Suicidal Behaviors Among Illinois Youth:

Trends, Risk Factors, and Opportunities for Prevention

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Executive Summary

Suicide is when a person deliberately ends their own life. Preventing suicide among youth is a critical public health issue nationally and in Illinois. This data report presents information on suicidal behaviors and death by suicide among Illinois youth to inform targeted prevention efforts.

Key Findings Related to Suicidal Ideation and Suicide Attempt among Youth

- In 2017-2019, one out of every four high school students in Illinois experienced suicidal behaviors, such as suicidal ideation or suicide attempt, during the previous year.
- In 2017-2019, 15.0% of students reported suicidal ideation with no suicide attempt and 8.3% of students reported a suicide attempt within the last year.
    - Students who identified as lesbian, gay, bisexual, or unsure of their sexuality were almost twice as likely to report suicidal ideation or suicide attempt as heterosexual students.
    - Female students were more likely to report suicidal ideation than male students.
    - Black students were more likely to report suicide attempt than students of other races and ethnicities.
- Risk factors related to violence victimization, physical activity and weight status, and substance use were associated with increases in suicidal behaviors. Experiencing multiple risk factors related to violence victimization, physical activity and weight status, or substance use is related to even higher rates of suicidal behavior.
- Students who identify as lesbian, gay, bisexual, or unsure of their sexuality were more likely than heterosexual students to experience multiple risk factors related to violence victimization, physical activity and weight status, and substance use.

Key Findings Related to Youth Suicide Deaths

- During 2010-2020, 908 Illinois youth ages 10-19 died by suicide, an average of 83 Illinois youth each year, ranging from a low of 64 deaths in 2012 to a high of 113 deaths in 2017. In 2020, 98 youth died from suicide.
- For all demographic groups studied during 2010-2020, the rate of death by suicide for Illinois youth either increased significantly or remained stable. No group experienced a decline in suicide deaths over this time period.
- Female, Black, Hispanic/Latino, and urban youth all experienced significant increases in rates of death from suicide from 2010-2020.

Implications for Practice and Policy

- Risk factors for suicidal ideation and attempt reflect physical, mental, and social issues. Preventing suicide requires a multidisciplinary approach to address all aspects of well-being.
- Risk factors for suicidal ideation also predict suicide attempts. Addressing suicidal ideation may be an effective step to preventing suicide attempts and death.
- Students who identify as lesbian, gay, bisexual, or unsure of their sexuality have very high risk of suicidal behaviors. Prevention efforts must address the unique challenges faced by this marginalized group.
- Groups traditionally at lower risk for suicide, including racial minority and female youth, are experiencing increasing rates of death by suicide. Programming, outreach, and clinical services must adapt to serve gender, racially, and culturally diverse youth.

Background

Youth and Adolescent Suicide

Suicide is when a person deliberately ends their own life. Suicide is the third leading cause of death among youth ages 10-19 in Illinois and nationally. It is the 10th leading cause of death for all age groups but ranks higher as a cause of death during youth and young adulthood.[1] As youth transition between childhood and adulthood, various changes and challenges during this period can lead to mental health challenges that can increase risk for suicide.

Suicidality exists on a continuum of mild to more severe forms with stages, including suicidal thoughts, making a suicide plan, suicide attempt, and suicide death.[2]

Previous suicide attempt is one of the most significant risk factors for youth suicide death.[2] Many people who considered or attempted suicide in the adulthood first did so during their youth. Preventing suicide among youth is a critical public health issue; understanding the risk factors associated with youth suicidal behaviors provides an opportunity for targeted prevention efforts.

Terms and Definitions Used in This Report

- **Suicidal ideation** – the consideration of or desire to end one's own life (passive to active), including suicidal thoughts or creating a suicide plan.[3]
- **Suicide attempt** – an action intended to deliberately end one's own life that does not result in death.[3]
- **Suicidal behaviors** – includes suicidal ideation and suicide attempts.[3]
- **Suicide death** – fatal action to deliberately end one's own life, as frequently determined by a medical examiner, coroner, or proxy informant.[3]

[1] Centers for Disease Control and Prevention (CDC). (2019). WISQARS Data Visualization . https://www.cdc.gov/injury/wisqars/index.html

[2] Lowry, R., Crosby, A. E., Brener, N. D., & Kann, L. (2014, January 1). Suicidal Thoughts and Attempts Among U.S. High School Students: Trends and Associated Health-Risk Behaviors, 1991-2011. Journal of Adolescent Health, 54(1), 100-108. doi:10.1016

[3] Cha, C. B., Franz, P. J., M Guzmán, E., Glenn, C. R., Kleiman, E. M., & Nock, M. K. (2018). Annual Research Review: Suicide among youth - epidemiology, (potential) etiology, and treatment. Journal of child psychology and psychiatry, and allied disciplines, 59(4), 460–482. https://doi.org/10.1111/jcpp.12831

Overview of Methods Used in This Report

This data report uses Illinois Youth Risk Behavior Survey (YRBS) data, which is collected every two years in a sample of public health schools. YRBS data are then weighted to reflect the full population of Illinois' public high school students.

Four questions from the YRBS assess various types of suicidal behaviors within the last year:

- having suicidal thoughts,
- making suicide plans,
- attempting suicide, and/or
- having any injuries requiring medical attention due to suicide attempt(s).

In this report, the four YRBS questions on suicidal behaviors were not analyzed separately. Instead, suicidal behaviors were arranged into two mutually exclusive groups indicating increasing suicide risk to align with the model of suicidality from the previous page.[4]

- **No Suicidal Behaviors** – No suicidal ideation or attempts during the past 12 months.
- **Suicidal Behaviors** – Suicidal ideation and/or suicide attempt during the past 12 months.
  - **Suicidal Ideation** – considered suicide or made suicide plans, but no suicide attempts during the past 12 months.
  - **Suicide Attempt** – at least one suicide attempt or injury from a suicide attempt during the past 12 months, regardless of whether a student had suicidal ideation or not.

Previous studies have shown that some of the factors associated with suicidal behaviors among youth are violence-related behaviors, substance use, and unhealthy weight control behaviors. These types of health risk behaviors may reflect poor impulse control and aggression, which are also positively associated with more severe stages of suicidality.

Nineteen risk factors potentially associated with increased suicide risk were identified in the YRBS and arranged into three categories for analysis:

Violence Victimization

- Carried a weapon on or off school property
- Got into a physical fight
- Sexual dating violence
- Physical dating violence
- Sexual violence from anyone
- Feel unsafe or threatened at school
- Online or in-person bullying

Physical Activity and Weight Status

- Physically active < 5 days per week
- Not playing on a sports team
- Hours spent watching TV
- Hours spent using computer
- Slept less than 8 hours per night
- Obese body mass index (BMI)
- Self-perception of being overweight

Substance Use

- Prescription pain medication misuse
- Alcohol consumption
- Marijuana use
- Tobacco use
- Other substance use (cocaine, heroin, methamphetamines, injection of illegal substances)

[4] Lowry, R., Crosby, A. E., Brener, N. D., & Kann, L. (2014, January 1). Suicidal Thoughts and Attempts Among U.S. High School Students: Trends and Associated Health-Risk Behaviors, 1991-2011. Journal of Adolescent Health, 54(1), 100-108. doi:10.1016

This report also uses death certificate data collected by the Illinois Department of Public Health to analyze trends in suicide death among Illinois resident youth ages 10-19. All deaths with manner of death listed as "suicide" on the death certificate are included in the analysis.

Definition of Race/Ethnicity

Throughout this report, race and ethnicity is categorized for both YRBS and death certificate data as non-Hispanic Black (referred to as "Black" in this report), non-Hispanic White (referred to as "White" in this report), and Hispanic/Latino. While the YRBS and death certificates do capture information on students of other races, such as Asian, Native Hawaiian/Other Pacific Islander, and American Indians/Alaska Native, and Multiple Races (Non-Hispanic), these groups were not analyzed separately due to small numbers, which can compromise data quality/reliability. Therefore, these groups have been combined into "All Other Races" in this report. IDPH recognizes that students of these racial/ethnic backgrounds tend to be underrepresented in data due to systems of inequity.[5] This lack of data underestimates and masks the true burden that students of other races, Asian, Native Hawaiian/Other Pacific Islander, and American Indians/Alaska Native, and Multiple Races (Non-Hispanic), experience regarding suicidal behaviors and these risk factors.

