

Youth in
Minnesota
Correctional Facilities
and Adverse Childhood
Experiences:

Responses to the
2013 Minnesota Student Survey

May 2015



DEPARTMENT OF PUBLIC SAFETY
OFFICE OF JUSTICE PROGRAMS

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Juvenile Correctional Facilities Participating in the 2013 MN Student Survey

In order to participate in this study, sites had to provide residential detention or correctional services and have an education program onsite. Participation in the Minnesota Student Survey is optional. The following facilities participated in 2013 and have youth represented in the data:

- Anoka County Secure Juvenile Center, Lino Lakes, *Pines School*
- Anoka County Non-Secure Shelter Facility, Lino Lakes, *Pines School*
- Arrowhead Juvenile Center, Duluth, *Arrowhead Academy*
- Boys' Totem Town, St. Paul
- Dakota County Juvenile Services Center, Hastings, *Riverside School*
- East Central Regional Juvenile Center, Lino Lakes, *Pines School*
- Hayward Group Home, Albert Lea
- Heartland Girls' Ranch, Benson
- Hennepin County Home School, Epsilon Program, Minnetonka
- Hennepin County Juvenile Detention Center, Minneapolis, *Stadium View School*
- ITASKIN Juvenile Center, Grand Rapids, *ITASKIN Education Center*
- KidsPeace Mesabi, Buhl, *Mesabi Academy*
- Minnesota Correctional Facility: Red Wing, *Walter Maginnis High School*
- Minnesota Correctional Facility: Togo, *Alice O'Brien School*
- Olmsted County Juvenile Detention Center, Rochester
- Prairie Lakes Juvenile Detention Center, Willmar, *Prairie Lakes School*
- Ramsey County Juvenile Services Center, St. Paul
- Red Lake Juvenile Detention Center, Red Lake Nation
- Southwest Youth Services, Magnolia
- Washington County Juvenile Detention Center, Stillwater
- West Central Regional Juvenile Center, Moorhead
- Woodland Hills, Duluth, *Woodland Hills Academy*

Minnesota Student Survey Overview

The Minnesota Student Survey (MSS) is a comprehensive questionnaire administered every three years to students in grades 5, 8, 9 and 11 in Minnesota public schools. The survey includes a wide variety of questions related to youth attitudes, behaviors and health indicators. Questions reflect a range of protective factors, including connectedness to school, family and community, as well as risk factors such as drug and alcohol use, violence and victimization.¹ The survey originated in 1989 with the most recent administration occurring in 2013.

Extensive changes were made to the survey during the 2013 administration. The survey population changed from students in grades 6, 9, and 12 to students in grades 5, 8, 9, and 11. The survey questions were also revised considerably. New topics include sexual identity, experiences with homelessness and parental incarceration, eating and sleep habits, missing school and distracted driving. Finally, this administration was the first time that the survey was offered both on paper and via the web. Due to these changes in content and administration, 2013 data may not be comparable to data collected in years past.

The MSS is an invaluable tool, as it collects information on myriad topics in an anonymous, self-report format. MSS responses not only stand alone as a valuable data set with statewide representation; they also supplement and enhance other state-level data sources, and show trends in student behaviors and attitudes over time. The MSS provides students, parents, and their communities a dynamic vehicle for ongoing communication about issues vital to the health, safety, and academic success of youth. It is a valuable tool for

school districts, county agencies, and state agencies in planning meaningful and effective ways of supporting students and families.

The Minnesota Student Survey (MSS), given every three years, collects myriad data on youth risk and protective factors. In 2013, approximately 162,000 students in grades 5, 8, 9 & 11 participated in MSS.

Content of the MSS is collaboratively determined by Minnesota's departments of Education, Health, Human Services and Public Safety. Participation in the survey is voluntary; school districts elect to participate and any individual student may refuse to participate for any reason. In 2013, 84 percent of school districts participated. In total, 67 percent of public school students in grades 5, 8, 9 and 11 (roughly 162,000) took the 2013 MSS.²

Juvenile Correctional Facility Participation

A unique subset of Minnesota students are those receiving an education outside of the “mainstream” school setting, including youth placed in juvenile correctional facilities. Minnesota has both secure (locked) juvenile facilities and non-secure facilities.

By Minnesota statute, placement of youth in secure facilities is reserved for youth accused of a delinquent act who are deemed to be a risk to self or others, to not appear for court, or to not stay in the lawful custody of the person to whom they are released.³ Youth in correctional facilities also include those who have been adjudicated delinquent and court-ordered to complete a correctional placement by a judge.

The first survey of students in juvenile correctional facilities occurred in 1991 after legislation directed the Minnesota Department of Education to survey “special populations,” including Juvenile Corrections/Detention Centers.⁴ By 1995, public schools and correctional facilities were on the same three-year administration calendar.

In 2013, 22 of 28 residential juvenile correctional facilities with an onsite education program (79%) participated in the MSS. Twenty-one participating facilities were licensed by the Minnesota Department of Corrections and one facility operates under tribal authority.^a

^a Of these facilities, 10 have secure beds only; three have secure and non-secure beds; and nine have non-secure beds only. Schools within correctional facilities were permitted to administer the survey in a manner that was logistically feasible to their operation. Youth held in detention following arrest or pending court may

Additional residential correctional programs exist in Minnesota, but the youth in these placements attend public school programs where they would have the opportunity to take the MSS along with other youth.

Youth in correctional facilities have been a special population targeted for inclusion in the MSS since 1991. In 2013, 383 surveys were collected from youth placed in Minnesota juvenile correctional facilities.

Locked or “secure” facilities are specifically encouraged to participate in the MSS because youth in secure placements are least likely to have had the opportunity to take the survey in their home school district. In addition, youth who meet the criteria for admission to secure correctional facilities represent some of Minnesota’s highest-risk juvenile offenders. While some of the participating facilities have secure programming, it is not a requirement for survey participation or inclusion in this report.

The MSS has three survey levels depending on the grade of the student. Youth in correctional facilities all take the Level 3 survey designed for students in grades 9 and 11, since this is the most age appropriate questionnaire. Data presented in this report come from comparing the survey responses of youth in correctional facilities (n=383) to those of a matched sample of youth respondents in the mainstream school population (n=383).^b

not have been surveyed because of the high turnover rate of these youth. As such, the sample of youth in correctional facilities may also over-represent youth who are in the facilities on longer term, residential placements.

^b Approximately two percent of all mainstream school surveys and six percent of juvenile correctional facility surveys were omitted from the final datasets because

Report Purpose

The purpose of this report is to explore how common it is for youth in correctional facilities to report experiences with trauma based on their responses to the 2013 *MSS*. In addition, this report will investigate whether these adverse experiences have an effect on other areas of their lives including school engagement, physical and emotional health, chemical use, and other risk-taking behavior.

The 2013 *MSS* contains a set of 10 questions intended to gauge whether youth have been exposed to potentially traumatic events or conditions. Survey questions assess exposure to physical, emotional and sexual abuse; the presence of domestic violence and chemical abuse in the respondent's household; parental incarceration; and physical and sexual violence in their dating relationships.

In addition to exploring the responses of youth in correctional facilities, this report will examine how much trauma is reported by a sample of mainstream students who took the *MSS* in community schools.^c Doing so will indicate whether youth in correctional facilities have been exposed to more or different kinds of trauma than their peers, and if the two student populations are similarly affected by their trauma histories.

Changes made to *MSS* questions between 2010 and 2013 brought the wording of numerous trauma-related questions into closer alignment with language used in other studies on the effects of

gender was missing or response patterns were frequently inconsistent or highly improbable. It is unknown how many youth in the facility population refused to participate or had previously taken the survey in their local education setting.

^c See Methodology section for information on the sample of mainstream students.

childhood trauma, namely *adverse childhood experiences* studies. These studies show that certain types of adversity experienced as a child, known as ACEs, are associated with poorer health and well-being for individuals in adulthood.

In 2011, the Minnesota Department of Health for the first time added a set of nine ACE questions to a statewide survey of adults known as the *Behavioral Risk Factor Surveillance System (BRFSS)*. These ACE data provide a baseline on the prevalence of trauma experienced as children among Minnesota's adult population.

Report Goals

1. *Explore the prevalence of trauma/ACEs among youth in correctional facilities and identify their effects on other areas of life.*
2. *Explore the prevalence of trauma/ACEs among a matched sample of students who took the MSS in a mainstream school setting for similarities and differences to youth in correctional facilities.*
3. *Compare trauma/ACE exposure among youth who took the MSS as compared to Minnesota adults who participated in the 2011 BRFSS.*

A final objective of this report is to highlight key findings from the 2011 Minnesota ACE study on adults, and compare them to youth who responded to a similar set of trauma-related questions. Such a

comparison will reveal whether youth in correctional facilities and mainstream youth have experienced more, or less trauma than the general population of adults in Minnesota. These data can potentially show us what kinds of trauma are most prevalent, and inform opportunities for prevention and intervention.

PART 1

Understanding Trauma

Trauma Defined

Trauma in the lives of young people can occur in many ways. This section provides an overview of different types of trauma individuals may experience and the potential effect of trauma on youth development.

What traumatic stressors have in common, according to the National Child Traumatic Stress Network (NCTSN), is that the event or situation overwhelms a child's ability to cope.⁵ Generally, a traumatic experience is one that threatens someone's life, safety or well-being and results in intense feelings such as fear, terror, helplessness, and hopelessness.⁶

Types of Trauma

The NCTSN defines the following types of trauma, many of which are also classified in studies as adverse childhood experiences (ACEs):⁷

Sexual Abuse, Assault, or Exploitation includes actual or attempted sexual contact; exposure to age-inappropriate sexual materials; witnessing adult sexual activity; exploitation of a minor by an adult perpetrator; and unwanted or coercive sexual contact between minors.

Physical Abuse or Assault includes actual or attempted infliction of physical pain, including severe corporal punishment.

Emotional Abuse or Psychological Maltreatment includes verbal abuse, threats, debasement, bullying, terrorizing, or coercive control.

Neglect includes deprivation of physical needs such as food, clothing, or shelter; medical neglect such as failing to provide treatments or medications; and educational neglect such as preventing a child from attending school.

Serious Accident or Illness includes automobile accidents, falls, or fires; extremely painful or life-threatening medical conditions such as AIDS, cancer, or severe burns or injuries.

Traumatic stressors are events or situations that overwhelm a child's ability to cope. Traumatic experiences threaten one's life, safety or well-being and can result in feelings such as fear, terror, helplessness and hopelessness.

Witness to Domestic Abuse includes exposure to emotional abuse, physical abuse, or aggressive control by a parent/caretaker toward another in the home.

Traumatic Grief/Separation includes death of a parent or primary caregiver; abrupt, unexpected, or premature death of a close friend, family member or close relative; abrupt or indefinite separation of a child from a parent or sibling such as in divorce, hospitalization or incarceration.

Victim of/Witness to Community Violence includes exposure to extreme violence in a community such as gang-related activities, drive-by shootings, or other targeted or random acts.

School Violence describes violence that occurs in a school setting, including school shootings, student suicides, bullying and other interpersonal violence.

Victim of/Witness to Extreme Interpersonal Violence includes witnessing acts of homicide, suicide and similar extreme events.

Natural or Manmade Disasters include tornadoes, hurricanes, floods or earthquakes, along with human-caused events such as nuclear accidents, fires, or oil spills.

War/Terrorism/Political Violence includes exposure to acts of war or terrorism, including bombings, hostage situations, genocide, snipers, or biological weapons.

Forced Displacement describes relocation to a new home made necessary by political upheaval. Generally includes political asylum-seekers, or refugees fleeing war or persecution.

System-Induced Trauma occurs when there is traumatic removal from the home; traumatic foster care placement; sibling separation; and multiple placements in a short time.

Types of Exposure to Trauma

According to the NCTSN, traumatic events can be experienced as *acute, chronic, varied or complex*.⁸

- **Acute Trauma** occurs when there is a singular event or the exposure is time-limited in nature, such as a car accident or the loss of a parent.
- **Chronic Trauma** can occur when exposure occurs repeatedly over an extended time. Ongoing abuse or living in a community where violence is commonplace are examples of chronic trauma.
- **Varied Trauma** exists when there is exposure to multiple types of trauma. As an example, a victim of varied trauma may have experienced a singular sexual assault, the traumatic loss of a caregiver, and ongoing emotional neglect.
- Finally, **Complex Trauma** describes exposure to multiple or prolonged traumatic events that have an effect on child development. Complex trauma is typically chronic, begins early in life, and occurs within the child's primary care system.⁹

*Exposure to trauma can be **acute** (single event or time-limited); **chronic** (ongoing); and/or **varied** (exposure to multiple types of trauma). **Complex Trauma** describes exposure to multiple or prolonged traumatic events that have an effect on child development.*

Trauma v. Stress

Not all stressful adversity children experience is harmful or problematic. In fact, most stressors are important to healthy development. Typically, it is not until one's core sense of safety is threatened, or one's ability to emotionally manage a situation is exceeded, that an event has traumatic effects. This threshold, however, depends on unique, individual characteristics as well as the frequency, intensity, and duration of the stressor.¹⁰

A report published by the *Center on the Developing Child* at Harvard University describes three types of stress identified by the *National Scientific Council on the Developing Child* that can affect the development of young people: *Positive, tolerable* and *toxic stress*.¹¹

Positive Stress is considered important and necessary for healthy development. Positive stressors cause a moderate, short-term physiological response such as increased heart rate, blood pressure or stress hormone levels. Children experience positive stress when meeting new people or dealing with frustration. Positive stressors happen in the context of safe and supportive relationships and allow children to develop skills in emotional regulation and self-control.

***Positive Stress**, such as meeting new people or managing frustration, causes moderate, short-term stress on the body but is important to healthy development and learning emotional regulation.*

***Toxic Stress**, such as ongoing abuse, neglect or exposure to violence, causes strong, prolonged activation of the body's stress system. It can have a serious impact on the developing brain and contribute to long-term physical and emotional health problems.*

Tolerable Stress occurs when an event or situation is potentially significant enough to disrupt development, but can be mitigated by the presence of a support people who protect youth and help them turn down their stress response. Potentially tolerable stress events include death of loved one, parental divorce, and natural and man-made disasters. Caregivers and support people are also at times unable to regulate under these circumstances and require outside assistance to bring their own stress under control and assist their children.

Toxic Stress is the most threatening and occurs when there is a strong and prolonged activation of the body's stress system in the absence of the protection of adult support. These stressors include recurrent child abuse or neglect, parental substance abuse, domestic violence, and exposure to maternal depression. Continuous activation of the stress response system disrupts the architecture and chemistry of the developing brain and can affect the immune system and physical health. Toxic stress can also affect learning, memory, interpersonal skills and is associated with mental health problems such as depression, anxiety and addiction.

Effects of Trauma on Youth

Physical and Emotional Development

As mentioned previously, the degree to which traumatic events and stressors affect youth can depend on a number of variables. The child's temperament; how the child interprets what has happened; their level of exposure, age and coping skills; and the degree to which the child has a strong and healthy support system can all be factors.¹² Two youth exposed to the same event may respond differently or develop different manifestations of trauma.

Studies have shown that the effects of trauma are cumulative. The greater the number of exposures and the more varied the types of trauma, the greater the risk to a child's development and psychological health.¹³

Trauma occurring in early childhood can be particularly damaging in that critical aspects of brain and personality development may be disrupted. The ability to self-regulate, which is critical to success in late childhood and adolescence, can be compromised.¹⁴ Abuse and neglect have been shown to adversely affect growth of the brain, nervous system, and endocrine systems (hormones) which compromise acquisition of social skills, emotional regulation and respect for social institutions and mores.¹⁵

People who experience trauma often have higher levels of stress hormones in their bloodstream (e.g., cortisol) which place ongoing

stress on other biological systems.¹⁶ Toxic stress in early childhood is associated with disruption to the nervous and hormone regulatory systems. This can lead to life-long problems with behavior, learning and mental health.¹⁷

Children who experience trauma can also exhibit cognitive impairment. Developmental delays, decreased cognitive abilities, and lower IQ have been observed among those who experience trauma at a young age.¹⁸ Traumatic stress can interfere with children's ability to think and learn, and can disrupt the course of healthy physical, emotional and intellectual development.¹⁹ Severe childhood abuse and trauma has even been linked to changes in the

actual structure of genes regulating central nervous system and immune system development. Even small changes in DNA signatures can have long-term implications for fundamental biological processes and health.²⁰

Trauma histories can affect the development of the brain, nervous system, immune system, and endocrine system. Cognitive delays, learning difficulties, anxiety and depression, aggression, and susceptibility to physical conditions are known physical and emotional consequences of trauma exposure.

Social and Behavioral Development

Trauma can manifest itself behaviorally and socially in many ways among children and adolescents. Trauma where a child is victimized by another is more likely to result in impairment in psychosocial functioning and health than other types of trauma such as an accident or a natural disaster.²¹

It is not uncommon for younger children to recreate certain aspects of the trauma in play, such as shooting or dying if they were

exposed to these events. Youth may experience preoccupation with, or fear of death; may have upsetting dreams; may revert to behaviors that are younger than their age such as thumb-sucking or clinging; may report physical complaints such as headaches or stomach aches; or may act out physically or sexually.^{22, 23}

Adolescents, being in a stage between childhood and adulthood, can experience a range of behaviors connected to trauma. Adolescents may engage in increased risk-taking including truancy, risky sexual behaviors and substance use. Some youth become socially isolated or withdrawn, may engage in emotion-numbing behavior, or may exhibit low self-esteem. Conversely, youth may overreact with hostility or aggressiveness to situations or perceived threats.²⁴

Youth who are abused or neglected by caregivers may lose their trust in adults and develop disregard or defiance for adults' rules.²⁵ Youth exposed to traumatic events exhibit a wide range of internal symptoms, including depression and anxiety, but also externalize problems like aggression, conduct problems, defiance, and oppositional behavior.²⁶ Difficulty sleeping, concentrating, or managing emotions related to depression, anxiety, and post-traumatic stress disorder (PTSD) make youth less likely to be successful in academic and social situations.²⁷

Long-Term Consequences of Trauma

Problems associated with trauma can persist into adulthood. People who experienced trauma as children are more likely to develop life-long psychiatric conditions, including personality disorders, ADHD, depression, anxiety, substance abuse disorders, and PTSD, all of which can manifest in impaired social relationships, suicide attempts, and delinquent or criminal behavior.^{28, 29}

Complex trauma can be particularly harmful, causing emotional dysregulation, loss of a sense of safety, and an impaired ability to properly detect or respond to danger.³⁰ A history of complex trauma

can place youth at greater risk of subsequent or repeated trauma exposure in adolescence and adulthood.³¹ The long-term effects of trauma speak to the need for early intervention to prevent patterns of maladaptive coping and problematic behavior.

Youth exposed to trauma can struggle with interpersonal relationships and trust. Youth may over- or under-react to perceived threats by acting out aggressively or shutting down emotionally. Disruptive and defiant behavior, emotion-numbing behavior such as substance use, and excessive risk-taking are social and behavioral complications associated with trauma.

