two concussions and 33% who had three or more concussions.

Similarly, 11% of those who had one concussion felt extreme despair in the past month, compared to 16% of those who had two concussions and 25% who had three or more concussions.

Youth who received medical treatment for concussion

"I have had a lot of medium to serious concussions in my life and I have seen doctors, therapists, and physiotherapists about them."

13-year-old-male

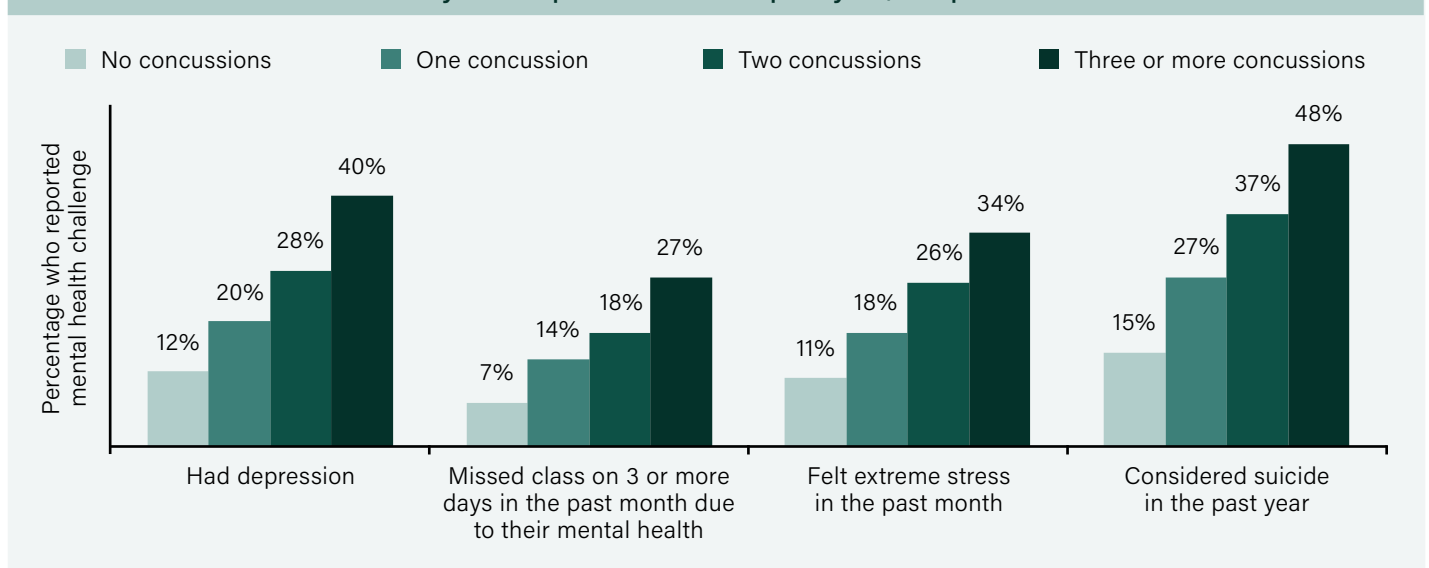
"While playing professional field hockey, I got hit with a hockey ball to my head. Received medical attention right away by a team trainer!"

18-year-old-male

In 2023, 42% of youth who had experienced a concussion in the past year, reported they received treatment for their most serious concussion (vs. 52% in 2018). There were no age, gender, or rural/urban differences but youth were more likely to have received treatment if they sustained their concussion in a motor vehicle accident (54%), engaging in organized sports (50%), and riding a bike (48%). They were less likely to have accessed treatment if they got their concussion while working (33%), fighting (32%), or using substances (26%).

Youth who received treatment for their most serious concussion reported better mental health. For example, 53% of those who got treatment for their concussion in the past year rated their mental health as good or excellent, compared to 45% of those who did not access treatment. Youth who got treatment were also less likely to have self-harmed in the past year (34% vs. 42% of those who had not received treatment); and to have considered suicide (27% vs. 34%) and attempted suicide (11% vs. 14%) during this time.

The more concussions youth experienced in the past year, the poorer their mental health



Youth with a concussion were more likely to have accessed a number of health care sources in the past year including a family doctor (58% vs. 54% of those who had not had a concussion), specialist (e.g., a psychiatrist; 37% vs. 29%), ER (31% vs. 13%), walk-in clinic (30% vs. 23%), counsellor or psychologist (18% vs. 11%), and the Foundry (3% vs. 1%).