Definition of Sexual Orientation The YRBS asks students to self-identify their sexual orientation. Students identifying as gay, lesbian, bisexual, or unsure of their sexuality were grouped together and are referred to as LGB students in this report. Unfortunately, YRBS did not ask a question about gender identity for the years included in this report. Death certificates include information about neither sexual orientation nor gender identity, so the analyses of youth suicide deaths could not look at differing rates of suicide according to these identities.

More information about the methods throughout this report is available in Appendix A.

[5] Urban Indian Health Institute (2021). Data Genocide of American Indians and Alaska Natives in COVID-19 Data. Seattle, WA: Urban Indian Health Institute

Suicidal Behaviors Among Illinois Youth

In this report, suicidal behaviors are defined as any suicidal ideation and/or suicide attempt during the past 12 months. Students experiencing suicidal behaviors were separated into two mutually exclusive groups: those with any suicide attempt (regardless of suicidal ideation) and students with suicidal ideation but no suicide attempt in the past 12 months.

During 2009-2019, there was no significant changes over time in the percentage of students reporting suicidal ideation or suicide attempt (Figure 1). Over this 10-year time period, the percent of high school students reporting suicidal ideation ranged from 11.4–15.5% and the percent of youth reporting suicide attempts ranged from 6.9–10.5%.

Figure 1. Percent of High School Students Reporting Suicidal Ideation and Suicide Attempt, Illinois YRBS 2009-2019

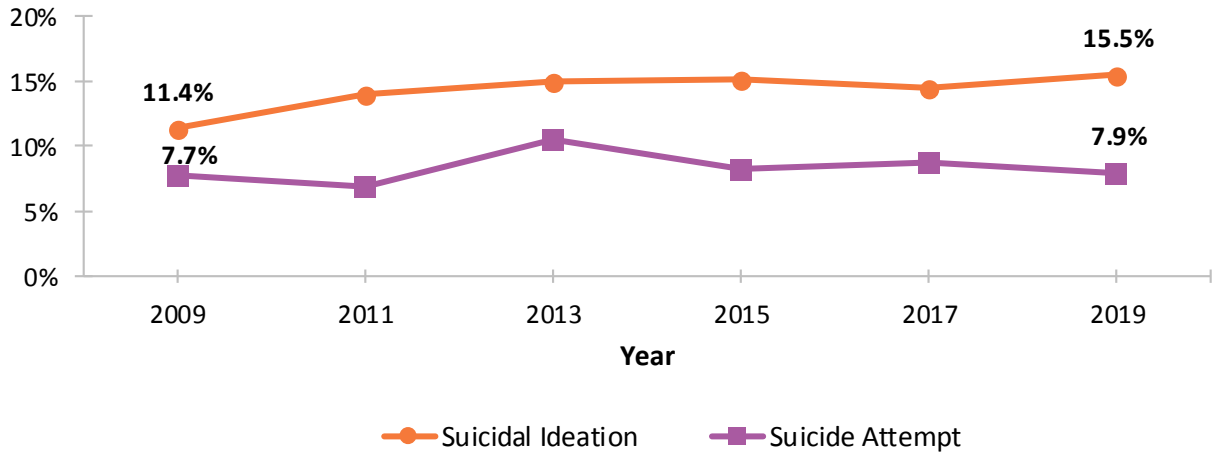


Figure 2 shows the percent of students reporting suicidal ideation or suicide attempt overall and by demographics for 2017-2019 combined. During these two most recent years of the YRBS, 15.0% of students reported suicidal ideation with no suicide attempt and 8.3% of students reported suicide attempt. Combined, this means that 23.3% of Illinois high school students – one out of every four students – experienced suicidal behaviors in the previous year.

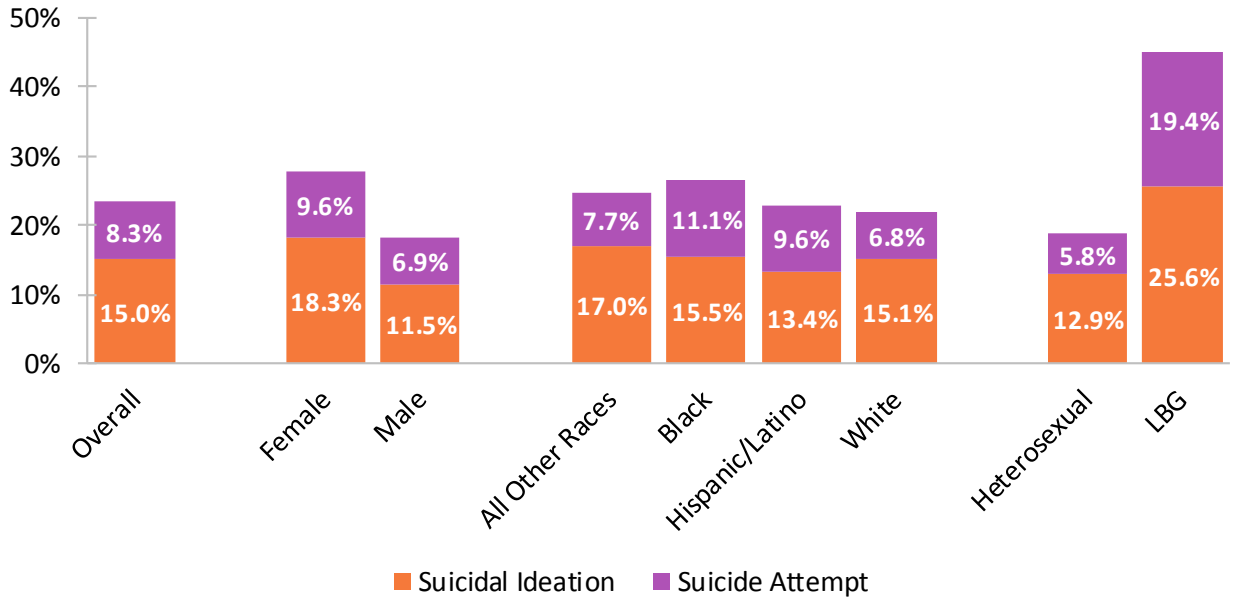
Significantly more female students had suicidal ideation compared to males (18.3% vs 11.5%), but there was no significant difference in suicide attempt by sex.

There was a significant difference in suicidal ideation and suicide attempt across racial and ethnic groups. Black students were more likely to report suicide attempt (11.1%), followed by Hispanic/Latino students (9.6%). Hispanic/Latino students were least likely to have suicidal ideation (12.6%), followed by White (15.1%) and Black students (15.5%). Students of all other races had the highest prevalence of suicidal ideation at 17.0%.

LGB students were significantly more likely to report suicidal ideation and suicide attempt (25.6% and 19.4%) compared to heterosexual students (12.9% and 5.8%). Alarmingly, this means that nearly half (45%) of LGB youth reported suicidal behaviors within the last year.

As Illinois moves forward in suicide prevention efforts, it is important to acknowledge the mental health inequities that historically marginalized groups, such as female, people of color, and LGB students, may experience due to cultural stigma, discrimination, historical trauma, and decreased access to care.

Figure 2. Percent of Illinois High School Students Reporting Suicidal Ideation and Suicide Attempt, by Demographics, Illinois YRBS 2017-2019