The Relevance of Trauma to the Juvenile Justice System

Understanding exposure to traumatic incidents is highly relevant to the field of juvenile justice and all youth-serving practices. Many of the presenting problems observed among youth involved in the justice system (family discord, running away, self-harm, drug and alcohol use, school issues, mental health concerns, and delinquent behavior) may be related, at least in part, to trauma histories.

Trauma is Prevalent in the Juvenile Justice Population

Youth involved in the juvenile justice system are known to have experienced more trauma than their peers.^{32,33} Studies estimate that 25 percent to 34 percent of children in the United States report at least one traumatic experience, whereas 75 percent to 93 percent of youth in the juvenile justice system report at least one exposure.^{34, 35} A 2003 survey conducted by the federal Office of Juvenile Justice and Delinquency Prevention found that 70 percent of youth in residential correctional placements had some type of traumatic experience, with 30 percent having experienced frequent and/or injurious physical or sexual abuse.³⁶ Numerous studies support the fact that youth in the juvenile justice system have significantly more symptoms and diagnoses of PTSD than the general youth population, and that girls

in the justice system are more likely to develop PTSD than boys.³⁷ Furthermore, youth in the juvenile justice system have higher incidences of traumatic brain injury (TBI) than the general youth population. TBIs caused by trauma to the head may result from accidents or abuse, but either way can contribute to significant impairment in cognition and regulation.³⁸

In 2012, the Minnesota Department of Public Safety published a report entitled *Youth in Minnesota Correctional Facilities and the Effects of Trauma: Responses to the 2010 Minnesota Student Survey*. This report illustrated that a larger percentage of youth in correctional facilities than mainstream youth experience trauma.

Among youth in correctional facilities, 53 percent expressed agreement with at least one of six trauma questions compared to 28 percent of mainstream students. Furthermore, in both student populations, youth who reported experiencing *three or more* different kinds of trauma reported significantly greater problems with anger, depression, worry, and hopelessness. These youth also reported more self-harm and suicidal behavior; more running away from home; chemical use beginning at an earlier age; and lower perceptions of adult caring.³⁹

Youth involved in the juvenile justice system are known to have experienced more trauma than their peers.

Manifestations of trauma put some youth at greater risk of justice system involvement for antisocial behavior, substance abuse and interpersonal violence.

Trauma Can Manifest as Delinquency

It is not likely that one traumatic event will contribute to youth becoming violent or antisocial. It is a pattern of abuse or trauma without protection, support, or opportunities for healing that place youth at highest risk — and typically apply to youth involved in the juvenile justice system.⁴⁰

Conduct and behaviors resulting from traumatic events can increase the likelihood youth will become involved in the child welfare and juvenile justice systems.⁴¹ Trauma can compromise the ability to exercise adequate emotional control and may make youth more prone to aggressive, violent, and sociopathic behavior.⁴² When exposed to trauma or mistreatment, youth may cope by resorting to indifference, defiance, or aggression as self-protective reactions. While risk-taking, fighting or hurting others who are perceived as threats may be a way to survive emotionally, it is often these behaviors that bring youth in to the juvenile justice system.⁴³

The Justice System Can Potentially Re-traumatize Youth

Justice system practitioners at all levels must be aware that the juvenile justice system can potentially re-traumatize youth. Arrest, court appearances, detention, and out-of-home placements are stressful situations that can exacerbate underlying trauma symptoms.⁴⁴ Furthermore, correctional practices such as physical restraint and seclusion; mandatory disrobing or searches for safety and security purposes; or interrupted contact with parents, siblings and support people are potentially traumatic experiences in and of themselves.⁴⁵ Youth-serving agencies need to be aware of how their practices can further traumatize children or aggravate underlying trauma experiences.

Understanding the nature and extent of trauma among youth in correctional facilities can help policy makers implement appropriate interventions that are trauma-responsive. Practitioners need information to meet the needs of youth who are themselves victims, and to understand youths' behaviors or attitudes in the context of their trauma history.

PART 2

Measuring Trauma: Adverse Childhood Experiences Studies

Throughout the 1980s and 1990s, the public health field widely researched risk factors associated with conditions such as emphysema, asthma, alcoholism, heart disease, and sexually transmitted diseases. The goal was to design public health programs to reduce risk factors in the overall population. It was soon discovered, however, that risk factors were not randomly distributed—that is, something about the history or particular experiences of individuals was more likely to result in some people having more health risk factors than others.⁴⁶

An adverse childhood experience (ACE) is a traumatic experience in a person’s life, prior to age 18, which the person recalls as an adult.

The Original ACE Study

The Kaiser Permanente health care organization and the Centers for Disease Control and Prevention began to study the potential link between adverse experiences as a child and the presence of disease or health risk-factors later in life. An adverse childhood experience (ACE) can be classified as a traumatic experience in a person’s life, prior to age 18, which the person recalls as an adult.⁴⁷

In a large-scale study spanning several years, more than 17,000 adults completed a physical exam, a confidential questionnaire about childhood maltreatment and family dysfunction, and

reported their current health and behavior. The original ACE study assessed for the presence of 10 different adverse childhood experiences.^{48, d, e}

Type of ACEs Experienced

Figure 1 illustrates the prevalence of each ACE in the original study population from most common to least common.^{49, f}

Nearly three-in-10 study participants (28%) reported that they had experienced physical abuse prior to the age of 18, followed by 27 percent who reported they were exposed to problematic drinking, alcoholism, or street drug use in their household. Just under one-quarter of participants reported their parents had divorced or separated when they were youth (23%).

Figure 1 Original ACE Categories and Prevalence in Study Population: 1995 & 1997 Cohorts	
ACE	Prevalence
Physical Abuse	28%
Household Substance Abuse	27%
Parental Separation or Divorce	23%
Sexual Abuse	21%
Household Mental Illness	19%
Emotional Neglect	15%
Mother Treated Violently	13%
Emotional Abuse	11%
Physical Neglect	10%
Incarcerated Household Member	5%

^d See Appendix A for definitions of the original ACE categories.

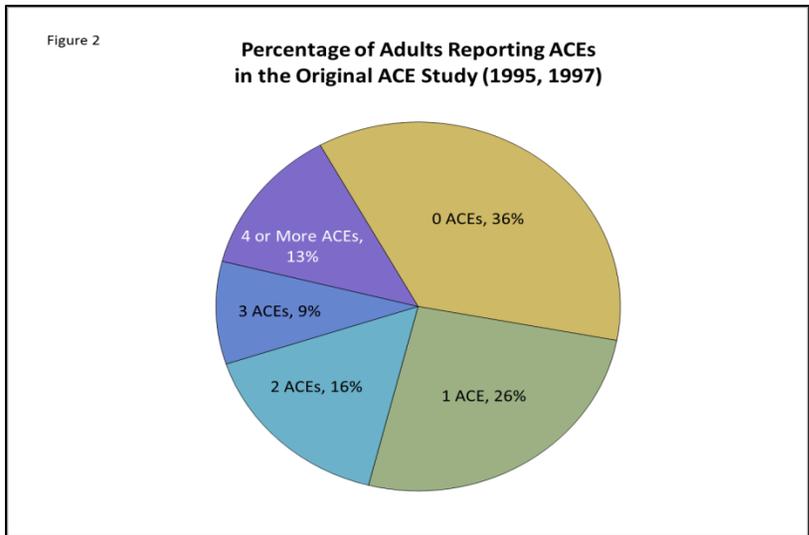
^e While an ACE captures the experience of a traumatic incident or event, it does not measure the frequency or severity of exposure.

^f Figures have been rounded to the nearest whole number.

Prevalence of ACEs

Based on the number of past experiences reported, participants were given an ACE score ranging from 0 to 10. In the original ACE study, almost two-thirds of participants reported at least one ACE (64%). Figure 2 illustrates that it was also common for participants to have experienced more than one kind of adversity in childhood.⁵⁰ Nearly four-in-10 study participants (38%) reported the presence of *two or more ACEs* during their youth, while over one-in-10 study participants reported *four or more ACEs* in childhood (13%). It was also revealed that women were more likely than men to fall in the highest category of ACEs: *four or more* (15% versus 9%).⁵¹

In the original ACE study, 64 percent of participants reported at least one ACE in their past. Physical abuse (28%), household substance abuse (27%), and parental divorce or separation (23%) were the most common ACEs reported.



Minnesota ACE Study

Since the original ACE study in the 1990s, hundreds of additional studies have been conducted using similar trauma definitions to further understand the link between trauma in childhood, and health and wellness in adulthood.

Minnesota gathered state-level information on ACEs for the first time in 2011. All fifty states participate in the administration of a health and behavioral risk factor survey called the *Behavioral Risk Factor Surveillance System (BRFSS)* in collaboration with the Centers for Disease Control. The *BRFSS* is a large-scale telephone survey designed to capture information from adults about their current health, health risk behaviors, and preventative health practices.⁵²

The *BRFSS* is administered in Minnesota by the Department of Health. In 2008, the CDC made available a set of ACE questions for states to use. In 2011, the nine the ACE questions were added to the Minnesota *BRFSS* for the first time. Over 13,500 adult residents were surveyed on their past experiences with trauma.^{53, 54}

The definitions of ACEs on the *BRFSS* are somewhat different than those used in the original ACE study. Household substance abuse was broken into two categories: alcohol and illegal drugs, and there was no assessment for physical or emotional neglect. Finally, the *Mother Treated Violently* ACE was replaced by any domestic violence occurring in the home between adults.⁶

⁶ See Appendix B for ACE definitions used on the 2011 Minnesota *BRFSS*

Type of ACEs Experienced

In 2011, Minnesota adults were most likely to report exposure to emotional abuse from a parent or guardian (28%), followed by exposure to someone in their household who abused alcohol (24%) (Figure 3). Divorce or separation of one’s parents also affected two-in-10 Minnesotan’s surveyed for the *BRFSS* (21%).

Figure 3
Minnesota ACE Categories and Prevalence in Study Population: 2011

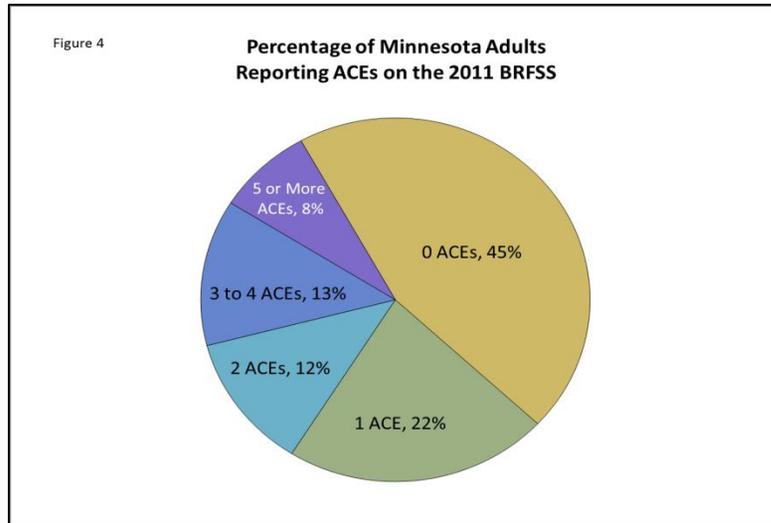
ACE	Prevalence
Emotional Abuse	28%
Household Substance Abuse, Alcohol	24%
Parental Separation or Divorce	21%
Household Mental Illness	17%
Physical Abuse	16%
Witnessed Domestic Violence	14%
Sexual Abuse	10%
Household Substance Abuse, Drugs	10%
Incarcerated Household Member	7%

Some of the least common ACEs, affecting one-in-10 or fewer Minnesota adults was exposure to household drug use (10%); being the victim of sexual abuse (10%); and living with someone who served time in a correctional facility (7%).

Perhaps due in part to changes in the wording and definition of the ACEs, Minnesotans were less likely to report physical abuse than those in the original ACE study (16% v. 28%) but were more likely to report emotional abuse (28% v. 11%).

Prevalence of ACEs

The Minnesota ACE study yielded findings similar to the original ACE study—namely that ACEs are common and tend to occur together. In Minnesota, 55 percent of adults reported one or more ACEs (compared to 64% in the original study). Of all participants, one-third of Minnesotans surveyed reported *two or more ACEs* (33%), compared to 38 percent in the original ACE study (Figure 4).



Consistent with the original study, Minnesota women experienced a greater number of ACEs than men. Fifteen percent of women reported *four or more ACEs* (the same as the original ACEs study), as did 12 percent of men, which is higher than the 9 percent of men on the original ACE study.⁵⁵

In Minnesota, 55 percent of participants reported at least one ACE in their past. Emotional abuse (28%) and alcohol abuse in the household (24%) were most common, followed by parental divorce or separation (21%).

Effect of ACEs on Health and Well-Being

A common goal of ACE studies is to not only understand the level of trauma in people's lives, but also to understand the impact of past trauma on future health. The original ACE study found that as individuals' ACE scores increased so too did reports of the following health issues:⁵⁶

- Heart disease
- Liver disease
- Pulmonary (lung) disease
- Sexually transmitted diseases
- Depression
- Suicide attempts
- Smoking
- Alcoholism and alcohol abuse
- Illicit drug use
- Early onset of sexual activity and multiple sex partners
- Adolescent pregnancy and unintended pregnancy
- Risk of intimate partner violence

Additional reports on the effects of ACEs have found links to health problems such as obesity, headaches, cancer, and autoimmune diseases, as well as personal issues such as work absenteeism and intimate partner violence.⁵⁷

The Minnesota ACE study similarly explored the impact of ACE score on health conditions including asthma, obesity, diabetes, physical disability, depression, and anxiety. In addition, the Minnesota study looked for a relationship between ACE score and education level, marital status, housing status, employment status, and chronic use of alcohol. Data from the Minnesota study will be presented throughout this report in relationship to data collected by youth who completed trauma questions on the Minnesota Student Survey.

PART 3

Study Methodology

Measuring ACEs on the Minnesota Student Survey

While the *MSS* is not designed to comprehensively assess the frequency or intensity of traumatic experiences in the lives of Minnesota youth, it does capture some of the potentially traumatic experiences enumerated by the National Child Traumatic Stress Network, and classified as ACEs by the Center for Disease Control.

Creation of a Comparison Group

For many reasons, youth in correctional facilities who took the 2013 *MSS* comprise a different racial, ethnic and gender demographic than Minnesota’s overall population of students. Those in correctional facilities are disproportionately male (76%) and represent communities of color (66%). Conversely, the mainstream student population who took the *MSS* survey designed for 9th and 11th graders are 50 percent male and 74 percent white, non-Hispanic.^{58,59}

To control for response differences that might be attributable to factors such as race, Hispanic ethnicity, gender, or age, a matched sample of mainstream *MSS* respondents was created. Mainstream surveys selected for analysis in this report come from students who mirror the same demographic attributes as the youth in correctional facilities.

Study Participant Selection

In both student populations, surveys were included in this study if an answer was provided to at least eight of nine trauma-related questions on the *MSS*. Figure 5 illustrates the number of surveys ultimately included in this study from youth in correctional facilities (n=323) and the mainstream matched sample (n=304).

Figure 5 Number of MSS Study Participants, by Youth Population			
Youth Population	Total Surveys Collected	Answered 8 or 9 Trauma Questions	Answered Fewer Than 8 Trauma Questions
Youth in Correctional Facilities	383	323	60 (excluded)
Matched Sample of Mainstream Students	383	304	79 (excluded)

MSS ACEs Questions

The following nine trauma-related questions appear on the 2013 *MSS*. Questions one through seven closely mirror ACE study questions, while questions eight and nine were selected for this study because they capture experiences with physical violence and sexual coercion in the context of youths’ dating relationships.

The *MSS* does not contain questions specifically about divorce or separation of parents, neglect, or whether youth live with someone who has mental illness.^h

1. **Physical Abuse:** Has a parent or another adult in your household ever hit, beat, kicked, or physically hurt you in any way?
2. **Emotional Abuse:** Does a parent or other adult in your home regularly swear at you, insult you, or put you down?
3. **Sexual Abuse:** Has any adult or person outside of the family ever touched you sexually against your wishes or forced you to touch them sexually? **<and/or>** Has any older or stronger member of your family ever touched you or had you touched them sexually?
4. **Substance Abuse, Alcohol:** Do you live with anyone who drinks too much alcohol?
5. **Substance Abuse, Drugs:** Do you live with anyone who uses illegal drugs or abuses prescription drugs?
6. **Domestic Violence:** Have your parents or other adults in your home ever slapped, hit, kicked, punched, or beat each other up?

^h See Appendix B for a table detailing differences between the Minnesota ACE study questions and the *MSS*.

7. **Parent Incarceration:** Have any of your parents or guardians ever been in jail or prison? (*Yes, Currently, <and/or> Yes, in the Past* responses)
8. **Dating Violence:** Have you ever had a boyfriend or girlfriend in a dating or serious relationship who hit, slapped, or physically hurt you on purpose?
9. **Dating Sexual Coercion:** Have you ever had a boyfriend or girlfriend in a dating or serious relationship who pressured you into having sex when you didn't want to?

Grouping by ACE Score

Youth were counted as having experienced an ACE if they responded affirmatively to any one of the nine aforementioned questions on the *MSS*.

Because research supports that problems increase for youth who experience a greater range of trauma, youth in both the correctional facility population and the mainstream student population were grouped by the number of ACEs reported. If youth reported disagreement with all questions, they were placed in the *no ACEs* group. Youth who responded affirmatively to other questions were grouped as having *one ACE, two to three ACEs, or 4 or more ACEs*.

Comparative Analysis and Statistical Significance

Using an analysis tool known as a “chi-squared test of independence,” true statistical differences between youth who

experience different levels of trauma can be identified.ⁱ Statistical comparisons were conducted between the four trauma groups in correctional facilities, as well as between the four trauma groups in the mainstream population. This report will highlight areas where trauma score has a statistically significant impact on other areas of life.

While data for youth in correctional facilities and those of mainstream youth are presented together in this report, they have not undergone *statistical comparison*. They are graphed together to illustrate that similar populations can have different experiences with trauma.

Finally, this report will compare the number and nature of ACEs captured on the *MSS* to those reported by adults on the 2011 Minnesota *BRFSS*. These, too, are observed differences only. Statistical analysis was not completed between the adult and youth populations. Note also that adults who took the *BRFSS* and comprise participants in the Minnesota ACE study are a different demographic yet. 2011 *BRFSS* respondents are 43 percent male and 91 percent white, non-Hispanic.⁶⁰ These analyses serve as a starting point for discussion about trauma in the lives of Minnesotans but are not a controlled comparison study.

Data Limitations

This report potentially underrepresents the level of trauma experienced by youth in several ways:

ⁱ Unless otherwise noted in the text, data in this report will be presented when there is a statistically significant difference based on the Pearson Chi-Square Coefficient ($\chi^2 \leq .05$).