Access to mental health services

Among youth who had a concussion in the past year, 42% felt they needed to access mental health services during that time. The more concussions youth experienced the more likely they were to feel they needed these services (50% of those who experienced two or more concussions needed mental health services vs. 38% who had one concussion vs. 27% who did not experience a concussion).

Among those who had a concussion and felt they needed mental health services, the majority did not get the services they needed and 38% were able to access them. Those who had sustained three or more concussions were the least likely to have accessed the services they needed (e.g., 28% vs. 40% who sustained one concussion).

Youth with a concussion who were able to access needed mental health services in the past year reported better well-being, including being more likely to rate their mental health as good or excellent and feeling they managed their stress well. They were also less likely to have self-harmed (56% vs. 67%) or seriously considered suicide (48% vs. 59%) in the past year; and to have experienced extreme stress in the past month (30% vs. 43%), including if they had sustained three or more concussions in the past year (32% vs. 55%).

Supporting youth who experienced a concussion

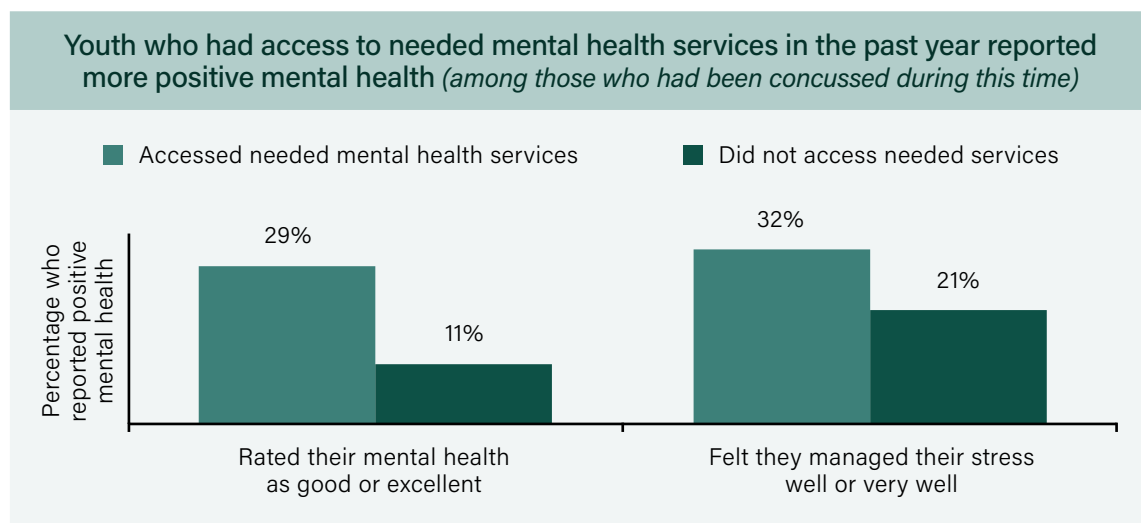
All findings in this section are among youth who had experienced one or more concussions in the past year.

Youth who experienced a concussion reported poorer mental health. However, reflecting findings from other studies, these youth, including those with multiple concussions, experienced better well-being when they had access to a range of services and supports.

Regular physical activity

High impact physical activity should be avoided after a concussion and youth who have experienced a concussion should build up their exercise gradually, and stop if they experience symptoms such as nausea or dizziness. However, exercising after a concussion has been found to be helpful for mental health in other studies (e.g., Pappas, 2024), and BC guidelines encourage a return to physical activity as soon as possible after a concussion (Province of British Columbia, 2024).

Among youth who experienced a concussion in the past year, those who participated in informal sports one to three times a week during this time were more likely to report good or excellent mental health (49% vs. 38% of those who had not participated in informal sports in the past year). They were less likely to have experienced depression (20% vs. 32%) and anxiety (32% vs. 42%); or to have self-harmed (37% vs. 49%), considered suicide (29% vs. 39%), or attempted suicide (10% vs. 18%) in the past year.



Note: Managed stress was among those who reported they experienced stress.

In addition, those who engaged in informal sports a few times a week were less likely to report extreme stress in the past month (21% who participated on 1–3 days vs. 26% of those who had not engaged in informal sports), and were more likely to feel they managed their stress well or very well (42% vs. 33%; among those who experienced stress).

Supportive adults

Youth who had a supportive adult in their family, at school, or in their community were more likely to rate their mental health positively, felt better equipped to manage their stress, and were less likely to have considered or attempted suicide. For example, youth who had an adult in their family they could talk to when they were having a serious problem were less likely to have self-harmed (29% vs. 58%), considered suicide (20% vs. 49%), and attempted suicide (7% vs. 23%) in the past year.