Risk Factors for Suicidal Behaviors

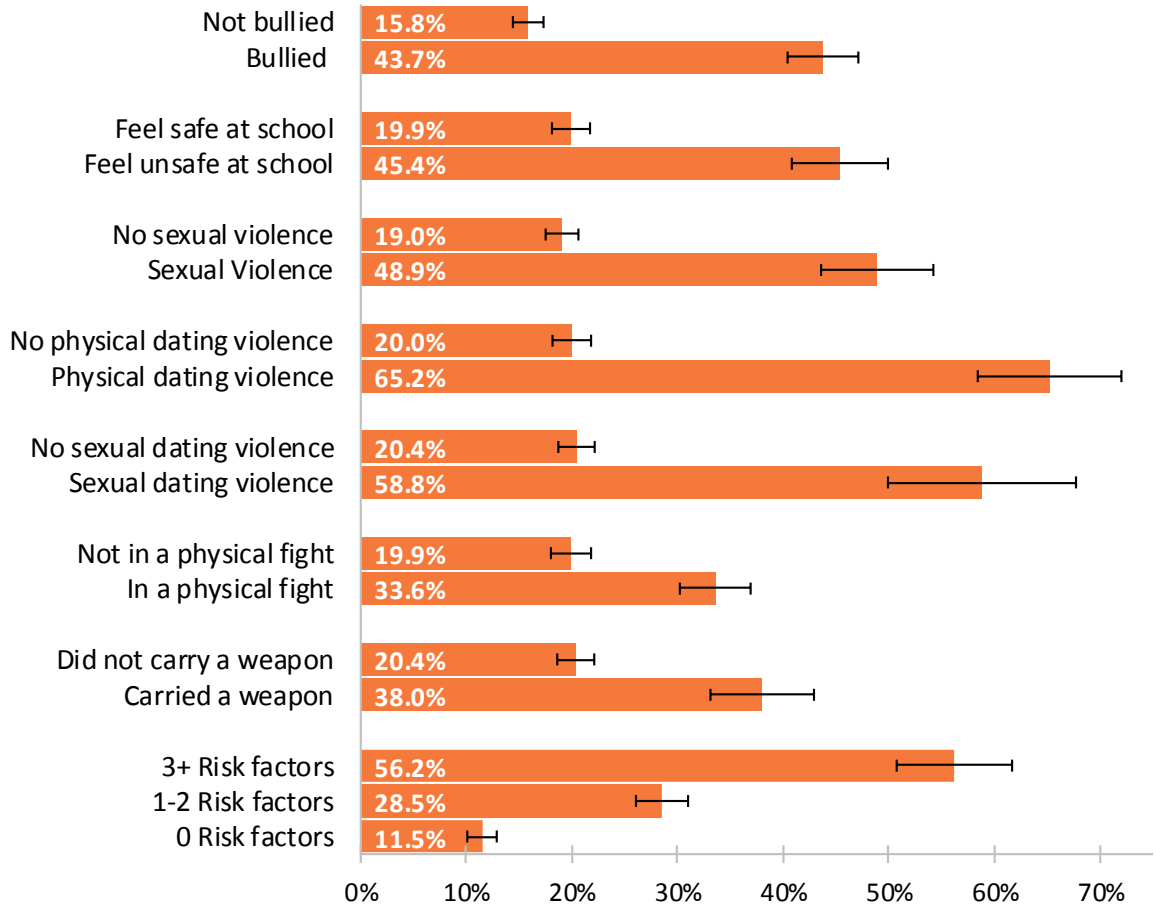
This section of the data report will describe risk factors associated with any suicidal behaviors (either suicidal ideation or suicide attempt).

Violence Victimization

Figure 3 shows the percentage of students reporting suicidal behaviors according to experiences of violence victimization. All seven risk factors in this category were significantly associated with a higher likelihood of experiencing suicidal behaviors.

The percent of students reporting suicidal behaviors increases as students experience higher numbers of violence victimization risk factors. Among students who experienced three or more of the violence victimization risk factors, 56.2% reported suicidal behaviors, compared to 28.5% of students who experienced one or two violence victimization risk factors and 11.5% of students who experienced zero violence victimization risk factors.

Figure 3. Percent of High School Students Reporting Suicidal Behaviors by Experience of Violence Victimization Risk Factors, Illinois YRBS 2017-2019



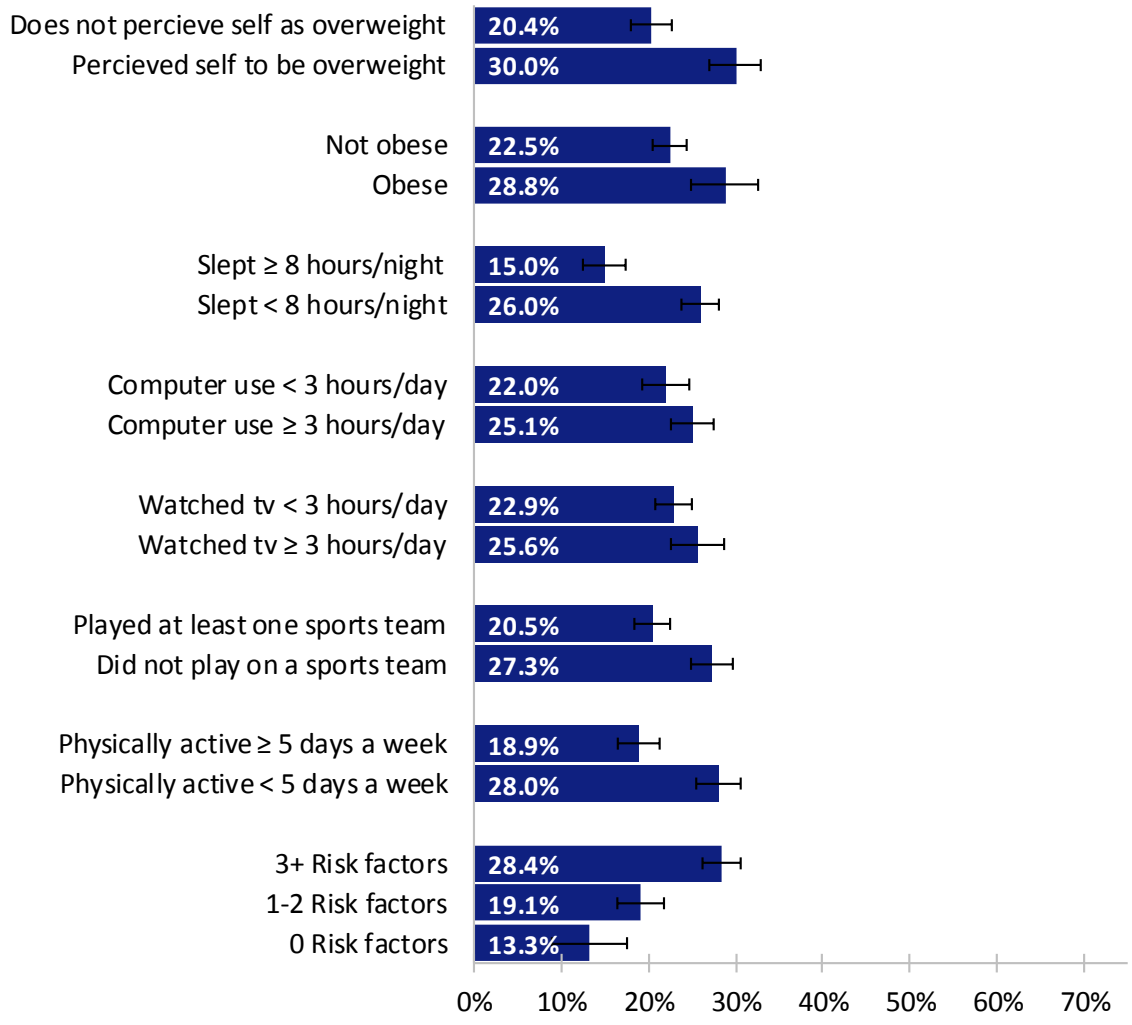
Example Chart Interpretation: Of students who were not bullied, 15.8% reported suicidal behaviors. Of students who were bullied, 43.7% reported suicidal behaviors.

Physical Activity and Weight Status

Figure 4 shows the percentage of students reporting suicidal behaviors according to their experience of various physical activity and weight status risk factors. Five physical activity and weight status risk factors were associated with an increase in suicidal behaviors: perceiving themselves to be overweight, being obese, sleeping less than eight hours per night, not playing on a sports team, and being physically active fewer than five days per week. Computer use time and TV watching time were not significantly associated with suicidal behaviors.

The percent of students reporting suicidal behaviors increases as students experience more physical activity and weight status risk factors. Among students who experienced three or more physical activity or weight status risk factors, 28.4% reported suicidal behaviors, compared to 19.1% of students who experienced one or two physical activity or weight status risk factors and 13.3% of students who experienced zero physical activity or weight status risk factors.