- Youth are excluded from analysis if they did not respond to at least eight of the nine trauma questions. Consequently, youth who may have answered affirmatively to one or more trauma questions but left other questions unanswered are not included in the analysis. More youth may have experienced trauma than are captured here.
- Many common types of trauma described by the NTSB that affect youth are not captured in the *MSS*. Youth may have additional trauma exposures, including loss or death of caregivers, friends or other loved ones; being the victim of a crime or a violent crime; witnessing death, violence or injury; or experiencing a severe accident or medical procedure.
- Minnesota has several large immigrant and refugee populations. Some youth in Minnesota's juvenile justice system have been exposed to violence, relocation, and acculturation connected to conflict and war-torn regions or these issues have affected immediate family members.
- One of the most difficult forms of trauma to capture and measure is that of chronic neglect. Neglect generally means that the basic health and emotional needs of children are not being met, including access to food, sleep, sanitary conditions, clothing and physical care. It also includes unmet emotional needs. The *MSS* does not capture any indicators of neglect.
- The *MSS* provides no information about the number of times a youth has experienced a particular trauma indicator (frequency), how long the trauma has been occurring (duration), the age the trauma began (onset), or the severity of the trauma (intensity).

Part 4 Data Findings

Respondent Demographics

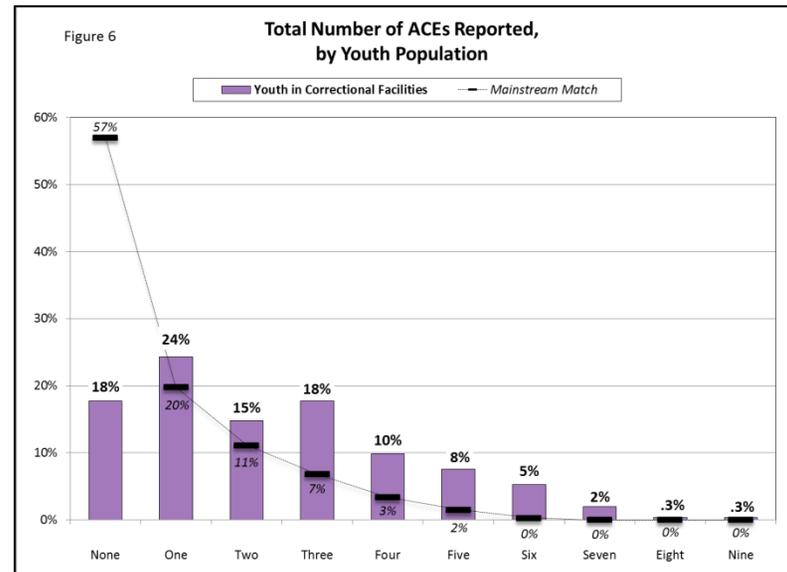
The following section explores both the number and the type of ACEs reported by youth in correctional facilities and their mainstream counterparts. These findings have been compared to those of adults in the Minnesota ACE study. This section also includes exploration of whether gender and race are factors in the number or type of ACEs reported.

Number of ACEs Selected

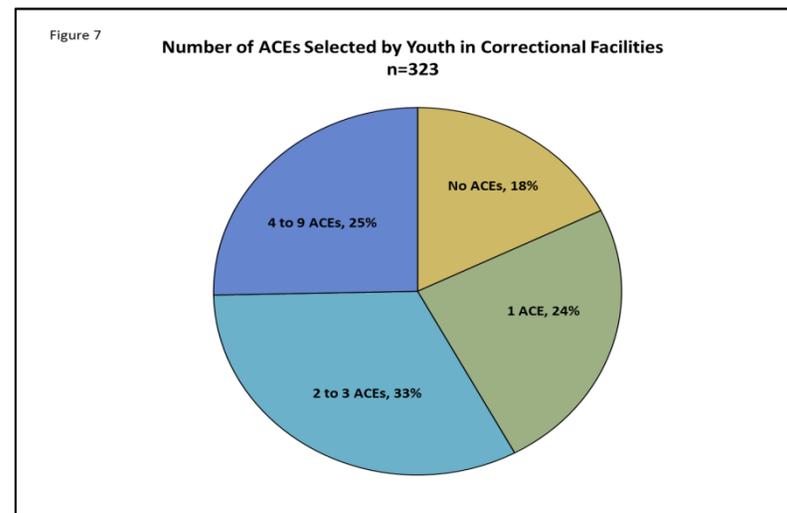
Youth in Correctional Facilities

MSS data support prior research findings that justice system-involved youth are more likely than their peers to have experienced trauma, including multiple types of victimization. Figure 6 shows the exact number of ACEs reported by each student population. (The responses of youth in correctional facilities are depicted by the bar graph; those of mainstream youth are overlaid using a line graph).

Youth in Minnesota correctional facilities are more likely than not to have experienced ACEs. Over 82 percent reported at least one ACE, compared to just 18 percent who reported experiencing *no* ACEs. Collectively, 57 percent of youth in correctional facilities reported between *one* and *three* ACEs. As ACEs increased beyond three, smaller percentages of youth were affected.



When youth in correctional facilities are placed into one of four trauma groups (Figure 7), it is clear to see that it is common for youth in correctional facilities to report multiple ACEs. Collectively, over half of respondents reported *two or more* ACEs (58%), while one-quarter reported *four or more* ACEs (25%).

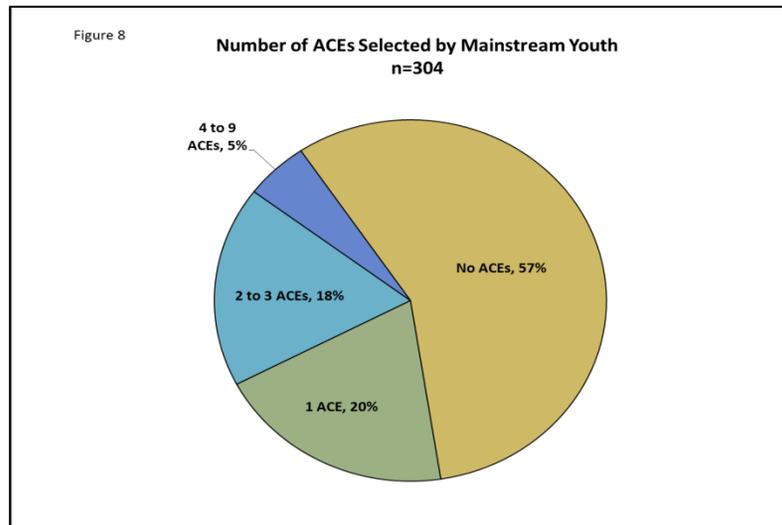


Mainstream Youth

Mainstream youth are considerably less likely to report ACEs than youth in correctional facilities. Nearly six-in-10 mainstream youth reported *no ACEs* (57%) compared to just 18 percent of youth in correctional facilities (Figure 8).

Mainstream youth are also less likely to report multiple ACEs than youth in correctional facilities. While 58 percent of youth in correctional facilities reported *two or more ACEs*, this was true for less than one-quarter of mainstream youth (23%). Youth in correctional facilities are five times more likely than their mainstream peers to report *four or more ACEs* (25% v. 5%).

Furthermore, no mainstream youth reported *six or more ACEs* (Figure 6) compared to nearly 8 percent of youth in correctional facilities.



Minnesota Adults

Comparison to data collected for the Minnesota ACE study show that a greater percentage of youth in correctional facilities report adverse childhood experiences than Minnesota adults.

According to the Minnesota ACE study, 45 percent of adults reported *no ACEs*, compared to 18 percent of youth in facilities. Youth in correctional placements are 2.5 times more likely to have at least one ACE in their past than Minnesota adults. Conversely, mainstream youth are more likely than Minnesota adults to report *no ACEs* (57%).

ACEs are already present in the lives of youth in correctional facilities at a higher rate than the adult population and more than their mainstream peers. In addition, the potential exists for ACEs in both student populations to increase further before they reach age 18, as one-third of youth in this study (33%) are age 15 or younger.

Type of ACEs Selected

Youth in Correctional Facilities

By far the most common ACE reported among youth in correctional facilities (Figure 9) is parents or guardians who had been to jail or prison (64%), followed by nearly one-third who indicated they live in a household with an adult who physically hurts them (32%).

Close to one-quarter of youth in correctional facilities reported they have been the victim of verbal or emotional abuse at home (24%); they live with adults who physically hurt each other (23%); or they live with someone who uses or abuses drugs (23%). Youth in correctional facilities are least likely to report they have been the victim of sexual coercion in a dating relationship (16%).

Across all types, more youth in correctional facilities reported ACEs than their mainstream peers, even when controlling for age, race

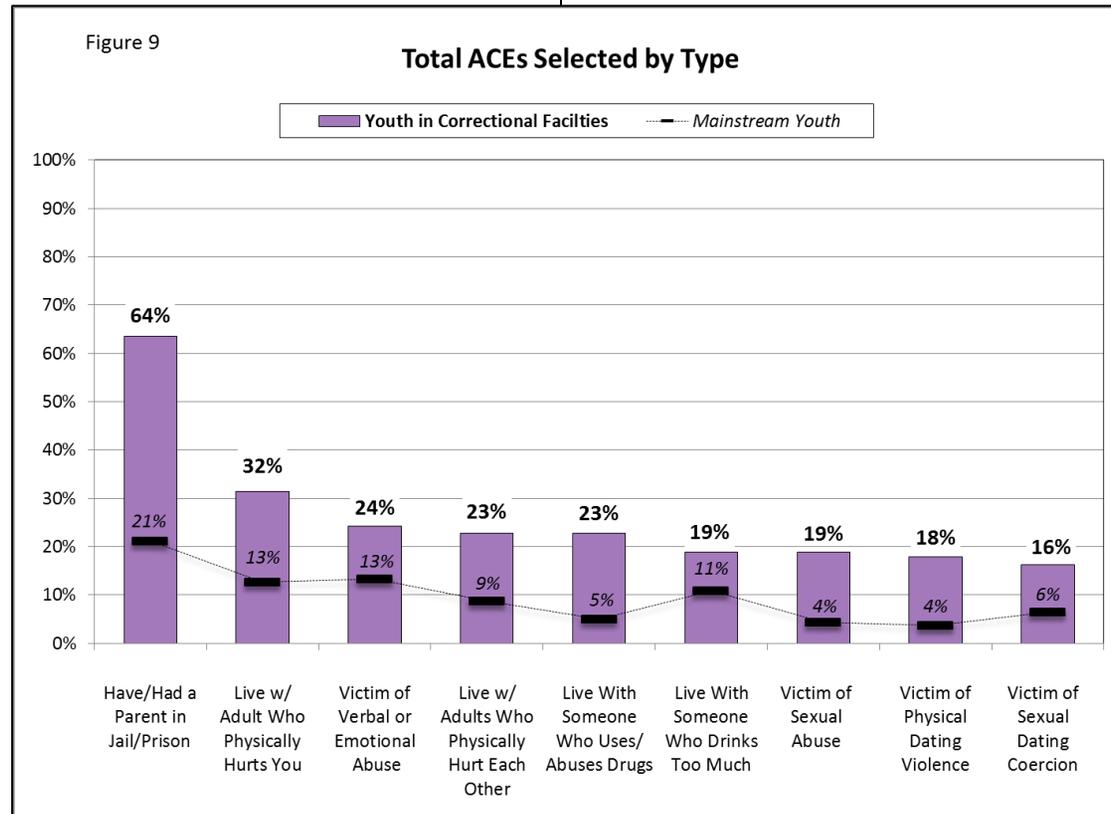
and gender. In many instances, the prevalence of ACEs among youth in correctional facilities is two to three times that of mainstream youth.

Mainstream Youth

As with youth in correctional facilities, the most common category of ACE reported by mainstream youth is “have/had a parent in jail or prison” (21%). Also like youth in facilities, mainstream youth reported physical abuse and verbal or emotional abuse as the second and third most prevalent types of trauma (13%, respectively).

Mainstream youth are least likely to report living with someone who uses drugs (5%); that they have been the victim of sexual abuse (4%); or experienced physical violence in a dating relationship (4%).

For youth in correctional facilities, these three ACEs each affected approximately two-in-10 youth (18% to 23%).



Minnesota Adults

When the ACEs selected by youth on *MSS* are compared directly to ACEs selected by adults on the *BRFSS*, there are some notable differences. These must be viewed with caution, however, as wording in the two surveys differs on some questions.

For example, the most common ACE reported by youth was parent incarceration (Figure 10). Just seven percent of adults reported they lived with someone who had been incarcerated. However, youth are asked if their parents or guardians have “ever been to jail or prison” while adults were asked if they lived with someone who “served time” in a jail, prison or other correctional facility. Adults may interpret “served time” differently than the question posed to youth.

An additional factor to consider is that persons of color are the majority of the incarcerated population in Minnesota. Youth represented in the *MSS* data are mostly youth of color (66%) whereas adults who took the *BRFSS* are overwhelmingly white (91%). These two populations may have unique experiences with incarceration that may affect the data.

Adults were most likely to report having experienced emotional abuse (28%) and alcohol use in the household (24%). Youth in correctional facilities reported these ACEs at 24 percent and 19 percent, respectively. Mainstream youth almost exclusively reported the least experience with individual ACEs, while youth in correctional facilities reported the most. Larger percentages of youth in correctional facilities have been exposed to most ACEs than even adults in the general population.

Figure 10
Frequency of ACEs by Type

ACE	Youth in Correctional Facilities	Mainstream Youth	MN Adults
Parent Incarceration	64%	21%	7%
Physical Abuse	32%	13%	16%
Emotional Abuse	24%	13%	28%
Witness Domestic Violence	23%	9%	14%
Illegal Drugs in Household	23%	5%	10%
Problem Drinker in Household	19%	11%	24%
Victim of Sexual Abuse	19%	4%	10%
Victim of Physical Dating Violence	18%	4%	**
Victim of Sexual Dating Coercion	16%	6%	**
Mental Illness in Household	**	**	17%
Separated or Divorced Parents	**	**	21%

Bold=Highest Reported **Question Not Asked

Number and Type of ACEs by Gender

Studies support that males and females report exposure to different types of trauma, and that females report exposure to a greater variety of trauma events than males.⁶¹ Both the original ACE study and the Minnesota ACE study found that women are more likely to experience multiple ACEs than men. MSS data also support that girls are statistically more likely than boys to respond affirmatively to certain ACEs and to report more total ACEs.

Youth in Correctional Facilities

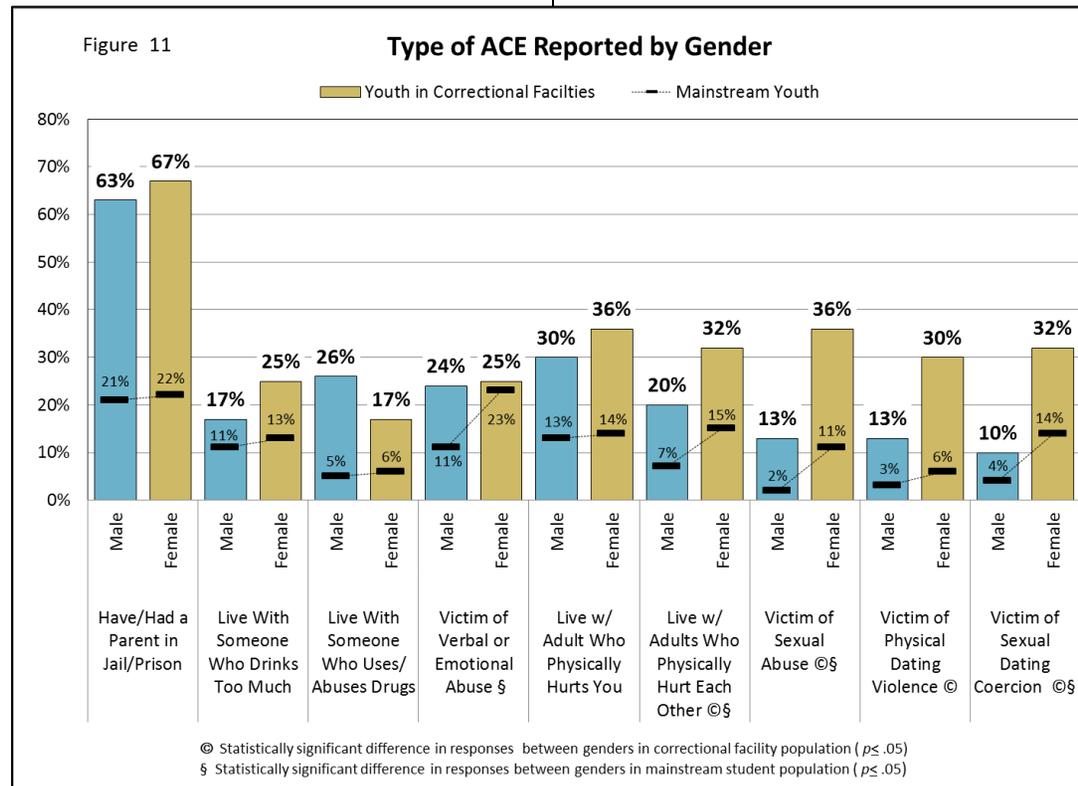
MSS data illustrate that, in some areas, girls and boys in correctional facilities report comparable levels of trauma. Boys and girls are not statistically different in their reports of parental incarceration; physical or emotional abuse at home; or living with someone who abuses alcohol or drugs (Figure 11).

Girls in correctional facilities are, however, statistically more likely than boys to report

they live with adults who physically hurt each other (32% v. 20%); and that they have been the victim of sexual abuse by a familial or non-familial perpetrator (36% v. 13%). Girls are also more likely than boys to have experienced dating violence (30% v. 13%) and sexual coercion in a dating relationship (32% v. 10%).

Girls in correctional facilities are more likely than boys to report experience with any trauma, as well as multiple traumas. Just 8 percent of girls in correctional facilities reported *no ACEs* compared

to 21 percent of boys (Figure 12). Three-quarters of girls reported *two or more ACEs* (75%) compared to half of boys (51%). Finally, girls are more likely to be in the highest trauma group: 35 percent of girls reported *four or more ACEs* compared to 21 percent of boys.



ACE categories, the level of reporting was quite comparable (Figure 11).