In addition, youth who had an adult to help them get to and from appointments were half as likely to have experienced extreme stress in the past month (20% vs. 40% of those without an adult to help them; among youth who needed help), and were more likely to feel they managed their stress well or very well (42% vs. 34%; among those who experienced stress).

These patterns were seen regardless of how many concussions youth experienced in the past year. For example, among youth who had sustained three or more concussions in the past year, 30% who had an adult to help them with transportation to and from appointments experienced extreme stress in the past month (vs. 61% of those who did not have this type of support; among youth who needed help). Similarly, 33% of youth who had experienced three or more concussions and felt their teachers cared about them had considered suicide in the past year, which was less than half the rate among those who did not feel their teachers cared (71%).

Supportive peers

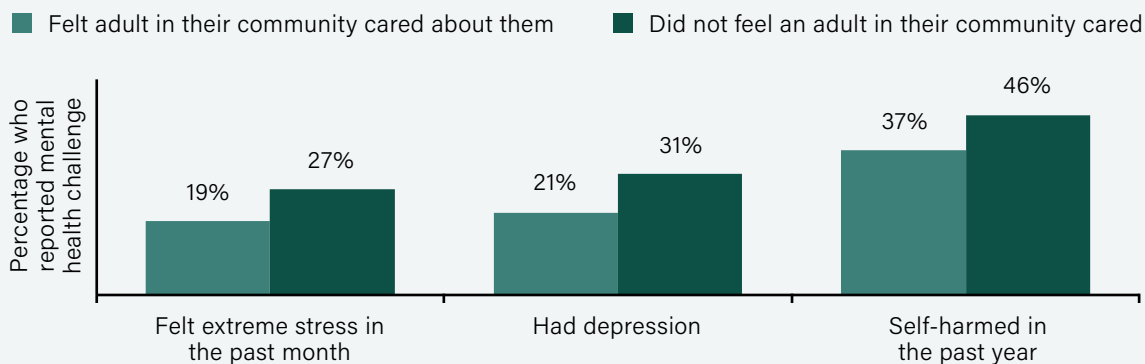
Youth who had friends they could share their ups and downs with were more likely to report positive mental health. For example, they were less likely to often or always feel lonely (26% vs. 58% of those without this type of peer support), and more likely to rate their mental health as good or excellent (54% vs. 29%). Similarly, among youth who had experienced three or more concussions, 40% of those who had friends to share their ups and downs with rated their mental health as good or excellent, which was more than double the rate among those without such friends (16%).

Sleep

Youth who had been concussed were more likely to report positive mental health when they got a full night's sleep. For example, youth who slept at least 8 hours the night before taking the survey were more likely to feel they managed their stress well or very well (55% vs. 36% of those who slept fewer hours; among those who experienced stress); and those whose sleep was not interrupted that night were less likely to report extreme stress in the past month (15% vs. 31% of those whose sleep was interrupted).

Youth who slept at least 8 hours the night before taking the survey were also more likely to rate their mental health as good or excellent (66% vs. 39% of those who slept fewer hours), including those who sustained three or more concussions in the past year (49% vs. 27%).

Youth who felt an adult in their community cared about them were less likely to report mental health challenges (among those who had been concussed in the past year)



Final thoughts

Reflecting results from other studies, BC AHS data showed that youth who had a concussion were more likely to report poorer mental health, and the more concussions they experienced the more likely they were to experience mental health challenges. However, youth with a concussion reported better mental health when they received medical treatment for their most serious concussion and were able to access needed mental health services. They also reported more positive mental health when they got regular exercise and a full night's sleep; and when they had supportive friends and adults in their family, school, and community.

Resources

BC Centre for Ability's Community Brain Injury Program for Children and Youth provides free rehabilitation services for 0–19-year-olds: bc-cfa.org/programs/children-and-youth/brain-injury

BC INJURY has signs and symptoms of a concussion: injuryresearch.bc.ca/injury-priorities/concussion

Concussion Awareness Training Tool (CATT) offers resources and training for recognition, management, and recovery from concussions (for all ages and roles): cattonline.com/; and also has information on how to manage mental health symptoms after a concussion: resources.cattonline.com/files/catt---managing-mental-health-symptoms

GF Strong Rehabilitation Centre offers information about concussions and the ability to create a guide to recovery specifically for teens: teenconcussion.vch.ca/

Parachute has information on concussions, such as signs, symptoms, treatment, and prevention: parachute.ca/en/injury-topic/concussion/

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