Figure 4. Percent of High School Students Reporting Suicidal Behaviors by Experience of Physical Activities and Weight Status Risk Factors, Illinois YRBS 2017-2019

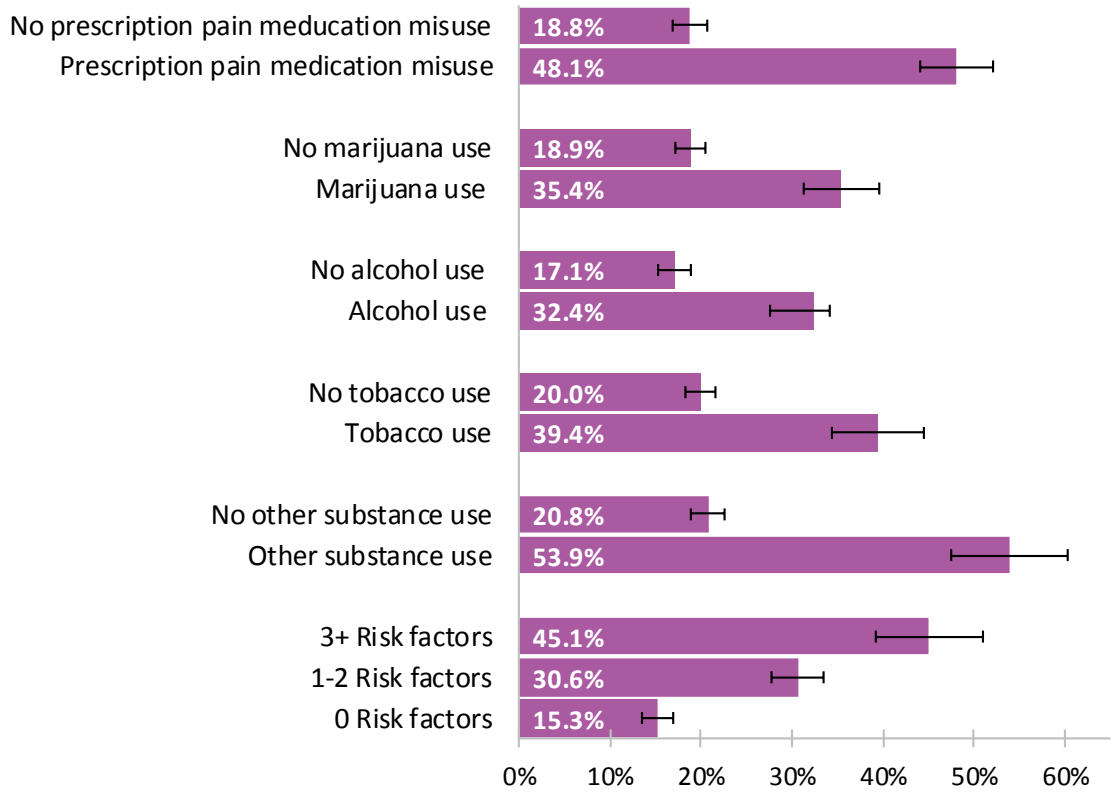


Substance Use

Figure 5 shows the percentage of students reporting suicidal behaviors according to their experience of various substance use risk factor. All five risk factors were significantly associated with an increase in suicidal behavior – prescription pain medication misuse, marijuana use, alcohol use, tobacco use, and other substance use.

The percent of students reporting suicidal behaviors increases as students experience more substance use risk factors. Among students who experienced three or more substance use risk factors, 45.1% reported suicidal behaviors, compared to 30.6% of students who experienced one or two substance use risk factors and 15.3% of students who experienced zero substance use risk factors.

Figure 5. Percent of High School Students Reporting Suicidal Behaviors by Experience of Substance Use Risk Factors, Illinois YRBS 2017-2019



Below is a summary of risk factors significantly associated with suicidal behaviors:

Violence Victimization

- Carrying a weapon on and off school property
- Getting into a physical fight
- Sexual dating violence
- Physical dating violence
- Sexual violence from anyone
- Feel unsafe or threatened at school
- Online or in-person bullying

Physical Activity and Weight Status

- Obese
- Percieve self as overweight
- Physically active < 5 days per week
- Did not play on a sports team
- Slept less than 8 hours per night

Substance Use

- Prescription pain medication misuse
- Alcohol use
- Marijuana use
- Tobacco use
- Other substance use

Among students with suicidal behaviors, the associations between risk factors and suicide attempt were analyzed to identify risk factors associated with moving from suicidal ideation to suicide attempt. All the violence victimization and substance risk factors were also associated with suicide attempt among students with suicide behaviors. Among the physical activity and weight status risk factors, the only risk factor associated with suicide attempt was being physically active fewer than five days per week. Therefore, most risk factors discussed in this report are associated with entering the earliest stages of the model of suicidality and with progressing to more severe and active stages of suicidal behaviors.

This highlights the importance of preventing these risk factors among youth that have not yet experienced them to reduce risk of suicidal behaviors. It is also important to identify students who have experienced these risk factors to identify suicidal behaviors early in their development and be able to extend support and mental health services for youth who need them. The next section provides more information about the students who experience multiple risk factors within each category to assist clinical providers, school personnel, and families in understanding the patterns of these risk factors in the population of Illinois youth.

Identifying Students with Risk Factors for Suicidal Behaviors

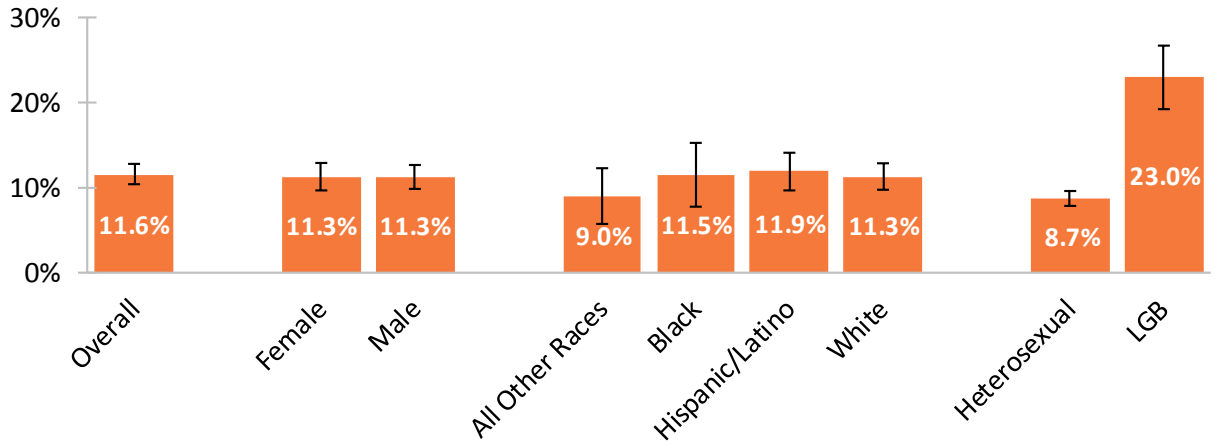
The previous section of this report showed that risk factors related to violence victimization, physical activity and weight status, and substance use were associated with suicidal behaviors among Illinois youth. Importantly, students are more likely to report suicidal behaviors if they have experienced multiple risk factors.

To identify students at the highest risk of suicide, it is important to examine the cumulative experience of these risk factors and how it may vary by demographic group. This section therefore examines the patterns of students who experience three or more risk factors within each risk factor category. All data reported in this section are among all students from 2017-2019.

Violence Victimization

Among all students in 2017-2019, 11.6% experienced three or more violence victimization risk factors (Figure 6). The experience of three or more violence victimization risk factors did not significantly vary by sex or race/ethnicity. LGB students were significantly more likely to experience three or more risk violence victimization risk factors than heterosexual students.

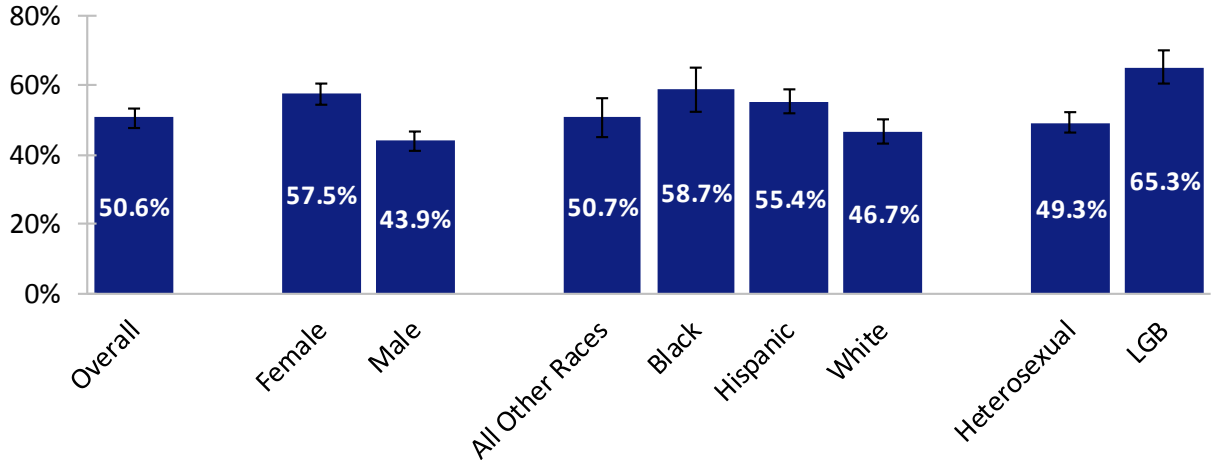
Figure 6. Percent of High School Students Experiencing Three or More Violence Victimization Risk Factors, Illinois YRBS 2017-2019



Physical Activity and Weight Status

Among all students in 2017-2019, 50.6% experienced three or more physical activity and weight status risk factors (Figure 7). The experience of three or more physical activity and weight status risk factors varied significantly by sex, race/ethnicity. Female, Black, Hispanic, and LGB students were more likely to experience three or more risk factors compared to their counterparts.