Mainstream Youth

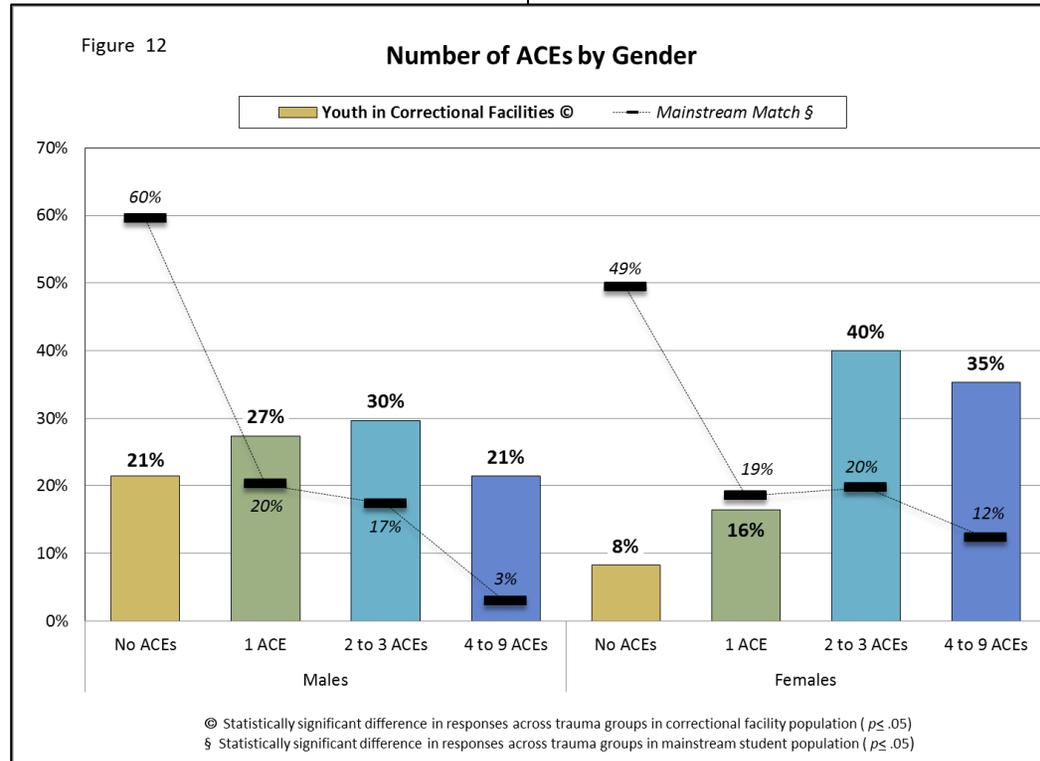
Among mainstream students, there is less variability between the types of trauma reported by girls and boys. Across numerous

Mainstream girls are, however, statistically more likely than boys to report: living with adults who physically hurt each other (15% v. 7%); having been the victim of familial or non-familial sexual abuse (11% v. 2%); and having been the victim of dating sexual coercion (14% v. 4%). In the mainstream student population, girls are also statistically more likely than boys to report being the victim of verbal or emotional abuse (23% v. 11%), which was not the case for youth in correctional facilities.

Mainstream girls are statistically more likely to report *any* ACEs than boys. Among mainstream students, 51 percent of girls selected at least one ACE compared to 40 percent of boys (Figure 12). Mainstream girls were more likely than boys to select *four or more ACEs* at 12 percent and 3 percent, respectively.

Girls in correctional facilities are more likely to have experienced multiple ACEs than girls in mainstream schools: Seventy-five percent of girls in correctional facilities reported *two or more ACEs* compared to 32 percent of mainstream girls. Both girls in correctional facilities and mainstream girls are more likely than their

male counterparts to report witnessing domestic violence. Finally, girls in both student populations reported more sexual abuse than boys. It is noteworthy, however, that over one-in-10 boys in correctional facilities reported being victims of sexual abuse (13%).



Minnesota Adults

In the Minnesota ACE study, women were more likely than men to report witnessing domestic violence (16% v. 13%); living with someone with mental illness (19% v. 14%); living with a problem drinker (26% v. 22%); and having been the victim of sexual abuse (14% v. 6%).

Girls in correctional facilities are more likely to report exposure to certain types of trauma.

Sixteen percent of women reported physical abuse compared to 36 percent of girls in facilities. Similarly, 36 percent of girls in correctional facilities reported sexual abuse compared to 14 percent of women. The only ACE where women reported a higher prevalence than girls in correctional facilities was exposure to emotional abuse (29% v. 25%).

Women respondents to the *BRFSS* reported more exposure to multiple ACEs than men. Fifteen percent of women reported *four or more ACEs* compared to 12 percent of men. Still, 35 percent of girls in correctional facilities and 12 percent of mainstream girls reported *four or more ACEs*. While these results are not directly comparable since the two surveys count some different types of ACEs, they still illustrate the prevalence of trauma among female youth in Minnesota.

Number and Type of ACEs by Race and Ethnicity

All races and ethnicities report experiences with trauma. There are, however, some types of trauma that disparately affect certain communities. Youth from communities of color may have greater exposure to certain types of violence or trauma connected to socio-economic status, such as community violence.⁶²

Due to relatively small sample sizes of unique racial groups, this MSS analysis compares the responses of all white, non-Hispanic youth to those of all youth of color combined. While certainly an imperfect assessment of trauma and race, these data provide a first glimpse into the impact of race on ACEs for Minnesota students.

Youth in Correctional Facilities

Among youth in correctional facilities, there is no statistically significant difference in the number of ACEs reported by white youth as compared to all youth of color combined. Figure 13 illustrates that both populations in correctional

facilities reported *no ACEs* with comparable frequency (18% and 17%).

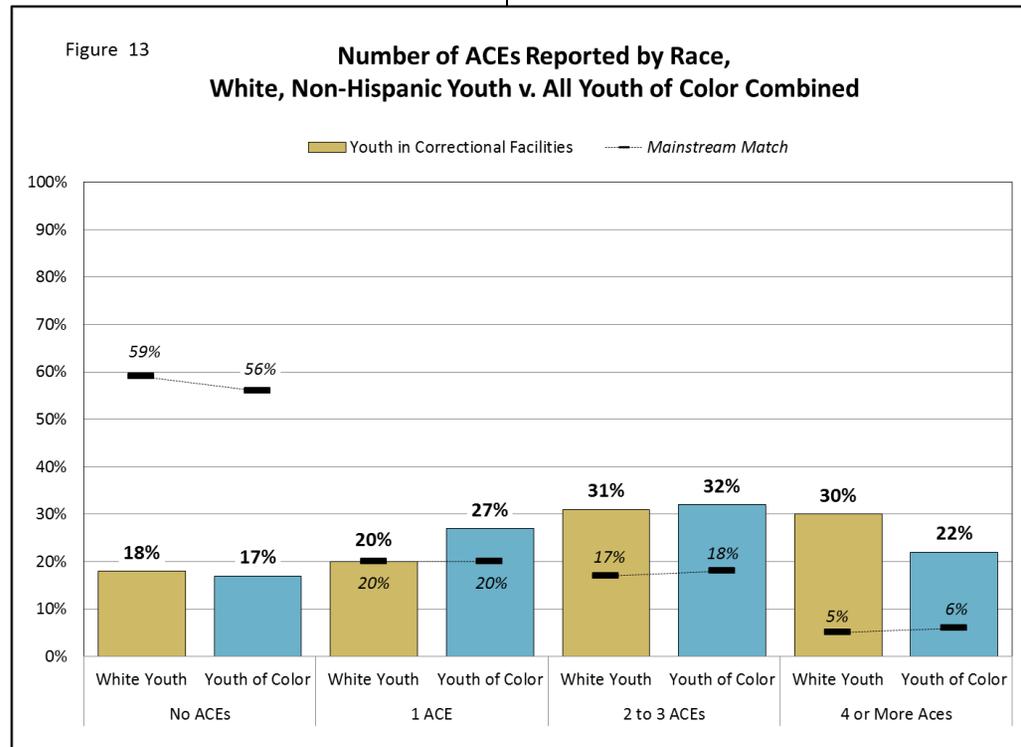
A comparison between white youth and youth of color in correctional facilities on types of ACEs reported does not reveal statistically significant differences. In both populations, having had a parent or guardian in prison or jail was most common, followed by having had an adult in their home who physically hurt them. Figure

14 illustrates that the responses of white youth and youth of color are within a few percentage points on most ACEs.

Mainstream Youth

As with youth in correctional facilities, mainstream white youth and mainstream youth of color have no statistically significant difference in the number of ACEs reported. White youth reported *no ACEs* at 59 percent and youth of color at 56 percent

(Figure 13). Within the other ACE score groupings, the number of ACEs reported by white youth and youth of color were within one percentage point of each other.

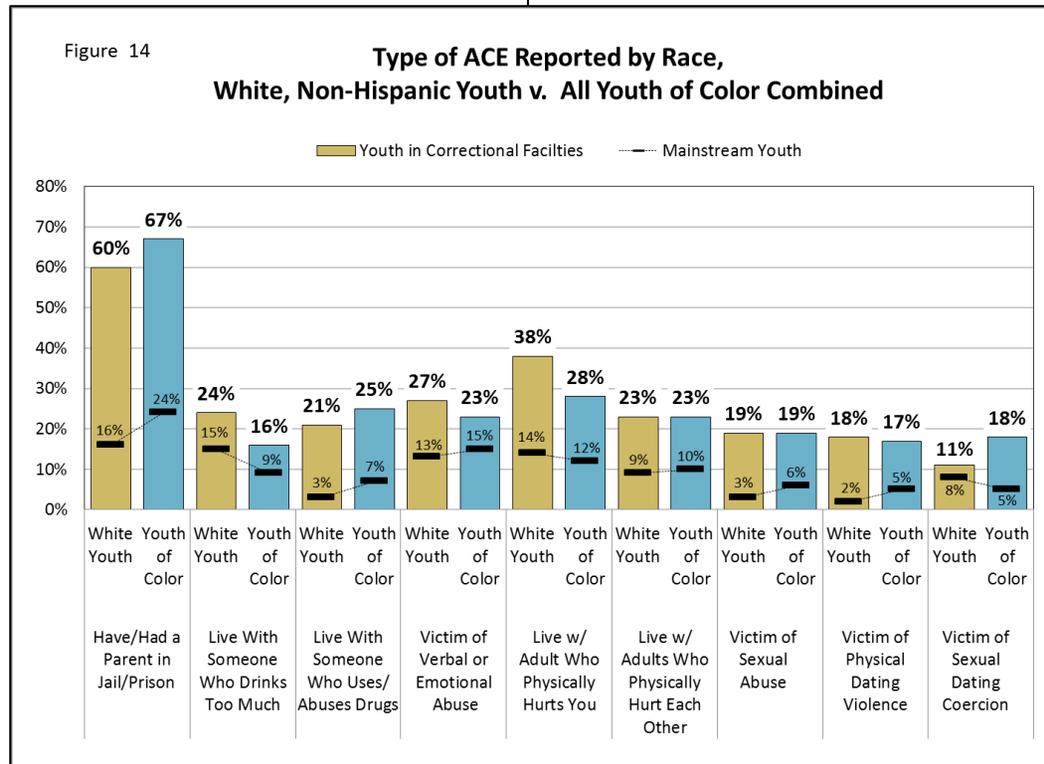


As with youth in correctional facilities, there is no statistically significant difference between white youth and youth of color among mainstream youth with regard to the types of ACEs reported (Figure 14). In most cases, the difference in the prevalence of each ACE between the two racial groups is within a few percentage points.

While the ACE study of Minnesota adults had a large sample size (over 13,000), most of these participants (91%) were white. Because of this, researchers could explore whether communities of color generally reported more or fewer ACEs, but could not delve deeper into the types of ACEs reported.

Minnesota Adults

In the Minnesota ACE study, respondents identifying as Asian or white were most likely to report *no ACEs* (52% and 46%) while American Indian respondents were least likely to report *no ACEs* (22%). Conversely, American Indians were most likely to report *five or more ACEs* on the *BRFSS* (23%) followed by African American respondents (19%). White and Asian respondents were least likely to report *five or more ACEs* at 7 percent and 4 percent, respectively.



Demographic Section Summary

- Minnesota ACE study data showed that 55 percent of adults reported at least one ACE occurring in childhood. 82 percent of youth in correctional facilities who took the *MSS* reported at least one ACE compared to 43 percent of a matched sample of mainstream students.
- Minnesota ACE study data show that 33 percent of adults reported *two or more ACEs* compared to 58 percent of youth in correctional facilities who took the *MSS*. Mainstream students are least likely to report multiple ACEs (23%).
- Emotional abuse in the household was the most common ACE reported by adults (28%). Both youth in correctional facilities and mainstream youth are most likely to report incarceration of a parent (64% and 21%, respectively).

- Women who took the *BRFSS* and girls who took the *MSS* are both more likely than their male counterparts to report *four or more ACEs*. Females are statistically more likely than males to have been exposed to multiple types of trauma.
- An analysis of the responses of white youth to the *MSS* compared to those of all youth of color combined reveal no statistically significant differences in the number or type of ACEs experienced. The ACE study of Minnesota adults found that Asians and whites were most likely to report *no ACEs*, while African Americans and American Indians were most likely to report *five or more ACEs*.

School Indicators

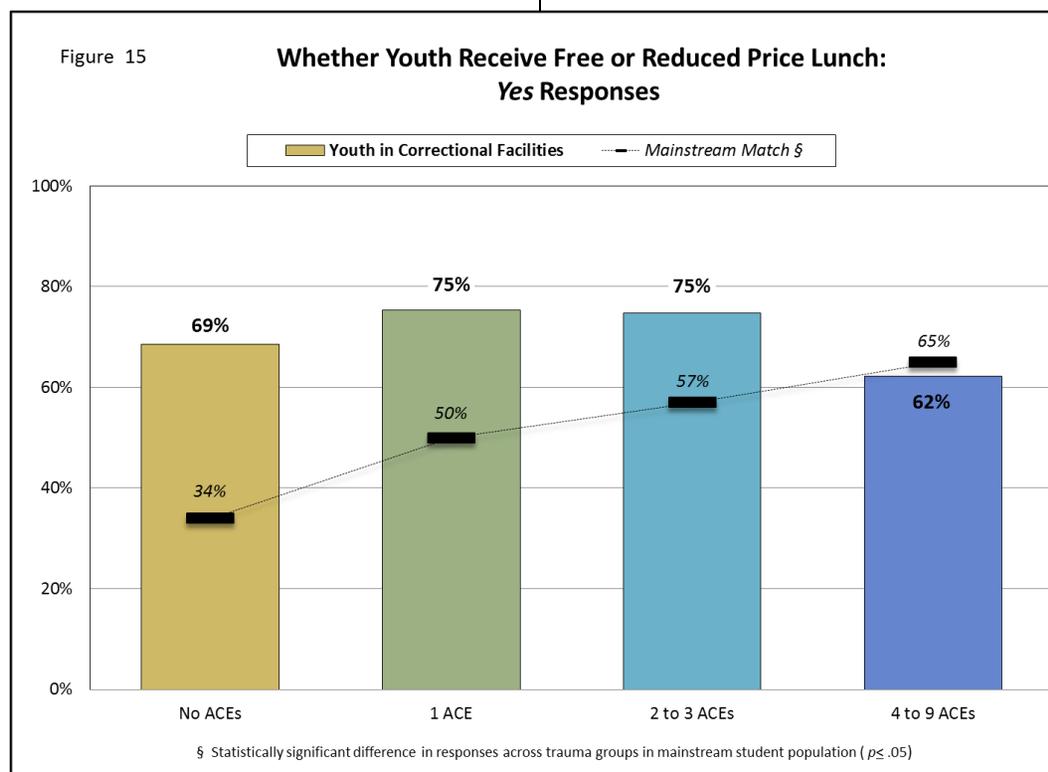
For youth, a favorable attitude toward school, school success, school attachment, and school commitment are protective factors against delinquency.⁶³ Exposure to trauma can have an effect on school success including academic performance, attendance, and behavior.⁶⁴ The following section explores the role trauma plays in special education, school stability, and future education plans. Many questions on the MSS are designed to measure school engagement, a few of which are presented here.

Free or Reduced Price Lunch

One question on the MSS that provides information about youths' socio-economic status is whether they receive Free or Reduced Price Lunch (FRPL) at school. Youth are eligible to receive FRPL based on their household income level or meeting other categorical eligibility criteria.⁶⁵

Youth in Correctional Facilities

There is no statistical difference between youth in correctional facilities who report ACEs and those who do not as it relates to Free or Reduced Price Lunch status. Figure 15 illustrates that over six-in-10 youth across each trauma group report that they receive FRPL (62% to 75%). Possibly, the range of income levels among families of youth in correctional facilities is not broad enough to illuminate differences.



Mainstream Youth

Among the mainstream matched sample, there is a statistically significant difference in FRPL status by trauma group. The percentage of youth who report they receive FRPL at school increases from 34 percent among those reporting *no ACEs*, to 65 percent among those who reported *four or more ACEs*. Among

mainstream youth, as ACEs increase, so too does the percentage of youth receiving FRPL suggesting a link between trauma and socio-economic status.

Minnesota Adults

The Minnesota ACE study does not contain information about participants' income level but does include several questions about financial status. Participants were asked if they own or rent their homes, and if they have concerns about their ability to make rent or mortgage payments.

The Minnesota ACE study found that ACEs are more common among those who rent rather than own their homes, and among those who often worry about the ability to pay their rent or mortgage. Among renters, 33 percent reported *three or more ACEs* compared to 18 percent of homeowners. Similarly, 44 percent of people who *usually* or *always* worry about paying their rent/mortgage have *three or more ACEs* compared to 14 percent of those who *never* worry about paying for their housing.

Individualized Education Programs

Research on the effects of trauma has found that trauma can affect youth both cognitively and behaviorally. Youth with more ACEs may be in greater need of learning services or behavioral support of the type delivered through an Individualized Education Program (IEP). On the *MSS*, youth were asked whether they currently have an IEP or receive special education services. No information is captured on the *MSS* regarding the reason for the IEP.

Youth in Correctional Facilities

For youth who took the *MSS* in correctional facilities, there is no statistical relationship between the number of ACEs reported and IEP status. Regardless of trauma score, between 47 percent and 53 percent of youth reported they have an IEP or receive special education services (Figure 16). The prevalence of IEPs among youth in correctional facilities overall is considerably higher than is observed for their mainstream counterparts (11% to 25%).

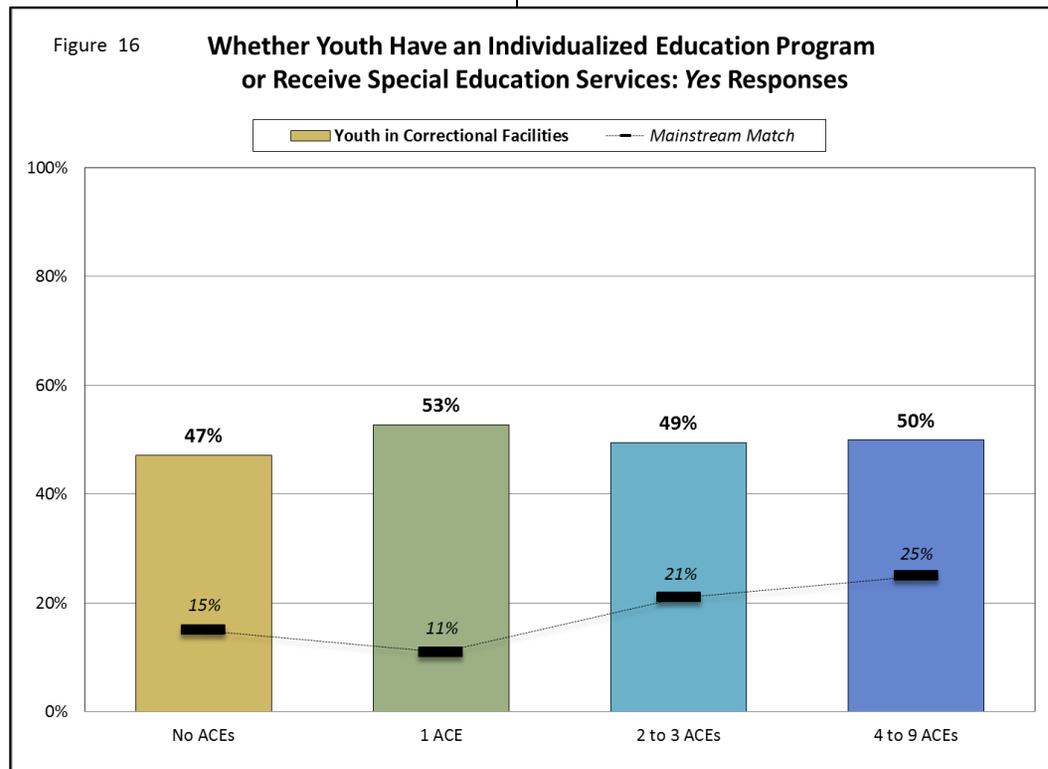
Mainstream Youth

Among mainstream youth, larger percentages of those with *two or more ACEs* indicated they have an IEP or receive special education (21% to 25%) as compared to those with *one or no ACEs* (15% and 11%, respectively). The difference is not statistically significant, however, so it cannot be concluded that a strong relationship exists between ACE score and IEP services for mainstream youth or youth

in correctional facilities in this study.