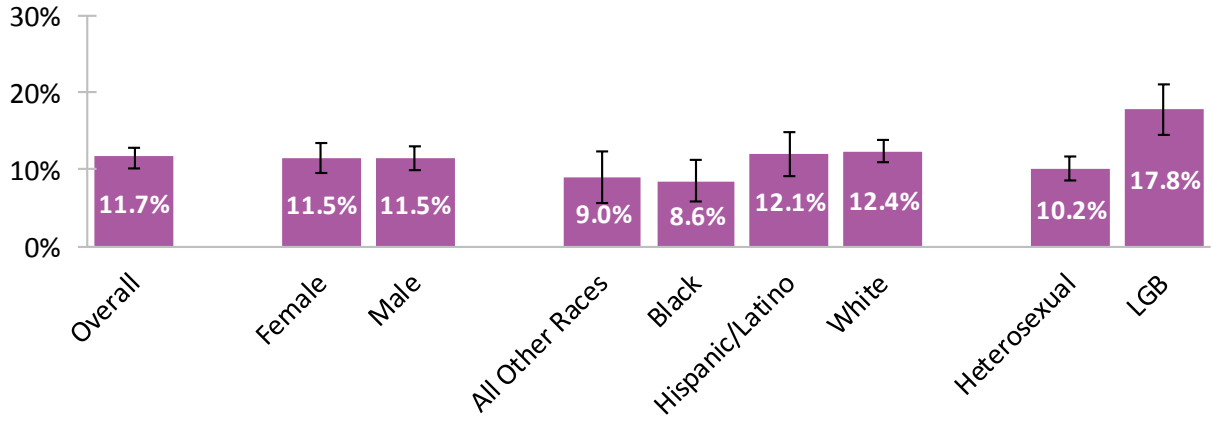
Figure 7. Percent of High School Students Experiencing Three or More Physical Activity and Weight Status Risk Factors, Illinois YRBS 2017-2019



Substance Use

Among all students in 2017-2019, 11.7% experienced three or more substance use risk factors (Figure 8). The experience of three or more violence victimization risk factors did not significantly vary by sex or race/ethnicity. LGB students were significantly more likely to experience three or more risk substance use risk factors than heterosexual students.

Figure 8. Percent of High School Students Experiencing Three or More Substance Use Risk Factors, Illinois YRBS 2017-2019

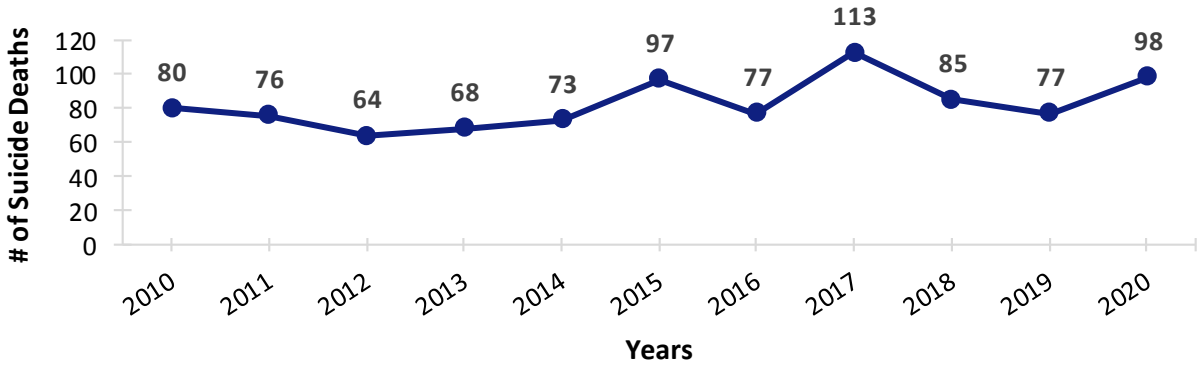


Trends in Youth Suicide Death

This section focuses on the most severe stage of suicidality: suicide death. This section uses death certificates, rather than YRBS, as the data source for the analysis.

During 2010-2020, 908 Illinois youth ages 10-19 died by suicide, an average of 83 Illinois youth each year. As Figure 9 shows, the number of Illinois youth suicide deaths each year fluctuates, ranging from a low of 64 deaths in 2012 to a high of 113 deaths in 2017.

Figure 9. Number of Suicide Deaths Per Year for Illinois Youth Ages 10-19, 2010-2020 Death Certificates



These annual fluctuations can make it difficult to see longer term patterns in the annual trends. To smooth out the year-to-year changes and make it easier to see trends over time, the remaining charts in this section show average suicide death rates for three-year periods combined, also known as three-year "rolling averages."

Figure 10 shows the three-year rolling average suicide death rates for Illinois youth ages 10-19 overall and broken down into two age groups. Between 2010-2020, there was a significant increase in death by suicide among Illinois youth. In 2010-2012, the suicide death rate for all youth ages 10-19 was 4.2 deaths per 100,000 youth, but this increased to 5.3 per 100,000 by 2018-2020. Throughout this time period, the suicide death rate was higher for youth ages 15-19 than children ages 10-14, but both groups had increases in their suicide death rates over time.

Figure 10. Suicide Death Rate by Age Group, Illinois Youth Ages 10-19, 3-Year Rolling Averages, 2010-2020 Death Certificates

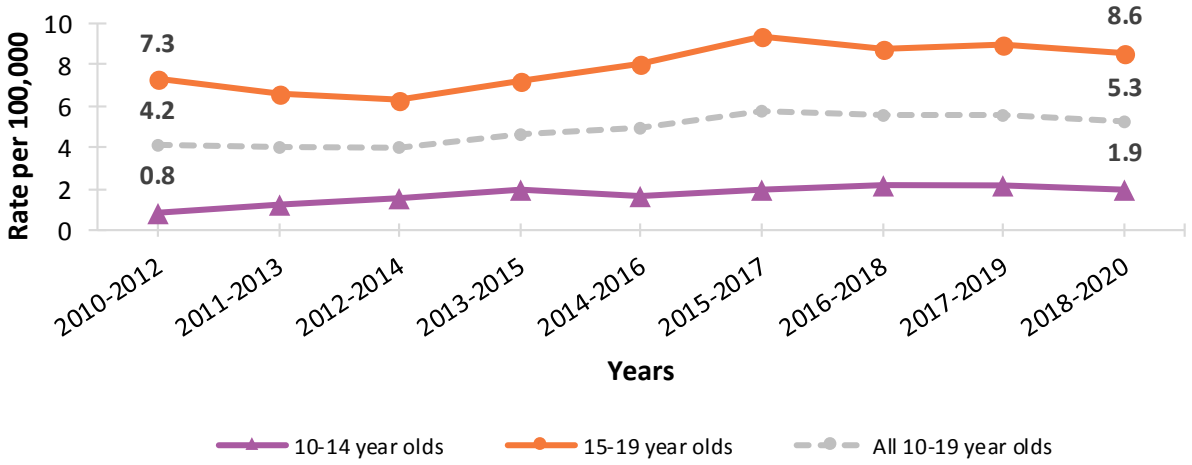


Figure 11 shows the three-year rolling average suicide death rates for Illinois youth ages 10-19 by sex. Throughout this time period, male youth had higher suicide death rates than females. However, the suicide death rate among female youth significantly increased from 2010 to 2020, while the rate for male youth did not significantly change. As a result, the difference in suicide rates between males and females narrowed over time.

Figure 11. Suicide Death Rate by Sex, Illinois Youth Ages 10-19, 3 Year Rolling Averages, 2010-2020 Death Certificates

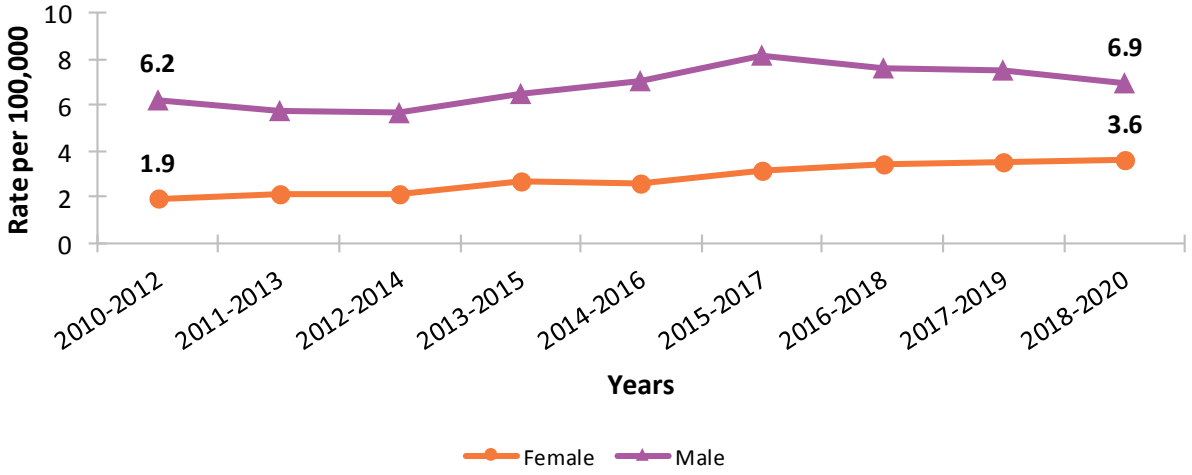


Figure 12 shows the three-year rolling average youth suicide death rates for Illinois youth ages 10-19 by race and ethnicity. In 2010-2012, White youth had approximately twice the suicide rate of non-Hispanic Black and Hispanic/Latino youth. Over the course of the 10-year period, Black and Hispanic/Latino youth both experienced significant increases in the suicide death rate while the death rate among White youth remained steady. By 2018-2020, White, Black, and Hispanic/Latino youth ages 10-19 were equally likely to die by suicide, with rates around 5.0 deaths per 100,000 youth. The rise in youth suicide death rates among Black and Hispanic/Latino youth in Illinois is alarming and demands attention.

Figure 12. Suicide Death Rate by Race and Ethnicity, Illinois Youth Ages 10-19, 3 Year Rolling Averages, 2010-2020 Death Certificates

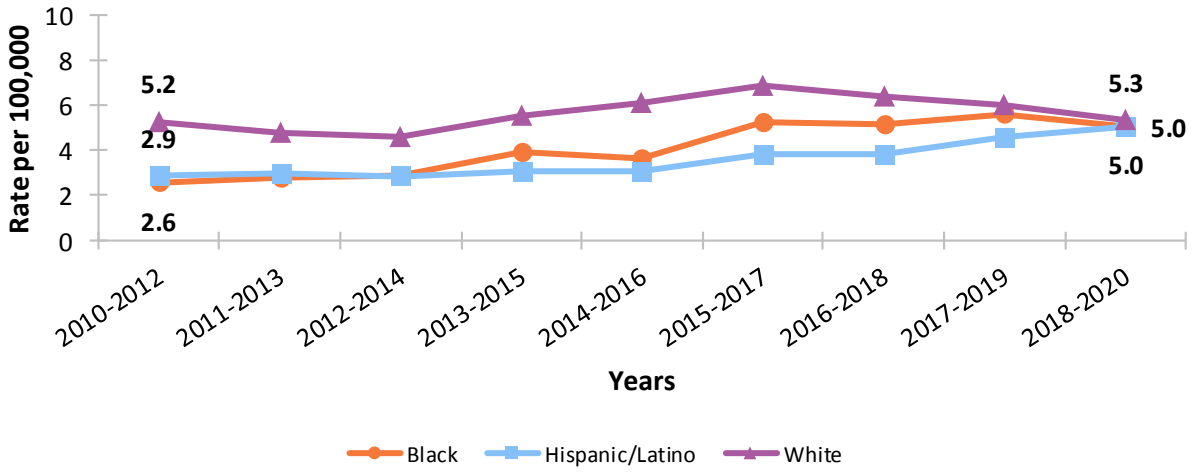
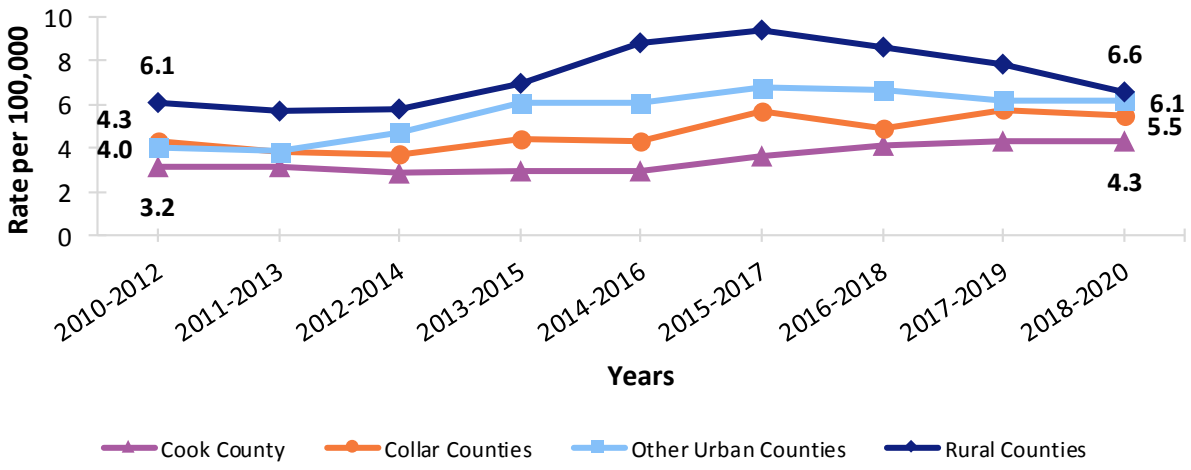


Figure 13 shows the three-year rolling average suicide death rates for Illinois youth ages 10-19 by geography of residence. In 2010-2012, youth living in rural Illinois counties had the highest suicide death rate at 6.1 deaths per 100,000 youth, while youth in Cook County had the lowest suicide death rate, 3.2 deaths per 100,000 youth. Over time, however, suicide death rates for youth ages 10-19 increased significantly in Cook County. Rates also increased in the suburban collar counties and other urban counties outside the Chicago area and, although these increases were not statistically significant, the increases in these areas may be meaningful in considering the shifting patterns of suicide in the state.

As youth suicide rates rose in urban and suburban communities over this time period, the suicide rates in rural communities appeared to rise and then fall, but these changes were also not statistically significant. By 2018-2020, the youth suicide rate in rural counties was similar to the rate in 2010-2012.

By 2018-2020, youth in rural counties still experienced the highest suicide death rates but the disparity between rural and urban communities had decreased substantially. In these years, the youth suicide rates in the suburban collar counties and other urban counties outside the Chicago area were not significantly different from the youth suicide rate in rural counties.

Figure 13. Suicide Death Rate by Geography of Residence, Illinois Youth Ages 10-19, 3 Year Rolling Averages, 2010-2020 Death Certificates



Opportunities to Prevent Youth Suicide in Illinois

This data report highlighted risk factors associated with suicidal behaviors in Illinois youth, which encompassed a broad range of factors related to violence victimization, physical activity and weight status, and substance use. Youth suicidality must be addressed by meeting young people's physical, mental, and social needs across these issues. Reducing or mitigating the experiences of these risk factors could help prevent suicidal behaviors for Illinois youth. In addition, routine mental health screening should be considered for students who experience these risk factors, thus aiding in early identification of possible mental health symptoms and prevention of suicide death.