Minnesota Adults

There is no information collected in the Minnesota ACE study about adults' history with learning support.



School Changes

Youth taking the *MSS* are asked how many times they have changed schools in the past year, as disruptions can affect school engagement and academic success. Youth can change schools during the year for many reasons including the need for a more appropriate learning setting; disciplinary issues; or a caregiver who moves to gain housing or employment. No information as to why youth have changed schools is gathered on the *MSS*.

Youth in Correctional Facilities

Overall, youth in correctional facilities are far more likely to report multiple school changes in the past year than mainstream students.

Of youth who changed schools two or more times during the past year, ACEs are common (Figure 17). Of youth who reported any ACEs, approximately half (49% to 55%) changed schools two or more times, compared to one-third of youth with *no ACEs* (33%). It is possible that the youth are counting their transition to the correctional

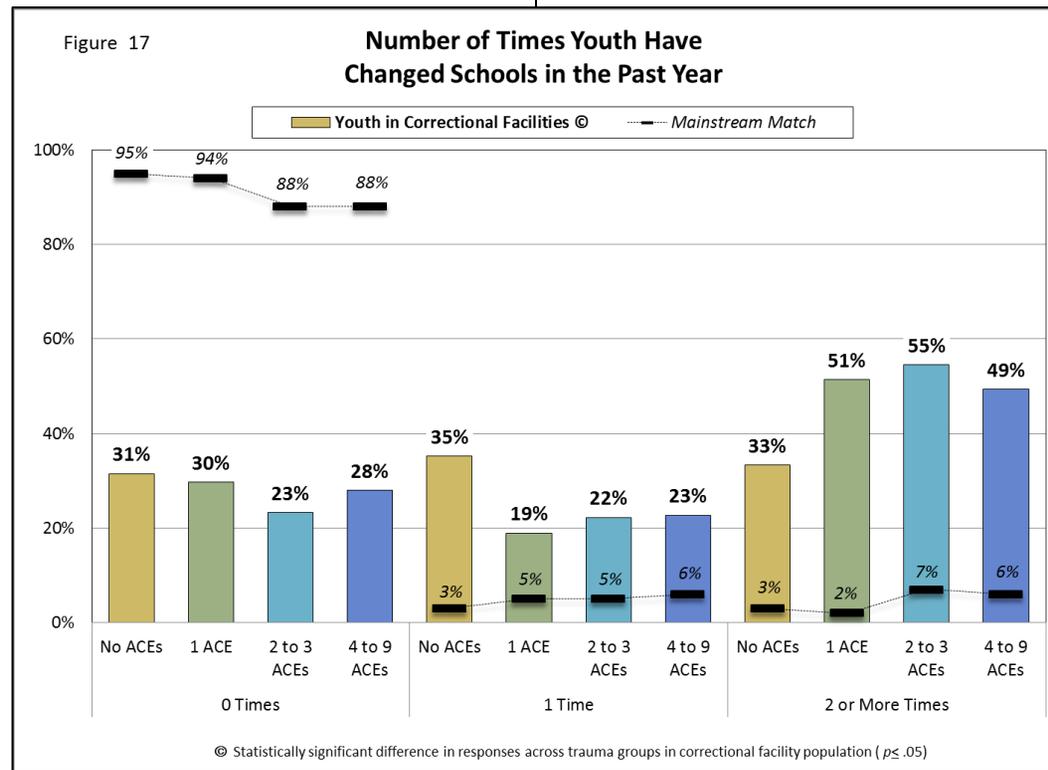
facility as one school change. Nevertheless, there is a statistically significant relationship between ACE score and school changes in the correctional facility population.

Mainstream Youth

MSS data suggest that mainstream students generally do not experience frequent school changes. Nearly 90 percent of students across all ACE groupings reported they have not changed schools in the past year. Among mainstream youth, ACE score and school changes are not statistically related.

Minnesota Adults

There is no information collected in the Minnesota ACE study about adults' history of school transitions.



Education Plans

On the *MSS*, students are asked to indicate their education or employment plans immediately following high school. Several of the most common response selections are depicted in Figure 18. Plans to attend a 2-year or 4-year college have been combined into one response for this analysis.

Youth in Correctional Facilities

Based on ACE score, youth in correctional facilities do not have statistically significant differences in their education or employment goals after high school. Across all ACE groupings, the largest percentages of youth wish to attend a 2- or 4-year college (39% to 56%). Between 17 percent and 22 percent of youth in correctional facilities plan to work right after high school (Figure 18).

Across all ACE scores, youth in correctional facilities are more likely than their mainstream peers to indicate they either do not plan to graduate; plan to get a GED; or plan to work a job after graduation.

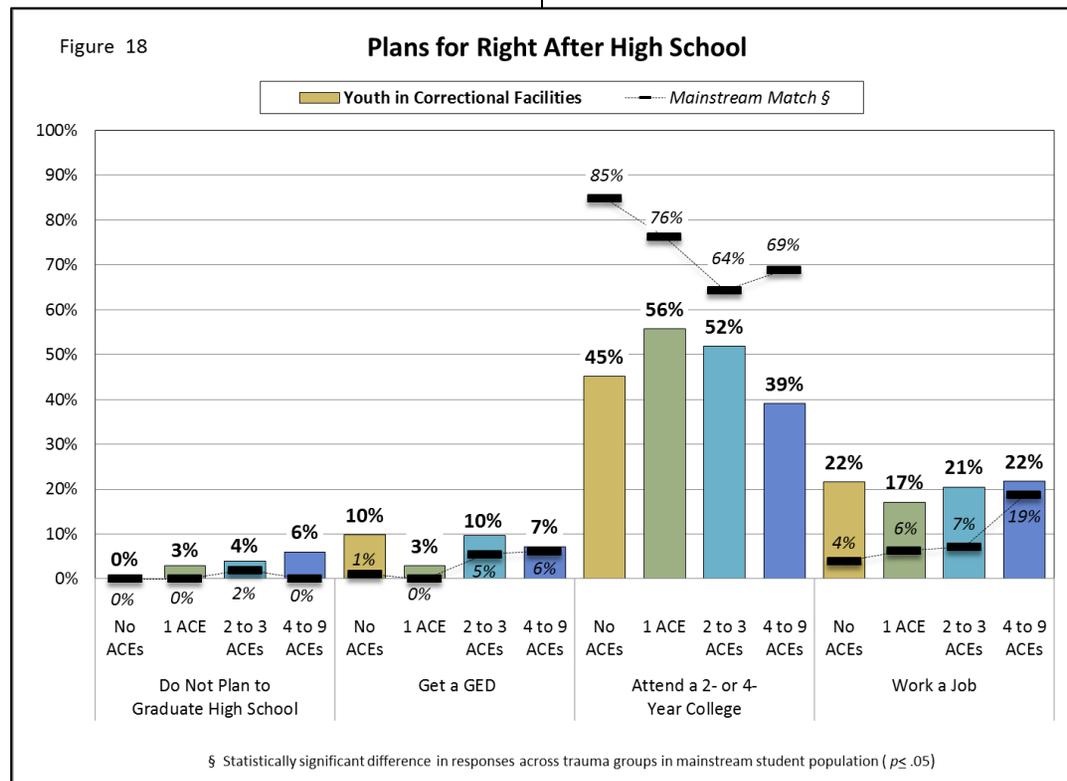
Mainstream Youth

Unlike youth in correctional facilities, school plans for mainstream youth are statistically related to ACE score. Youth who reported *two or more ACEs* are least likely to plan to go to college (64% to 69%)

compared to those with *no ACEs* or *one ACE* (76% to 85%). In addition, youth with *four or more ACEs* are more likely to plan to work a job immediately after high school (19%) than their peers with fewer ACEs (4% to 7%).

While ACEs do not appear to affect the education plans of youth in correctional facilities, mainstream youth with higher ACEs may be more likely to work a job after high school and not complete a degree. Consequently, overall

educational attainment, earning potential, and employability may be reduced in adulthood for those with higher ACEs.



Minnesota Adults

Data collected in the Minnesota ACE study found that adults who experienced more ACEs as youths had lower levels of educational attainment. Of those who had less than a high school degree, 30 percent had *three or more ACEs*. Conversely, those with *three or more ACEs* were just 16 percent of those who graduated college.

The Minnesota ACE study also explored other outcomes for adults, which are potentially connected to education level. Unemployment and homeownership were both affected by trauma. ACEs are more common among the unemployed population. Thirty-seven percent of those who reported they were unemployed on the *BRFSS* had *three or more ACEs*. Of the employed, 21 percent had *three or more ACEs*.

In addition, those with *no ACEs* or *one ACE* were most likely to own their own homes (71%), and those with *no ACEs* or *one ACE* were most likely to report that they *never* worry about paying their rent or mortgage (76%). Post-secondary education, employment, and earnings appear to have a relationship with the number of ACEs reported by adults on the Minnesota *BRFSS*.

School Indicators Section Summary

- Among youth in correctional facilities, Free or Reduced Price Lunch status is common across all ACE groups. Students in mainstream schools who report higher ACE scores are statistically more likely to receive FRPL.
- Whether youth have an IEP is not connected to ACE score in either student population. Youth in correctional facilities across all ACE scores are more likely to have an IEP than mainstream youth.
- Youth in correctional facilities are very likely to report multiple school changes in the past year, especially as compared to their mainstream peers. While there is no relationship between ACE score and school changes for mainstream youth, youth in correctional facilities with any ACEs are more likely than those with none to have changed schools *two or more times* in the past year.

- The prevalence of ACEs does not have a statistically significant effect on the future education or employment goals of youth in correctional facilities. Among mainstream youth, those with the most ACEs are more likely to plan to work a job right after high school and least likely to plan to attend college.
- The Minnesota ACE study of adults found a relationship between ACEs and post-secondary education, unemployment, homeownership and financial stressors. Those with the fewer ACEs were more likely to be college graduates, employed, own their own homes, and not worry about paying for housing.

Health Indicators

The areas in which the effects of ACEs have been most comprehensively explored relate to physical and emotional health. ACEs have been shown to have many effects on health in adulthood. Both the *BRFSS* and the *MSS* ask respondents questions about their current state of health and the presence of certain medical conditions.

Perceived Health

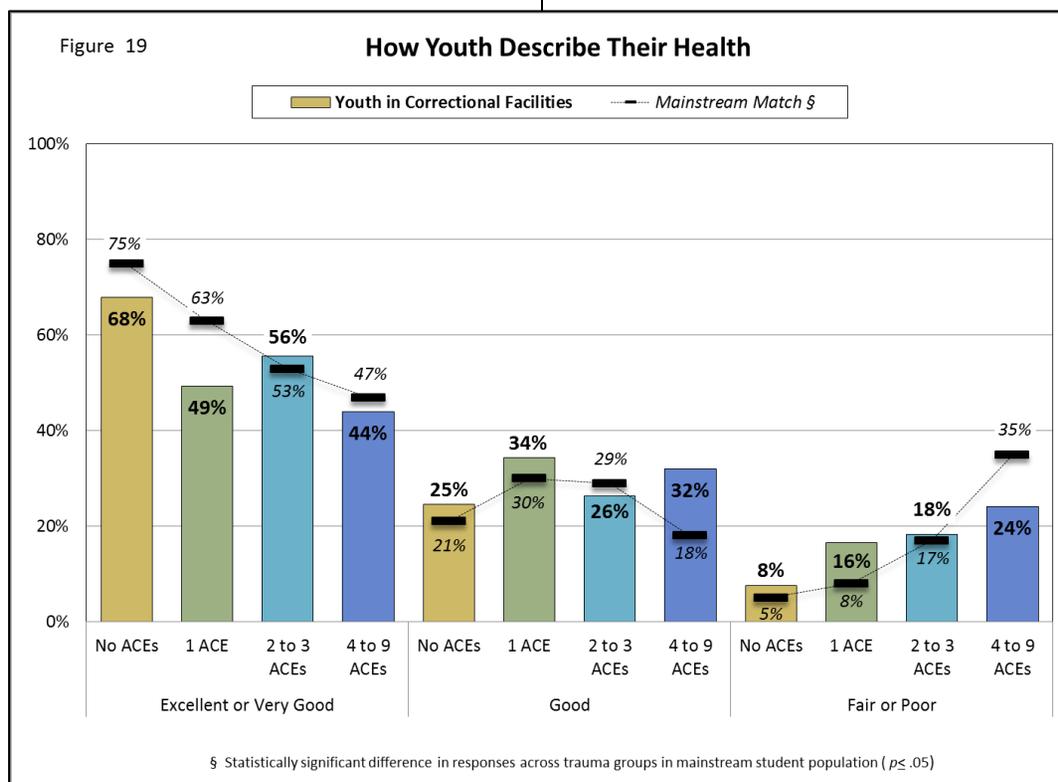
Youth in Correctional Facilities

Figure 19 illustrates that youth in correctional facilities with higher ACE scores are more inclined to report their overall health is *fair* or *poor* (24%) than their peers with *no ACEs* (8%). Youth with the most ACEs were least likely to rank their health as *excellent* (44%).

Nevertheless, differences in perceptions about health across ACE scores do not reach the level of statistical significance for the correctional facility population.

Mainstream Youth

Mainstream youth do have statistically different perceptions of their health based on ACE score. There is a clear relationship visible in that those with more ACEs were less likely to report their health as *very good* or *excellent* and were more likely to report their health as *fair* or *poor*.



For example, only 5 percent of youth with *no ACEs* rated their health as *fair* or *poor* compared to 35 percent of youth with *four or more ACEs*. Mainstream youth with *four or more ACEs* were more likely to rate their health as *fair* or *poor* than even their peers in correctional facilities with the same number of ACEs (24%).

Minnesota Adults

Adults in the Minnesota ACE study who reported

any ACEs were more likely to self-report their health status as *fair* or *poor* compared to those without any ACEs. Of those with *no ACEs*, 9 percent ranked their health status as *fair* or *poor* compared to 18 percent of respondents with *four or more ACEs*. Conversely, those

with *no ACEs* were most likely to rate their health as *excellent* (24%) while those with *four or more ACEs* were least likely to rate their health as *excellent* (15%).

Collectively, 18 percent of adult *BRFSS* participants with *four or more ACEs* rated their health as *fair or poor*, compared to 24 percent of youth in correctional facilities and 35 percent mainstream youth. Students in both populations with the highest ACEs were more likely to rate their health poorly than adults with comparable ACE scores.

Weight and Obesity

Another area in which ACEs have been shown to affect health is weight. Many ACE studies have linked trauma to increased risk of obesity and other health conditions that can accompany obesity. On the *MSS*, youth are asked to enter their height and weight. The information is used to calculate body-mass index (BMI) to establish if the youth is a healthy weight for their height, age and gender.

Youth in Correctional Facilities

Among youth in correctional facilities, there is no statistically significant relationship between ACE score and weight.

While those with *no ACEs* were least likely to be overweight or obese, those with the highest ACE scores were not most likely to be overweight or obese (Figure 20). A clear relationship between ACE score and BMI does not exist.

Mainstream Youth

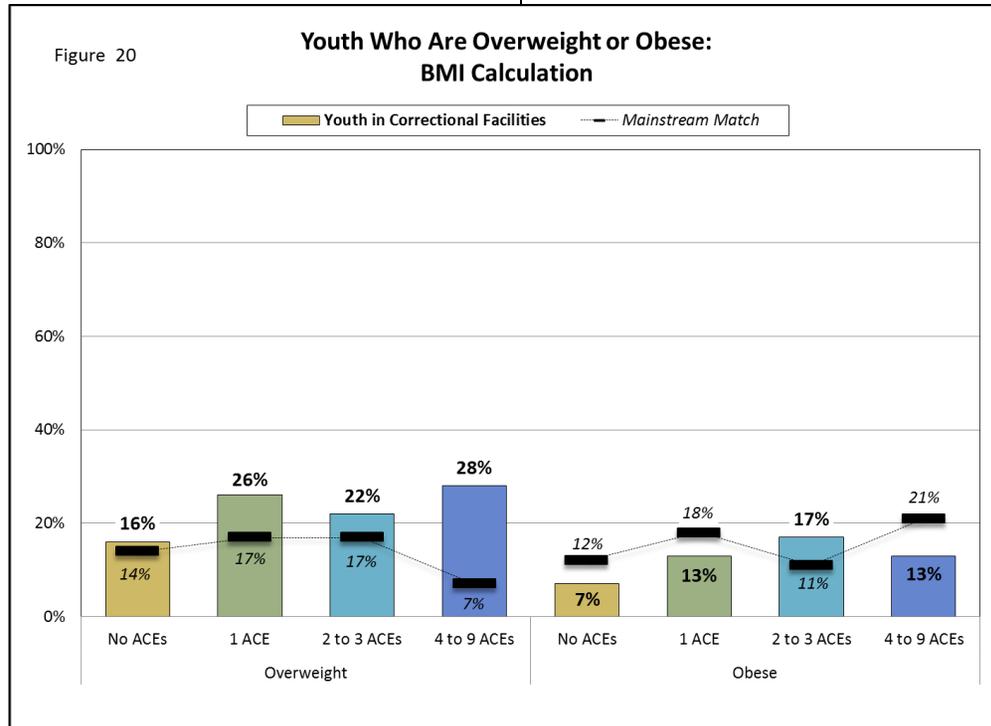
Among mainstream youth there also is no clear relationship between BMI and the number of ACEs reported. While obesity is highest among those with *four or more ACEs* (21%), it is comparably high for those reporting one ACE (18%).

Minnesota Adults

The Minnesota ACE study showed some increase in adult obesity as ACE scores increased beginning with 23 percent of those with *no ACEs* up to 32 percent of those with *five or more ACEs*. Nevertheless, one-quarter to one-third of respondents across all ACE groups were obese.

Both youth in correctional facilities and mainstream youth reported obesity less than adults in the Minnesota ACE study.

Childhood ACEs can continue to affect physical and emotional health as youth age leading to higher obesity rates later in adulthood. It is possible that, in adolescence, youth may have underlying risk factors for obesity later in life but have not yet crossed these BMI thresholds.



Asthma and Diabetes

Other health conditions that have been linked to the presence of ACEs include asthma and diabetes. These conditions can also be exacerbated by unhealthy weight. On the *MSS*, youth are asked whether a doctor or nurse has ever told them they have asthma, diabetes, or pre-diabetes. Figure 21 combines diabetes and pre-diabetes into a single variable; youth are represented if they selected yes to either.

Youth in Correctional Facilities

Among youth in correctional facilities there is no statistically significant difference between ACE score and the presence of asthma. Nevertheless, the highest percentages of youth who reported this condition (31%) are observed in the two highest ACE categories (Figure 21).

Similarly, reports of pre-diabetes or diabetes are highest among those with the most ACEs (6% and 10%), but they are not statistically higher than those who reported fewer ACEs. Generally, youth in correctional facilities were

more likely to report both asthma and diabetes than their peers in mainstream schools.

Mainstream Youth

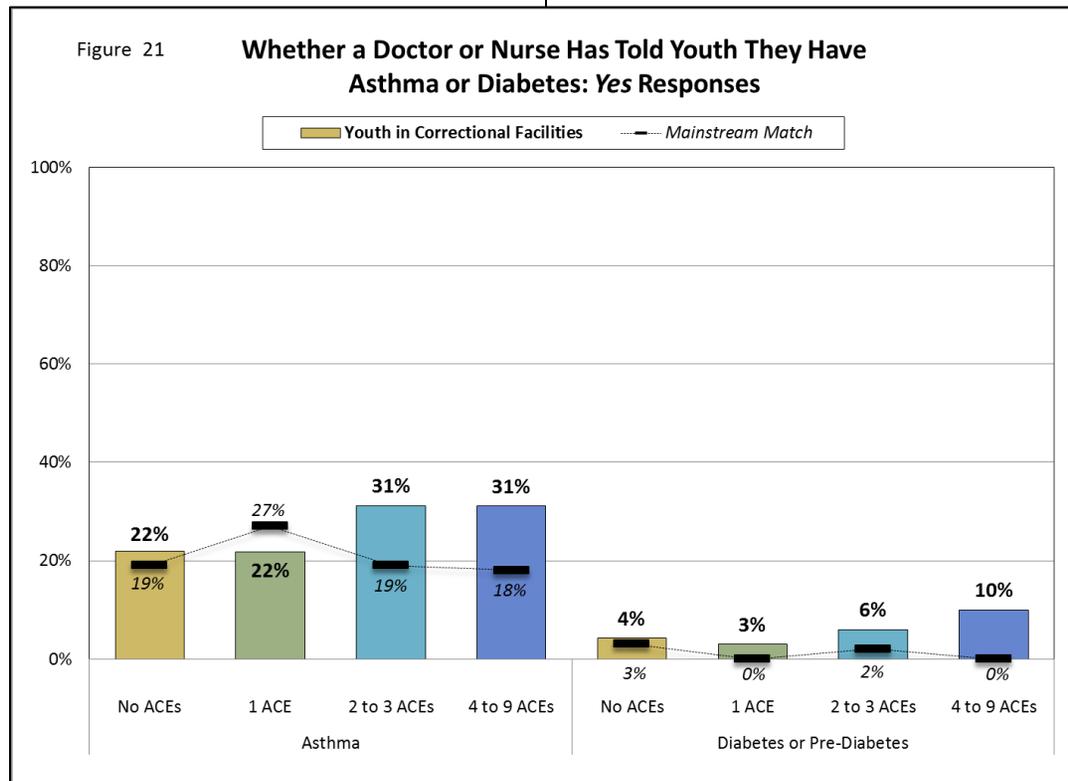
Among mainstream youth, there is also no statistical relationship present between ACE score, asthma, or diabetes. The two conditions are present among all youth and did not follow a clear pattern related to ACE score.

Minnesota Adults

In the Minnesota ACE study, those with the highest number of ACEs were more likely to have asthma than those with *no ACEs* (22% v. 8%, respectively.) Diabetes, on the other hand, held steady at between 6 percent and 8 percent across all ACE scores.

In the adult study, 18 percent of Minnesotans with *four or more ACEs*

reported having asthma compared to 31 percent of youth in correctional facilities with *four or more ACEs*. In addition, 8 percent of those with *four or more ACEs* in the adult study reported diabetes compared to 10 percent of youth in correctional facilities with *four*



or more ACEs. Asthma and diabetes indicators are already higher among youth in correctional facilities who report multiple ACEs than they are for adults with similar ACE histories.

Mainstream youth are also more likely to report asthma than Minnesota adults who took the *BRFSS*, while the prevalence of pre-diabetes/diabetes among mainstream youth is lower than for adults.

Long-Term Health Problems

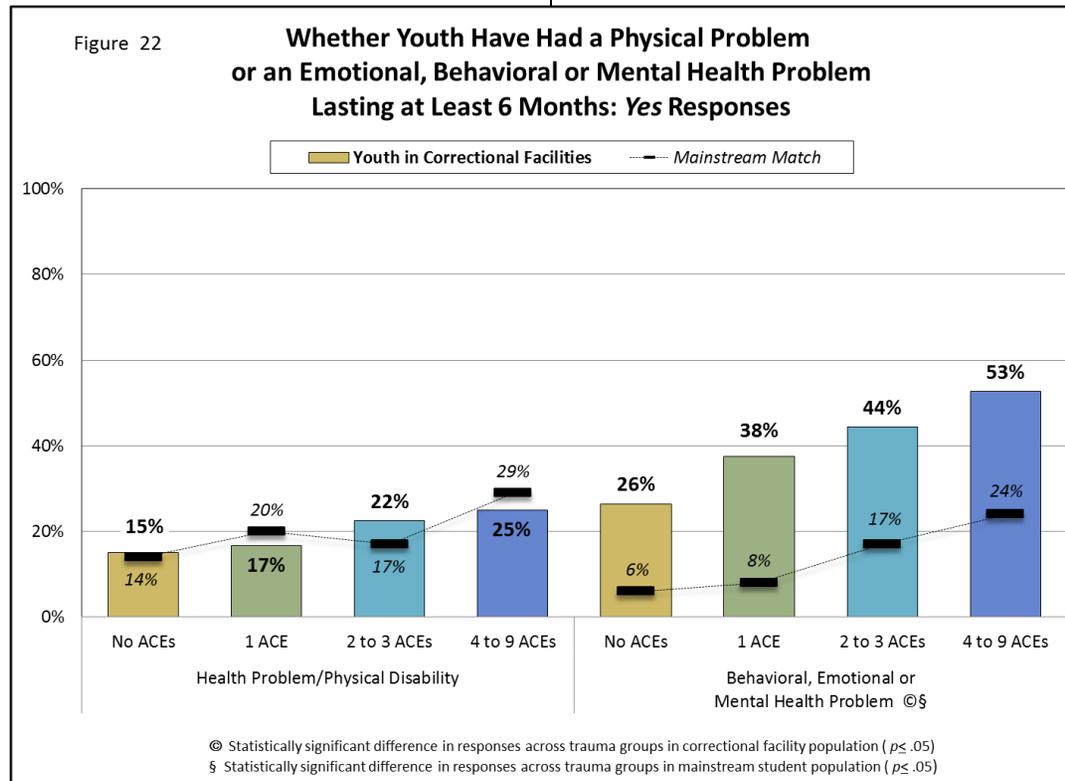
The *MSS* asks students to indicate whether they have had a long-term physical or mental health problem. “Long-term” is defined for students as lasting six months or more.

Youth in Correctional Facilities

MSS data show that, among youth in correctional facilities, physical health problems and disabilities are most prevalent in the highest ACE grouping (25%; Figure 22). This is not statistically higher than those reporting *no ACEs* (15%). As it relates to long-term mental, emotional, or behavioral issues, a statistically significant difference does exist. Those with the highest ACE scores are almost twice as likely to report a long-term problem as those with *no ACEs* (53% v. 26%, respectively). Reports of a long-term mental health problem increase in a consistent, graded fashion with the number of ACEs reported in the correctional facility population.

Mainstream Youth

Among mainstream youth, reports of long-term physical health problems follow closely levels reported by youth in correctional facilities. Similarly, those with higher ACE scores are not statistically more likely to report long-term health problems than youth with fewer ACEs.



In regard to mental health, mainstream youth with *four or more ACEs* are four times more likely to report a long-term problem (24%) than those with *no ACEs* (6%). Reports by youth in correctional facilities and mainstream youth reflect increasing mental, emotional, and behavioral issues as ACEs increase, but the prevalence is two-to-four times higher for youth in correctional facilities than for mainstream youth.

Minnesota Adults

The Minnesota ACE study does not ask participants about long-term health problems, but does inquire whether they (1) are limited by

physical, mental, or emotional problems, or (2) require special equipment related to a disability.

The Minnesota ACE study found that adults with a limitation or disability were more likely to have *one or more ACEs* (63%) than those without a disability or limitation (53%). Among those with limitations, 29 percent had an ACE score of *three or more*. Among those without disability or limitation, 19 percent had an ACE score of *three or more*.

While the questions about health on the *BRFSS* do not mirror exactly those on the *MSS*, it appears that a pattern of relationships exist between trauma exposure and perceived wellness.

Emotional Health Indicators

Studies support that more trauma in childhood is associated with greater diagnosis of mental and emotional health problems in adulthood. The MSS does not ask youth about diagnosed conditions, but does inquire whether they have had significant problems with certain thoughts and feelings. A “significant problem” is defined for students as one that: “...lasts two or more weeks; keeps coming back; keeps you from meeting responsibilities; or makes you feel like you can’t go on.”

Youth in Correctional Facilities

Youth in correctional facilities with higher ACE scores have statistically higher reports of emotional and mental health issues across all mental health related questions (Figure 23). Between 22 percent and 37 percent of youth with no ACEs reported issues with feeling sad, nervous, distressed when reminded of the past, or sleep-related problems—this was true for at least seven-in-10 youth

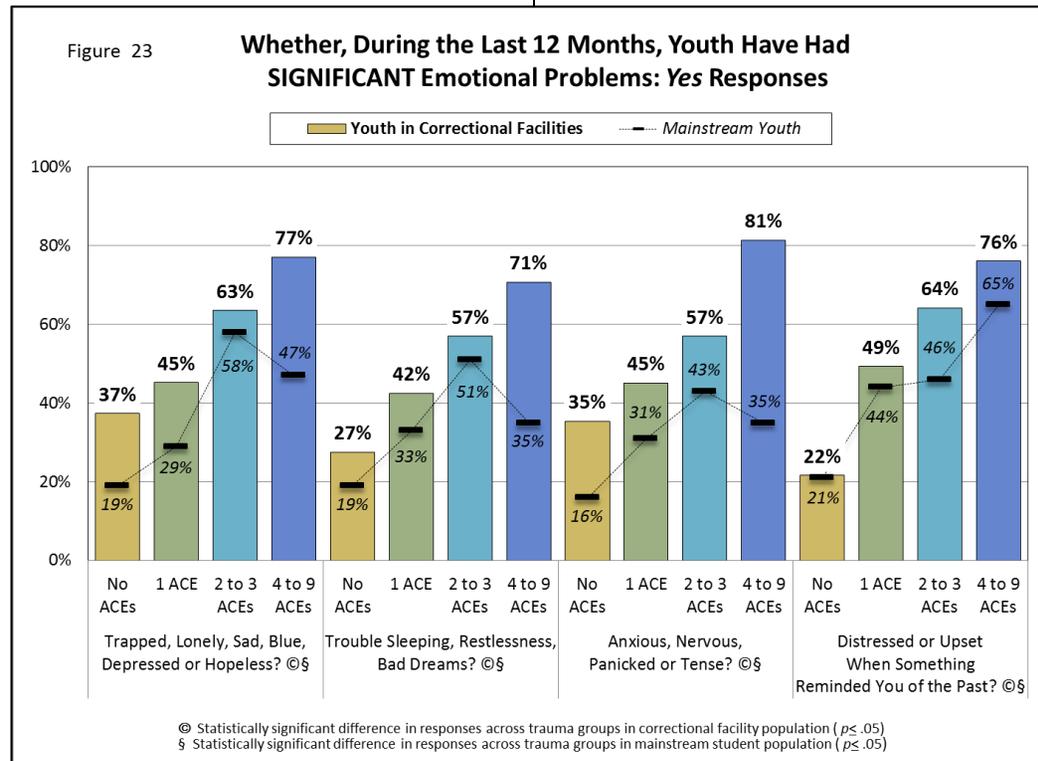
with four or more ACEs. Experiences with trauma appear strongly related to the mental health of youth in correctional facilities.

Mainstream Youth

Greater experience with trauma and ACEs also appears to have a destructive effect on mental and emotional health for mainstream youth. Youth in mainstream school settings are statistically more likely to self-report mental health problems than youth with fewer or no ACEs. The presence of two or more ACEs contributed to depression, anxiety, restlessness and PTSD concerns for between one-third (35%) and two-thirds (65%) of mainstream youth.

Among youth with the most ACEs, reports of feeling upset or distressed when reminded of something from the past were comparable between the corrections population

(76%) and mainstream population (65%). It appears that intrusive or problematic recollections of trauma in the past are issues for both student populations.



Minnesota Adults

The Minnesota ACE study also assessed for the presence of mental health issues. Reports of a depression diagnosis increased from 8 percent of adults with *no ACEs* up to 36 percent of those with *five or more ACEs*. The increase was steady and incremental across trauma scores.

The same pattern existed among Minnesota adults regarding anxiety diagnoses: 5 percent of those with *no ACEs* reported an anxiety diagnosis compared to 31 percent of those with *five or more ACEs*.

While there is a difference between reporting symptoms of a mental health disorder (*MSS*) and receiving a clinical diagnosis (*BRFSS*), it is clear that youth who have experienced trauma are struggling with the emotional consequences. The *MSS* data also show that youth with *no ACEs* face mental health concerns. Approximately two-in-10 mainstream youth without trauma report long-term mental health symptoms, marking these as a characteristic of adolescence with which youth may need support.

Self-Harm and Suicide

Unaddressed mental health issues can leave both youth and adults vulnerable to self-injurious and suicidal behaviors. While the Minnesota ACE study does not include assessment of these behaviors, students who take the MSS are asked to report if they engage in self-harm, suicidal ideation or have a history of actual suicide attempts.

Youth in Correctional Facilities

Among youth in correctional facilities, the number of ACEs reported is statistically related to self-harm or suicidal actions. Youth with *four or more ACEs* are three times more likely than those with *no ACEs* to hurt themselves on purpose including cutting, burning or bruising (54% v. 18%) (Figure 24). Similarly, youth with the highest ACEs are six times more likely to report suicidal ideation (64% v. 10%); and over 12 times more likely to report an actual suicide attempt (50% v. 4%).

Mainstream Youth

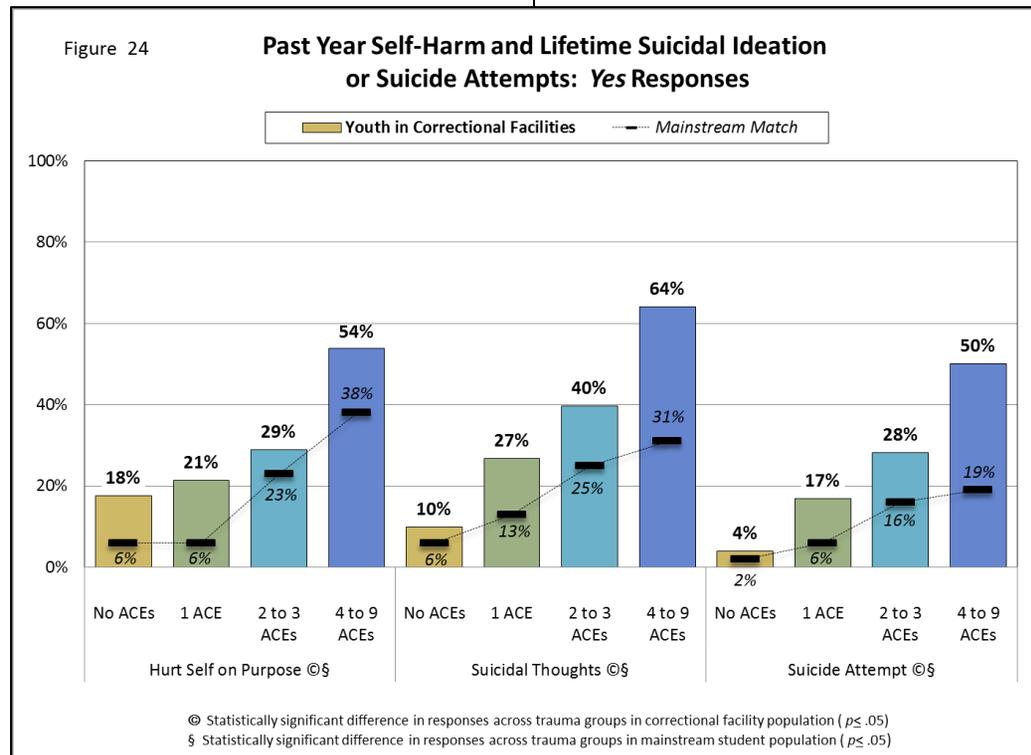
Mainstream youth are also statistically more likely to report self-harm, suicidal ideation and suicide attempts as ACE score increased. Over one-third of youth with *four or more ACEs* (38%) reported self-harm compared to just 6 percent of those with *no ACEs*.

Similarly, three-in-10 students in the highest ACE category have seriously considered suicide (31%) compared to 6 percent of those with *no ACEs*. Finally, youth with *four or more ACEs* were nearly 10 times more likely to report a suicide attempt (19% v. 2%).

While a larger percentage of youth in correctional facilities report struggles with self-harm and suicide, a large percentage of mainstream youth must also manage these issues.

Minnesota Adults

Experiences with self-harm and suicide were not asked of adults on the Minnesota ACE study.



Mental Health Treatment

In addition to mental health symptoms, youth are asked whether they have ever received treatment for a mental, emotional, or behavioral health problem. The following graph depicts youth who selected either “yes, during the last year” or “yes, more than a year ago.”

Youth in Correctional Facilities

Youth in correctional facilities are statistically more likely to report having been treated for a mental, emotional, or behavioral disorder as the number of ACEs reported rises. Nearly three-quarters of youth with *four or more ACEs* (74%) report a history of treatment compared to one-third of youth with *no ACEs* (32%). Figure 25 illustrates that the percentage of youth who have received treatment increases in a graded fashion as ACEs increase.