Furthermore, most risk factors associated with suicidal ideation were also associated with suicide attempts. This underscores the continuum model of suicide severity, with the same risk factors being associated with entering the earliest stages of the model of suicidality and also with progressing to more severe and active stages of suicidal behaviors. It is important to interrupt suicidal behavior in the milder stages by identifying and addressing suicidal thoughts to prevent downstream suicide attempts and death.

This report also highlights the importance of addressing youth suicide prevention through a health equity lens. Students from historically marginalized and stigmatized groups (female, racial/ethnic and LGB youth) were more likely to report suicidal ideation and suicide attempt, and tended to experience violence victimization, physical activity and weight status, and substance use risk factors more often than their counterparts. Students from these social identities also have increased suicidal ideation and suicide attempts. In particular, suicidal behaviors and violence victimization were alarmingly high among LGB.

Both individual and structural factors increase the vulnerability of historically marginalized youth to engage in risk and suicidal behaviors. These factors include prejudice, discrimination, rejection, harassment, and oppression. Youth from minority social groups may experience additional stress which can lead to poorer mental health and increased psychological distress.[6] Additionally, youth belong to many social identities (sex, gender identity, race/ethnicity, sexual orientation, religion, class, etc.) that intersect to create unique social contexts that influence their mental health and well-being.[7, 8] Youth suicide programs in Illinois can consider inclusive suicide prevention programs and targeted initiatives that support populations at the highest risk of suicide. Schools, clinicians, and community programs can also consider the intersectional identity of high school students as they screen for mental health concerns and refer students to services that are responsive to their needs. School leaders and staff can also create environments and cultures that are caring, inclusive, accepting, and supportive of all

[6] Meyer, I.H., 2003. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. Psychol. Bull. 129 (5), 674.

[7] Crenshaw, K., 1991. Mapping the margins: intersectionality, identity politics, and violence against women of color. Stanford Law Rev. 43, 1241.

[8] Baiden P, LaBrenz CA, Asiedua-Baiden G, Muehlenkamp JJ. Examining the intersection of race/ethnicity and sexual orientation on suicidal ideation and suicide attempt among adolescents: Findings from the 2017 Youth Risk Behavior Survey. J Psychiatr Res. 2020 Jun; 125:13-20. doi: 10.1016/j.jpsychires.2020.02.029. Epub 2020 Feb 29. PMID: 32179279.

students[9]. Additionally, it is important to assure access to youth mental health services in all communities, and to develop programs and services with input from diverse partners.

This report also shows changing patterns of risk for youth suicide death in Illinois. Statewide, suicide deaths are increasing among Illinois youth ages 10-19. Rates have increased or remained level in every social and demographic group studied, with no groups showing decreases in youth suicide death rates over time. Although White, male, and rural youth remain at higher risk for death by suicide, the rates of death by suicide increased significantly among female, Black, Hispanic/Latino, and urban youth during 2010-2020. This has reduced or eliminated historical disparities in youth suicide rates, but not in a positive way since it has occurred by increasing suicide rates among the groups traditionally at lower risk of death by suicide. It is important that youth suicide prevention programs and education/training for teachers, health care providers, and parents be responsive to these shifting patterns. Researchers should examine risk factors for suicide in female, racial/ethnic minority, and urban young people and ensure these inform public health and clinical action to prevent suicide.

Suicide represents a tragic loss of life and causes incalculable suffering for families, friends, and communities. Young people who experience suicidal thoughts and suicide attempts need comprehensive, evidence-based, and culturally responsive resources and services to prevent further suicidal behaviors and death. Suicide remains a significant contributor to youth mortality in Illinois and requires attention and resources from families, health care providers, educators, and community members.

[9] The Trevor Project. (2021, October 14). Bullying and Suicide Risk among LGBTQ Youth. Retrieved from The Trevor Project: https://www.thetrevorproject.org/research-briefs/bullying-and-suicide-risk-among-lgbtq-youth/

Seeking Help: Resources for Youth and Families

If you or someone you know is having suicidal thoughts or a mental health crisis, IMMEDIATELY contact:

National Suicide Prevention Lifeline *(available 24/7)* — **800-273-TALK (8255)**

National Crisis Text Line *(available 24/7)* — *Text* **HOME** *to* **741-741**

Illinois Crisis and Referral Entry Services (CARES; *available 24/7)* — **800-345-9049**

For help with depression or other mental health concerns

Safe2Help Illinois — **844-4-SAFE-IL (7233-45)**
Youth Mental Health Support — *Text* **SAFE2 (72332)**
(available 24/7) — *Download App:* **Safe2HelpIL**
www.safe2helpil.com

IDHS Child and Adolescent Client Services Line — **312-793-1361**
For assistance locating community-based mental health services providers

The Trevor Project — **866-488-7386**
Crisis support for LGBTQ+ Young People — *Text* **START** *to* **678-678**
(*available 24/7)* — **www.thetrevorproject.org**

Trans Lifeline — **877-565-8860**
Crisis support for Transgender and Questioning Persons — **www.translifeline.org**
(*available 24/7)*

For support and services related to sexual or domestic violence

Illinois Coalition Against Sexual Assault — **217-753-4117**

National Sexual Assault Hotline *(available 24/7)* — **800-656-4673**

Illinois Domestic Violence Hotline — **877-863-6338**

National Domestic Violence Hotline — **800-799-7233**

For support and services related to substance use disorders

Illinois Helpline for Opioids and Other Substances — **833-2-FIND-HELP (3463-4357)**

SAMHSA National Mental Health and Substance Abuse Hotline — **800-662-HELP (4357)**

Appendix A: Methods

Youth Risk Behaviors Survey (YRBS)

Data Source

This report used Illinois Youth Risk Behavior Survey data from 2009, 2011, 2013, 2015, 2017, and 2019. The YRBS was developed by the Centers for Disease Control and Prevention in 1990 to monitor health behaviors that contribute to the leading causes of death, disability, and health problems among youth and young adults in the United States.[10] YRBS data are collected through national, state, territorial and freely associated state, tribal government, and local school-based surveys every two years. YRBS collects data on representative samples of public 9th through 12th grade students and the final data are weighted to reflect the state population of public health school students. In 2019, approximately 3,100 Illinois high school students completed the YRBS, representing 576,000 public high school students in the state.

For more information about YRBS visit: https://www.cdc.gov/healthyyouth/data/yrbs/index.htm

Suicidal Behaviors

Four questions from YRBS assess various types of suicidal behaviors within the last year:

- having suicidal thoughts,
- making suicide plans,
- attempting suicide, and/or
- having any injuries requiring medical attention due to suicide attempt(s).

In this report, the four YRBS questions on suicidal behaviors were not analyzed separately. Instead, suicidal behaviors were arranged into two mutually exclusive groups indicating increasing suicide risk to align with the model of suicidality.[11]

1. **No Suicidal Behaviors** – No suicidal ideation or attempts during the past 12 months.
2. **Suicidal Behaviors** – Suicidal ideation and/or suicide attempt during the past 12 months.
    a. **Suicidal Ideation** – considered suicide or made suicide plans, but no suicide attempts during the past 12 months.
    b. **Suicide Attempt** – at least one suicide attempt or injury from a suicide attempt during the past 12 months, regardless of whether a student had suicidal ideation.

It is important to note that approximately 15% of YRBS respondents did not answer the two questions on attempting suicide and injuries related to suicide and approximately 2% of YRBS respondents did not answer the questions on suicidal thoughts or plans. To preserve the inclusion of as many respondents as possible in the analyses for this report, missing values on any of the four suicidal behaviors were assumed to be "no" responses when classifying the level of suicide risk. Only students who were missing answers on *all four* suicidal behaviors questions were excluded from the analysis. This decision to include partial answers and assume "no" for missing responses may underestimate the true prevalence

[10] Centers for Disease Control and Prevention. (2020). Overview – YRBSS. Retrieved from: https://www.cdc.gov/healthyyouth/data/yrbs/overview.htm

[11] Lowry, R., Crosby, A. E., Brener, N. D., & Kann, L. (2014, January 1). Suicidal Thoughts and Attempts Among U.S. High School Students: Trends and Associated Health-Risk Behaviors, 1991-2011. Journal of Adolescent Health, 54(1), 100-108. doi:10.1016

of suicide attempt and suicidal ideation among Illinois youth. Students who were male, Black, or Hispanic were most likely to have missing responses to at least one of the suicidal behavior questions and so underestimation may be even higher for these subgroups of students. The findings in this report therefore represent conservative estimates of the true prevalence of suicidal ideation and suicide attempt.