Mainstream Youth

Mainstream youth also have a statistically significant difference in whether youth have

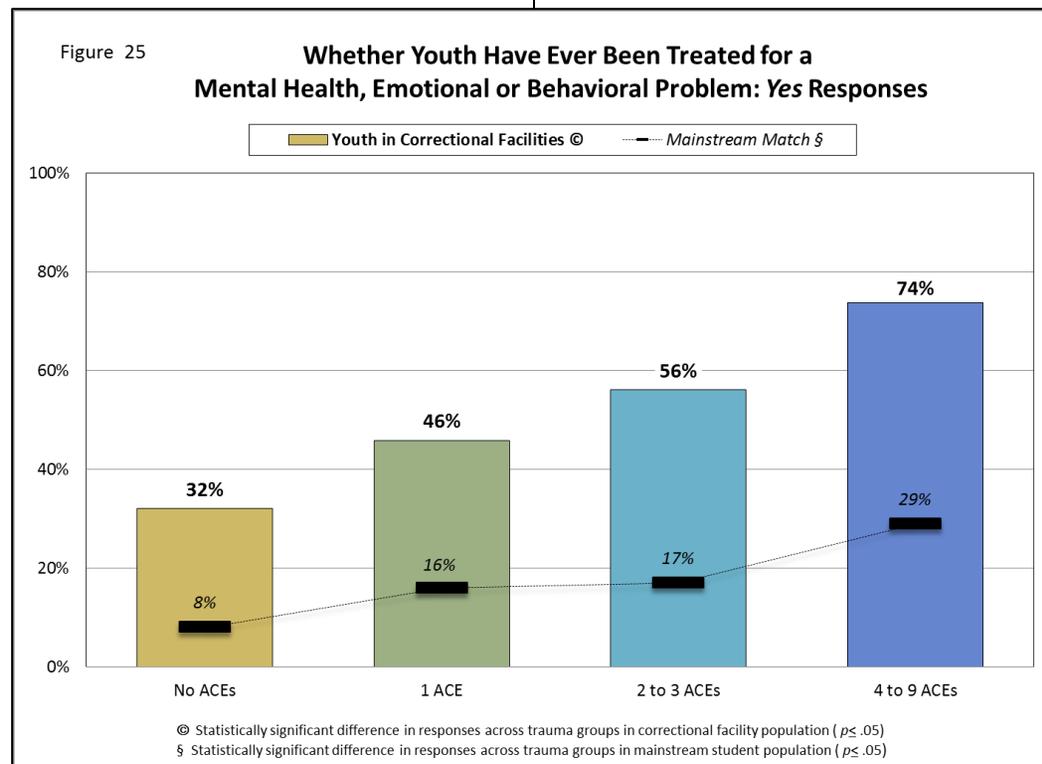
received treatment for a mental, emotional, or behavioral problem by ACE score. Nearly three-in-10 youth with *four or more ACEs* (29%) have received treatment compared to just 8 percent of youth with *no ACEs*.

In the highest ACE category, over twice as many youth in correctional facilities as mainstream youth reported they have had treatment (74% v. 29%). Minnesota statutes do require that certain justice system-involved youth receive mental health screenings, including the population of youth represented in this report.⁶⁶ It is possible that these screenings result in a larger percentage of the population being referred to mental health services. Conversely, the

behaviors of youth who enter the juvenile justice system may be more outwardly problematic than those of mainstream youth, resulting in more mental health interventions overall.

Minnesota Adults

The Minnesota ACE study did not assess adults for experience with mental health treatment.



Health Indicators Section Summary

- Both youth in correctional facilities and their mainstream peers are statistically more likely to report a long term mental, emotional or behavior problem as ACE scores increase. Long term physical health problems are not statistically related to ACE score on the MSS. Adults with higher ACE scores reported more physical and mental disabilities or limitations.
- Both youth in correctional facilities and mainstream students with more trauma reported more problems with depression, anxiety, sleep disturbances, and intrusive recollections of the past. Adults with more ACEs were more likely to have depression and anxiety diagnoses in the Minnesota ACE study.

- Youth who have experienced more ACEs are statistically more likely to engage in self-injurious behavior; to have had suicidal thoughts; and to have made a suicide attempt. While these are issues for both student populations, youth in correctional facilities across all ACE scores report more issues with self-harm and suicide than mainstream youth.
- The higher the ACE score, the more likely students are to report they have received mental health treatment. Treatment is more common among youth in correctional facilities than among the matched sample of mainstream students.

Chemical Use

It has been widely demonstrated that trauma histories can contribute to higher risk of substance use, abuse and dependency. It is not uncommon for those with trauma histories to self-medicate depression, anxiety, and anger through substance use. Studies have also linked ACEs to starting chemical use at an earlier age, which is a known risk factor for future dependency.⁶⁷ The MSS captures many attitudes and behaviors related to substance use.

Alcohol and Marijuana Use

Youth participating in the MSS are asked to report if they have ever used marijuana, or alcohol beyond a few sips.

Youth in Correctional Facilities

For youth in correctional facilities, the statistical percentage of youth who reported they have used alcohol increases as ACEs increase. In all ACE categories it is more likely for youth to have tried alcohol than not (Figure 26). Lifetime alcohol use is 69 percent

among those with *no ACEs* compared to 95 percent of youth with *four or more ACEs*.

Marijuana use is also prevalent among youth in correctional facilities. Statistics run from seven-in-10 youth with *no ACEs* having tried marijuana (73%) to as high as 90 percent of youth with *four or more ACEs*. Both alcohol and marijuana use are ubiquitous among the corrections population but increase with ACE score.

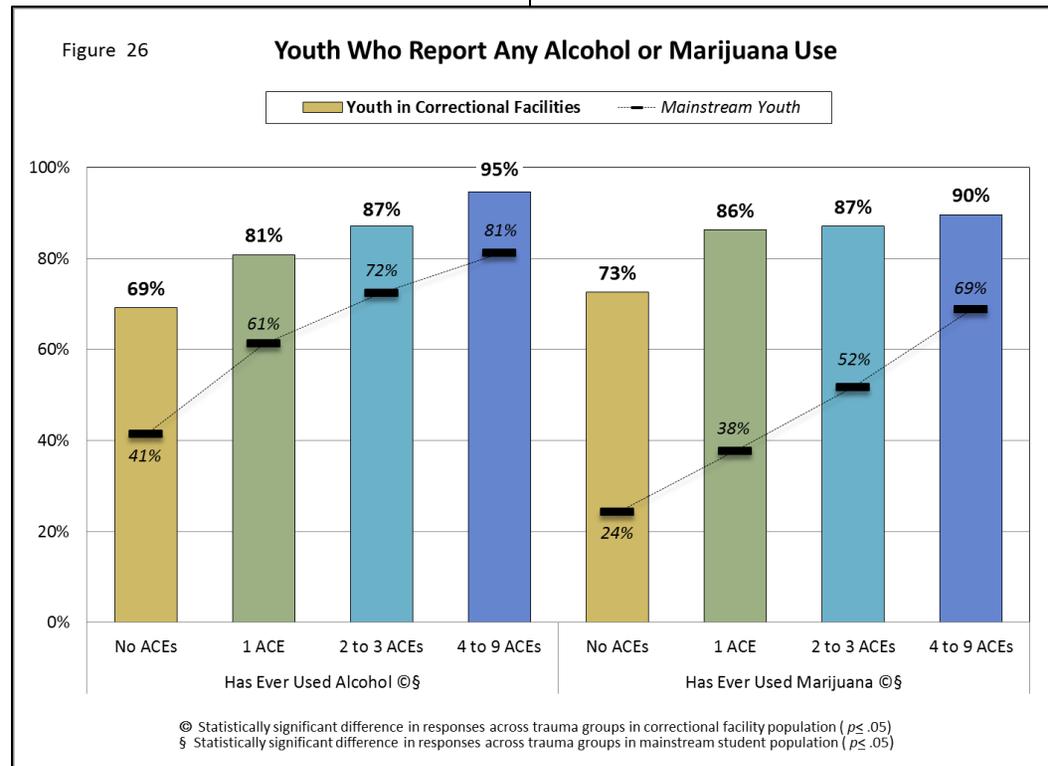
Mainstream Youth

For mainstream youth, substance use was far less prevalent. Still, statistically significant increases related to ACE score are evident for mainstream students for both alcohol and marijuana use.

While 41 percent of youth with *no ACEs* have tried alcohol, this is true for 81 percent of youth with *four or more ACEs*.

Approximately one-quarter of mainstream

youth with *no ACEs* have tried marijuana (24%) compared to nearly seven-in-10 youth with *four or more ACEs* (69%). Whether youth have tried marijuana increases in a graded fashion as ACEs increase.



Marijuana use among mainstream youth remains considerably lower than that of the corrections population.

Minnesota Adults

Data collected for the Minnesota ACE study illustrates that persons with more ACEs are more likely to be current tobacco smokers and chronic drinkers than those without ACEs. Thirty-five percent of adults with *four or more ACEs* were current smokers compared to 11 percent of respondents with *no ACEs*. Fourteen percent of adults with *four or more ACEs* were chronic drinkers compared to 6 percent of respondents with *no ACEs*. The Minnesota ACE study did not include data about adult marijuana use.

Other Drug Use

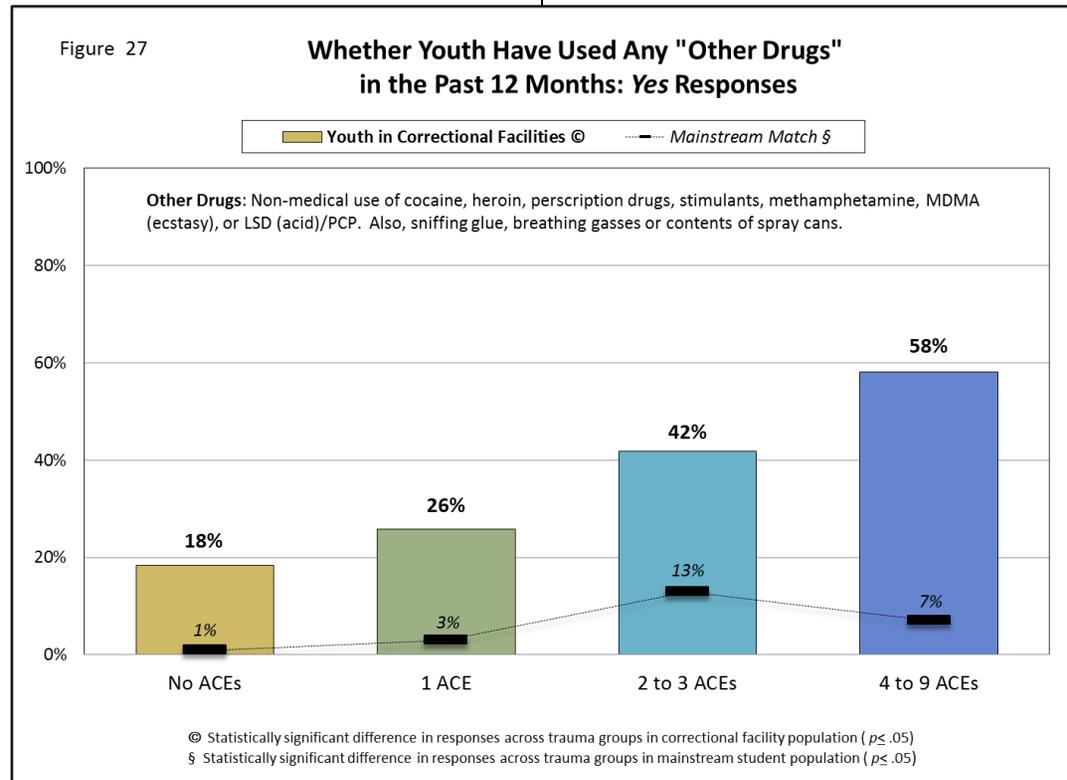
The *MSS* also asks students if they have used “other drugs” during the past year. A list of substances is provided that includes illegal drugs, non-medical use of prescription drugs, and inhalation of products or fumes to get high.

Youth in Correctional Facilities

Youth in correctional facilities with higher ACEs are statistically more likely to have used drugs other than alcohol and marijuana in the past year. Eighteen percent of youth with *no ACEs* have used drugs in the past year compared to nearly six-in-10 youth with *four or more ACEs* (58%). Figure 27 illustrates that the percentage of youth who reported drug use increased steadily with ACE score.

Mainstream Youth

While mainstream youth are much less likely than youth in correctional facilities to report using drugs in the past year, there is also a statistically significant relationship between ACE score and drug use in this population. Those with *no ACEs* or *one ACE* were unlikely to have used drugs (1% and 3%, respectively), while rates were higher for those with *two or more ACEs* (13% and 7%).



Minnesota Adults

The Minnesota ACE study did not report data related to adult use or abuse of illegal drugs or medications.

Chemical Abuse and Dependency Indicators

Substance use that begins in childhood and adolescence is more likely to lead to abuse and dependency.⁶⁸ The MSS asks youth to indicate their level of agreement with questions often used on chemical dependency assessments to gauge substance abuse.

Youth in Correctional Facilities

Youth in Minnesota correctional facilities are statistically more likely to express problems managing their alcohol and drug use as ACEs increase. While just 23 percent of youth with *no* ACEs reported they have used more drugs or alcohol than they intended in the past year, this was true for 67 percent of youth with *four or more* ACEs (Figure 28).

Similarly, youth in facilities with the highest ACE scores are most likely to agree that they have used more drugs or alcohol to get the same effects (58%); have tried to cut back but couldn't (37%); and

have continued to use despite their use causing harm to relationships (66%).

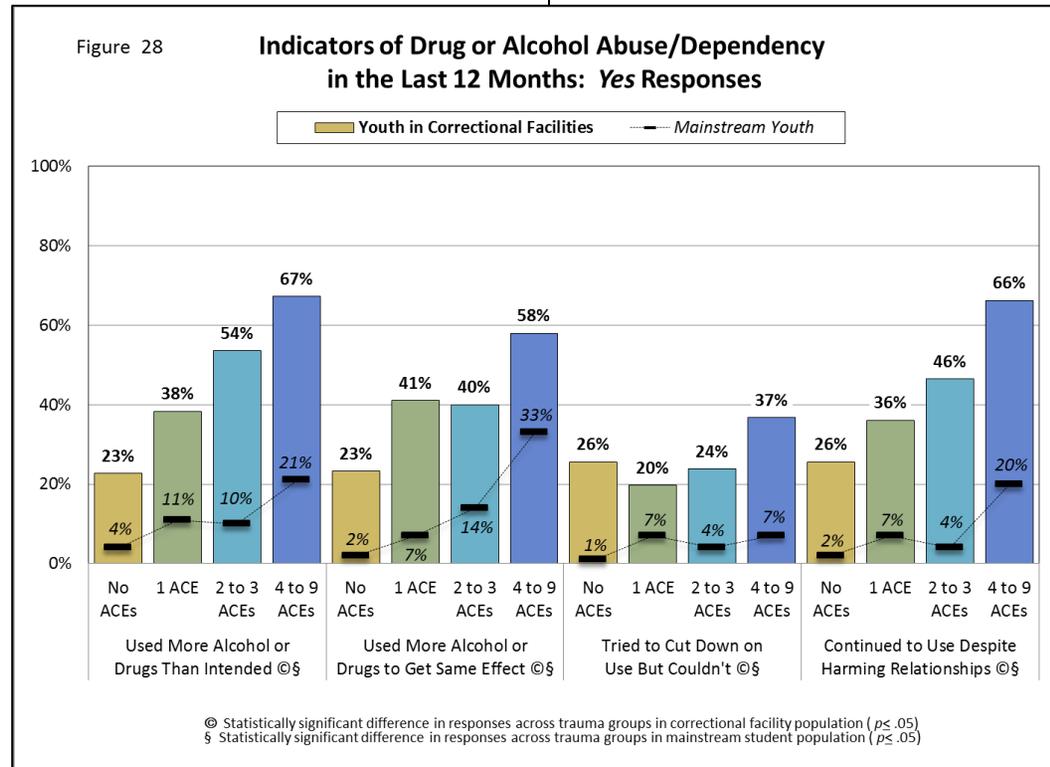
Mainstream Youth

Like youth in correctional facilities, mainstream youth who report higher ACE scores are statistically more likely than those with fewer ACEs to report problems managing drugs and alcohol.

Mainstream youth with *four or more* ACEs are more likely to have trouble setting limits or trying to cut back, and continue to use despite harm to relationships. One-third of mainstream youth with *four or more* ACEs (33%) reported they have had to use more drugs to get the same effect, indicating increased tolerance.

While abuse and dependency indicators increase along with ACE

scores for both youth populations, youth in correctional facilities are considerably more likely to report problems managing substances than their mainstream peers.



Consequences of Drug and Alcohol Use

In addition to having difficulty managing the use of drugs and alcohol, youth taking the *MSS* are asked to indicate how their use has affected them physically and personally. Drug and alcohol is a common way for some youth begin involvement with the juvenile justice system. Citations and charges for possession, use, and distribution can result in court appearances, treatment, and supervision in the community.

Youth in Correctional Facilities

Youth in correctional facilities with higher ACE scores are statistically more likely than youth with fewer or *no* ACEs to report personal problems associated with using drugs and alcohol (Figure 29). At least half of youth with *two or more* ACEs reported that in the past year they have used so much they could not remember what they said or did (52% to 54%); have spent all or most of the day getting over the effects of using (59% to 63%); or neglected major responsibilities such as school or

work because of their use (54%). Youth with more ACEs also report an incremental increase in their use leaving them feeling agitated, depressed, paranoid, or unable to concentrate (20% to 62%).

The *MSS* also asks youth about behaviors and consequences related to public safety in connection with their chemical use (Figure 30). Youth with any ACEs were more likely than those with *no* ACEs to report having gotten in a fight or to have become violent under the influence in the past year. Reports of problems with the law related

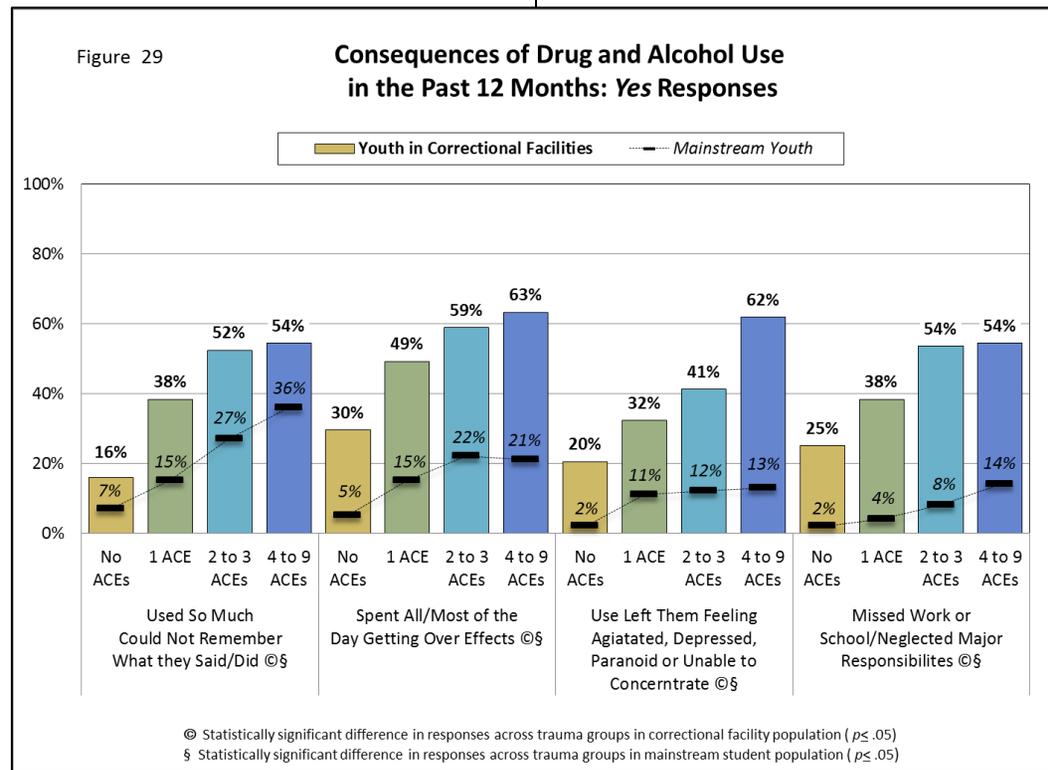
to their drug or alcohol use increased in a consistent, graded fashion with ACE score among youth in correctional facilities.