Risk Factors for Suicidal Behaviors

Nineteen risk factors potentially associated with increased suicide risk were identified in the YRBS based on previous research and arranged into three categories for analysis:

Violence Victimization

- Carried a weapon on or off school property
- Got into a physical fight
- Sexual dating violence
- Physical dating violence
- Sexual violence from anyone
- Feel unsafe or threatened at school
- Online or in-person bullying

Physical Activity and Weight Status

- Physically active < 5 days per week
- Not playing on a sports team
- Hours spent watching TV
- Hours spent using computer
- Slept less than 8 hours per night
- Obese body mass index (BMI)
- Self-perception of being overweight

Substance Use

- Prescription pain medication misuse
- Alcohol consumption
- Marijuana use
- Tobacco use
- Other substance use (cocaine, heroin, methamphetamines, injection of illegal substances)

After individually classifying these risk factors, the total number of risk factors within each category was counted for each YRBS respondent. These cumulative risk factor experienced were then classified into three groups within each category: 0 risk factors, 1-2 risk factors, or 3 or more risk factors.

General Statistical Notes

All analyses of YRBS data were conducted in SAS 9.4 using procedures to account for the complex survey design and population-based weighting. Weighted percentages and 95% confidence intervals are reported. Chi-square tests were used to assess differences at a significance level of $p<0.05$.

Death Certificates

Data Source

This report also uses data from 2010-2020 death certificates from the IDPH Division of Vital Records to analyze trends in suicide death among Illinois resident youth ages 10-19.

Deaths by Suicide

All deaths with manner of death listed as "suicide" on the death certificate are included in the analysis. This determination is usually made by the death certificate certifier, such as a coroner, medical examiner, or forensic pathologist, based on evidence about the intent of the injury leading to death. All death certificates used in this data report are certified/final data.

General Statistical Notes

Youth suicide death rates were calculated by dividing the number of suicide deaths by the postcensal population estimates for youth 10-19 from the respective years. Three-year rolling averages were calculated by summing the number of deaths for the three-year period and dividing by the sum of the population estimates for the three-year period.

Time trends analyses of death certificate data were conducted in Joinpoint statistical software to test trends from 2010-2020 and identify timepoints when statistically significant changes in trends occur. These results are not formally presented in this report but provide the basis for statistically evaluating the significance level of the trends discussed in the text.

Notes on Student Demographics

Race and Ethnicity

In this report, race and ethnicity is categorized in the YRBS as non-Hispanic Black (referred to as "Black" in this report), non-Hispanic White (referred to as "White" in this report), and Hispanic/Latino. While the YRBS does capture information on students of other races, such as Asian, Native Hawaiian/Other Pacific Islander, and American Indians/Alaska Native, and Multiple Races (Non-Hispanic), these groups were not analyzed separately due to small numbers, which can compromise data quality/reliability. Therefore, these groups have been combined into "All Other Races" for the YRBS portion of this report. IDPH recognizes that students of these racial/ethnic backgrounds tend to be underrepresented in data due to systems of inequity.[12] This lack of data underestimates and masks the true burden that students of other races, Asian, Native Hawaiian/Other Pacific Islander, and American Indians/Alaska Native, and Multiple Races (Non-Hispanic), experience regarding suicidal behaviors and these risk factors.

Sexual Orientation and Gender Identity

The YRBS asks students to self-identify their sexual orientation. Students identifying as gay, lesbian, bisexual, or unsure of their sexuality were grouped together and are referred to as "LGB" students throughout this report. In analyses, LGB students were compared to students reporting to be heterosexual.

YRBS asks students to self-identify their sex as male or female and did not include a question on gender identity for the years used in this report. Therefore, YRBS data through 2019 cannot be used to assess suicidal behaviors for students who identify as transgender, non-binary, or other genders.

[12] Urban Indian Health Institute (2021). Data Genocide of American Indians and Alaska Natives in COVID-19 Data. Seattle, WA: Urban Indian Health Institute

Death certificates include information about neither sexual orientation nor gender identity, so the analyses of youth suicide deaths could not assess at differing rates of suicide according to these identities.

Appendix B: YRBS Questions Used

Question Number	Question Wording	Response Options
Demographics		
sex	What is your sex?	Female Male
race4	4-level variable from race and ethnicity questions: Are you Hispanic or Latino? What is your race?	White Black or African American Hispanic/Latinx All other races
q66	Which of the following best describes you?	Heterosexual Gay or lesbian Bisexual Not sure
Suicidal Behaviors		
QN26	During the past 12 months, did you ever seriously consider attempting suicide?	Yes No
QN27	During the past 12 months, did you make a plan about how you would attempt suicide?	Yes No
QN28	During the past 12 months, how many times did you actually attempt suicide?	>=1 times 0 times
QN29	If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?	Yes No
Violence Victimization		
QN12	During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?	1 or more days of carrying a weapon 0 days of carrying a weapon
QN17	During the past 12 months, how many times were you in a physical fight?	>=1 times 0 times
QN24	During the past 12 months, have you ever been electronically bullied? (Include being bullied through email, chat rooms, instant messaging, websites, or texting.)	Yes No
QN22	During the past 12 months, did your boyfriend or girlfriend ever hit, slap, or physically hurt you on purpose?	Yes No
QN20	During the past 12 months, how many times did anyone force you to do sexual things that you did not want to do? (Count such things as kissing, touching, or being physically forced to have sexual intercourse.)	>= 1 times 0 times

Question Number	Question Wording	Response Options
QN21	During the past 12 months, how many times did someone you were dating or going out with force you to do sexual things that you did not want to do? (Count such things as kissing, touching, or being physically forced to have sexual intercourse.)	>= 1 times 0 times
QN22	During the past 12 months, how many times did someone you were dating or going out with physically hurt you on purpose? (Count such things as being hit, slammed into something, or injured with an object or weapon.)	>= 1 times 0 times
QN13	During the past 30 days, on how many days did you carry a weapon, such as a gun, knife, or club on school property?	Carried a weapon (>=1 days) Did not carry weapon (0 days)
QN18	During the past 12 months, how many times were you in a physical fight on school property?	>= 1 times 0 times
QN23	During the past 12 months, have you ever been bullied on school property?	Yes No
QN15	During the past 30 days, on how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?	>= 1 days 0 days
QN16	During the past 12 months, how many times has someone threatened or injured you with a weapon, such as a gun, knife, or club, on school property?	>= 1 times 0 times
Physical Activity and Weight Status		
BMI	Body mass index (BMI) based on self-reported height and weight (without shoes on)	Obese = ≥95th percentile Not Obese = < 95th percentile
QN67	How do you describe your weight?	Very overweight Slightly overweight About the right weight Slightly underweight Very underweight
Qn78	During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spent in any kind of physical activity that increased your heart rate and made you breathe hard some of the time.)	>= 5 days < 5 days
Qn82	During the past 12 months, on how many sports teams did you play? (Count any teams run by your school or community groups.)	≥ 1 team 0
QN79	On an average school day, how many hours do you watch TV?	≥ 3 < 3 hours

Question Number	Question Wording	Response Options
QN80	On an average school day, how many hours do you play video or computer games or use a computer for something that is not school work? (Include activities such as Xbox, PlayStation, Nintendo DS, iPod touch, Facebook, and the Internet.)	≥ 3 hours < 3 hours
QN88	On an average school night, how many hours of sleep do you get?	< 8 ≥ 8 hours
Substance Use		
QN41	During the past 30 days, on how many days did you have at least one drink of alcohol?	>= 1 days 0 days
QN47	During the past 30 days, how many times did you use marijuana?	>= 1 times 0 times
QN50	During your life, how many times have you used any form of cocaine, including powder, crack, or freebase?	>= 1 times 0 times
QN53	During your life, how many times have you used methamphetamines (also called speed, crystal, crank, or ice)?	>=1 times 0 times
QN56	During your life, how many times have you used a needle to inject any illegal drug into your body?	>=1 times 0 times
QN32	During the past 30 days, on how many days did you smoke cigarettes?	>=1 days 0 days
QN35	During the past 30 days, on how many days did you use an electronic vapor product?	>= 1 days 0 days
QN49	During your life, how many times have you taken prescription pain medicine without a doctor's prescription or differently than how a doctor told you to use it?	>= 1 days 0 days