Nearly seven-in-10 youth in correctional facilities with *four or more* ACEs (68%) reported their use has caused them problems with the law in the past year.

Mainstream Youth

Like youth in correctional facilities, mainstream youth with more ACEs reported

statistically greater problems related to chemical use (Figure 29). Over one-third of youth with *four or more* ACEs (36%) used so much



drugs or alcohol in the past year they could not remember what they said or did, compared to 7 percent of youth with *no ACEs*.

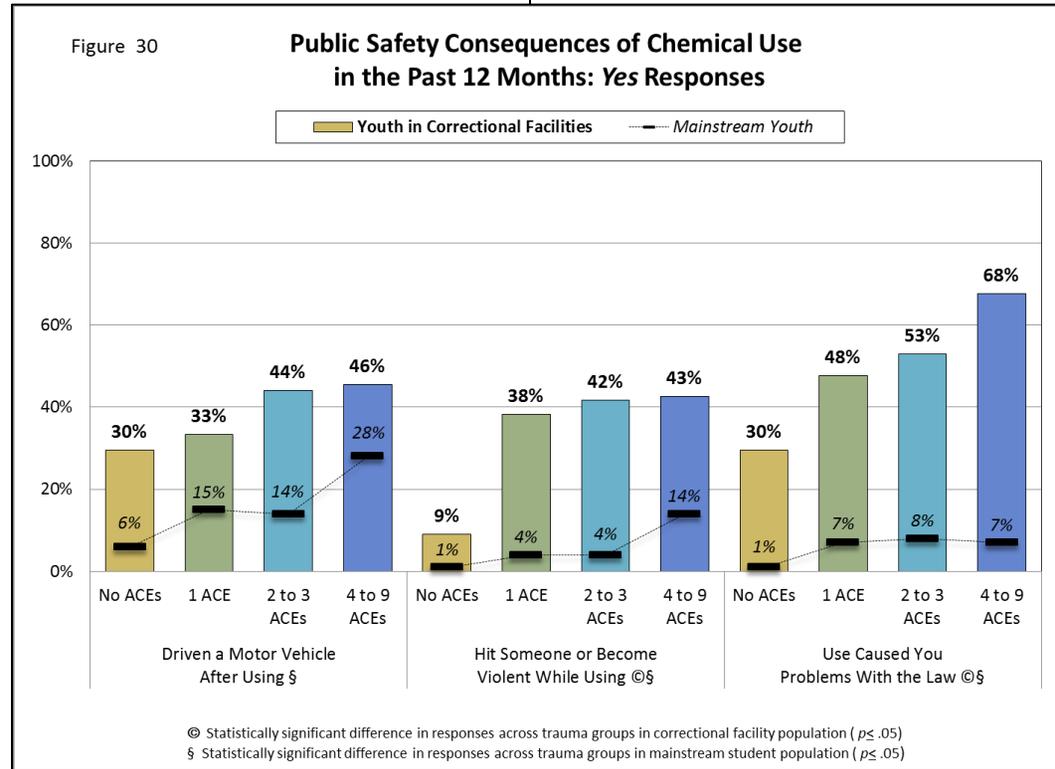
Mainstream youth with higher ACE scores are also more likely to have spent the day getting over the effects of using, and to have experienced agitation, depression, paranoia, and trouble concentrating in connection with their chemical use.

Finally, numbers of youth who reported missing major responsibilities due to chemical use also increased in a graded fashion as ACE scores increased. While the level of these problems for mainstream youth is considerably lower than for youth in correctional facilities, a relationship between ACEs and consequences of chemical use is still evident.

Mainstream youth who reported more ACEs are also statistically more likely to report public safety consequences associated with using (Figure 30). Mainstream youth with *four or more ACEs* are most likely to have driven a vehicle under the influence (28%); and to have hit someone or become violent under the influence (14%). Youth with any ACEs are more likely to have had problems with the

law related to their use (7% to 8% percent) than those with *no ACEs* (1%).

For mainstream youth, reports of violence and problems with the law connected to chemical use are dramatically lower than for youth in correctional facilities.



Minnesota Adults

The ACE study did not ask Minnesota adults about consequences associated with drug or alcohol use.

Chemical Abuse Treatment

Those for whom drug or alcohol use becomes problematic or destructive may participate in chemical dependency treatment. Youth taking the *MSS* are asked if they have ever been treated for an alcohol or drug problem.

Youth in Correctional Facilities

While youth in correctional facilities with the highest number of ACEs are most likely to have been treated for a drug or alcohol problem (57%), it is relatively common for all youth in facilities to report a history of treatment (Figure 31). Even among youth reporting *no ACEs*, 42 percent indicated receipt of chemical dependency treatment.

Levels of involvement in chemical dependency treatment are not statistically significant across different ACE scores for youth in correctional facilities. Given the high rates of substance use across all ACE scores in correctional

facilities, it is not surprising that a statistically significant difference does not exist.

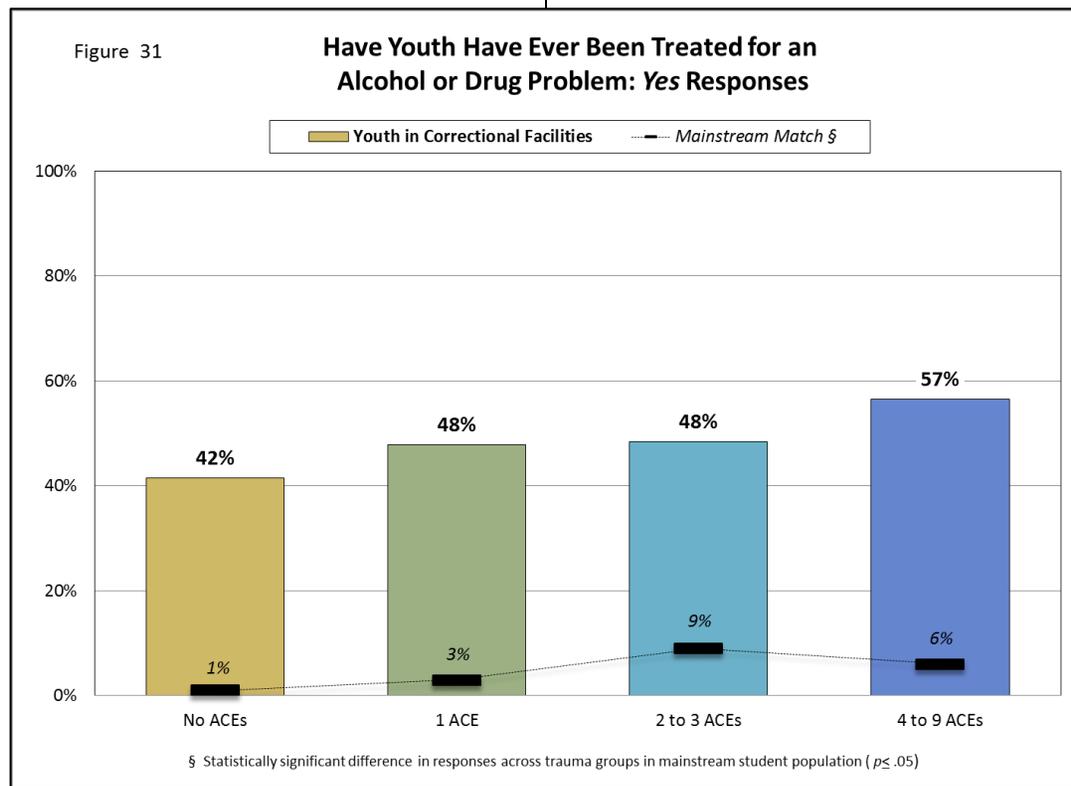
Mainstream Youth

For mainstream youth, use of drugs and alcohol increased as ACEs increased. Those with a greater number of ACEs are statistically more likely to have received treatment for a drug or alcohol problems than those with fewer or *no ACEs* in this population.

For mainstream youth, the percentage of students in each ACE score grouping who have received treatment is a fraction of what it is for youth in correctional facilities.

Minnesota Adults

The Minnesota ACE study did not ask adults whether they have ever participated in drug or alcohol treatment.



Substance Use Section Summary

- For both youth in correctional facilities and mainstream youth, there is a statistically significant relationship between ACE score and alcohol or marijuana use. In both populations, those with the greatest number of ACEs are most likely to have tried alcohol or marijuana. Adults with higher ACE scores were more likely to be tobacco smokers or chronic drinkers than those with fewer ACEs.
- Youth with higher ACE scores are statistically more likely to have used drugs other than alcohol or marijuana in the past year. This is true for both youth in correctional facilities and mainstream youth.

- In both student populations, those with higher ACE scores report more problems and consequences associated with chemical use. These problems include increased tolerance, trouble setting limits, using despite harm to relationships, hangovers, violence under the influence, and trouble with the law.
- For youth in correctional facilities, it is common for youth across all ACE scores to have received treatment for a drug or alcohol problem. In the mainstream population, those with more ACEs are statistically more likely to have received treatment than those with fewer ACEs.

Other Risk Factors

Trauma in the lives of youth can have effects in addition to those areas already explored. Trauma histories can affect decision-making, behavior, interpersonal relationships and self-esteem. Problems in these areas can impact youths' ability to maintain healthy relationships, set and accomplish goals, and remain free of justice system involvement.

These remaining topics and behaviors are not addressed in the Minnesota ACE study, and that prevents comparison to the experiences of adults, but they are important to understanding the effect trauma plays in the lives of youth who populate Minnesota's correctional facilities and schools.

Runaway

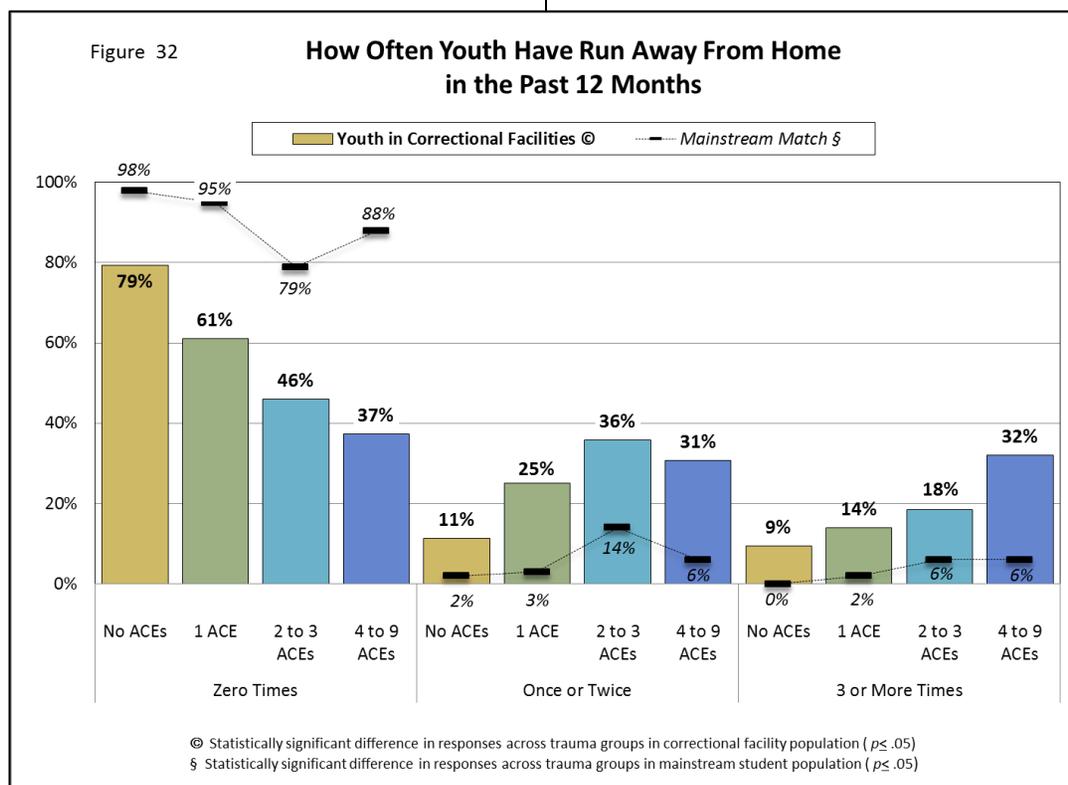
Running away from home is an act of particular concern because of the great risk for youth to be victimized while unaccompanied. Youth who run away from home are more likely to be in a position where they

are coerced or exploited; are given drugs and alcohol; or engage in sexual activity in exchange for food or shelter.⁶⁹ Youth can also be brought to the attention of the child protection and juvenile justice systems related to absconding from home. No information is gathered on the *MSS* regarding how long the youth are away from home or if they return of their own accord.

Youth in Correctional Facilities

Youth in correctional facilities who report more ACEs are statistically more likely to report running away from home in the past year than those with fewer ACEs. While 79 percent of youth who reported *no ACEs* did not run away in the past year, this was the case for just 37 percent of youth with *four or more ACEs* (Figure 32).

Not only do greater percentages of youth who report ACEs say they have run away, they also report doing



so with greater frequency. Over three-in-10 youth in correctional facilities who report *four or more ACEs* report that they have run away from home three or more times in the past year (32%).

Mainstream Youth

Regardless of trauma score, mainstream youth are far less likely than youth in correctional facilities to have ever run away from home. Of mainstream youth with *no ACEs*, 98 percent did not run away from home in the past year.

Mainstream youth with *two or more ACEs* are statistically more likely to run away than those with *one or no ACEs*. On average, 10 percent of youth with *two or more ACEs* ran away once or twice in the past year, and 6 percent ran away three or more times. Though mainstream youth have much lower levels of running away than youth in correctional facilities, trauma score had a statistically significant impact on the behavior.

Emotional Regulation

Managing emotions can be difficult for those who have experienced trauma during their development. Youth may over- or under-react to stimuli or threats, or may act based on a fight-or-flight response rather than a rational considerations of actions and consequences.

Youth in the justice system often have problems with emotional regulation that contribute to interpersonal conflicts, property damage, and drug or alcohol use. For youth in correctional facilities, increasing emotional regulation is often a component of programming. The following *MSS* questions assess youth's ability to regulate their feelings and express themselves.

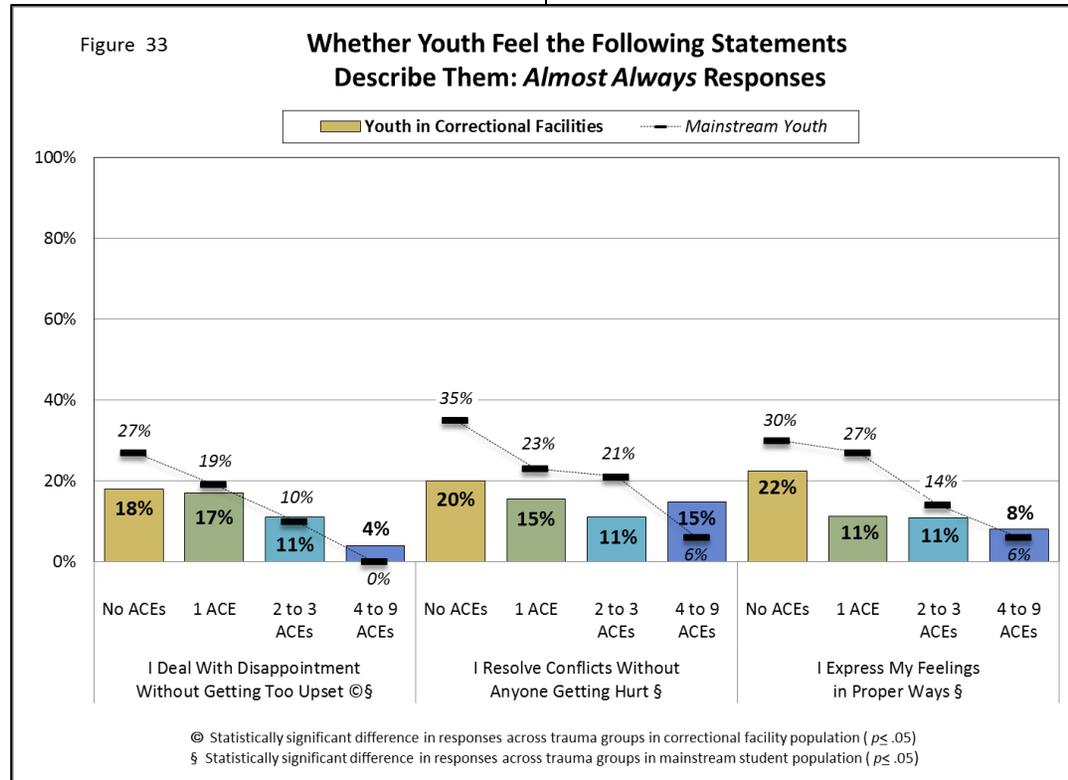
Youth in Correctional Facilities

Relatively small percentages of youth in correctional facilities indicated on the *MSS* that they *almost always* possess or use skills to deal with disappointment, resolve conflict peacefully, and

express feelings properly (Figure 33). Across all ACE scores, less than 22 percent of youth in facilities indicated they consistently use these social skills. While those with the highest ACE scores were least likely to agree with these statements, only the management of disappointment is statistically related to trauma score.

Mainstream Youth

For mainstream students, ACE score is statistically related to their ability to manage conflicts and express emotions. In all cases, youth reporting *no ACEs* were most likely to feel they could *almost always* handle disappointment (27%), resolve conflicts (35%), and express their feelings appropriately (30%). As ACE scores increased, youth were progressively less likely to report confidence in these skills (0% to 6%).



Somewhat surprisingly, among youth with the most ACEs, mainstream youth are less likely than youth in correctional facilities to report confidence in these skill areas.

Decision-Making Skills

In addition to managing emotions, youth who have experienced trauma may have difficulty making healthy or safe decisions. While impulsivity and failure to consider consequences are often hallmarks of adolescence, justice system involved youth tend to possess these traits to a higher degree.

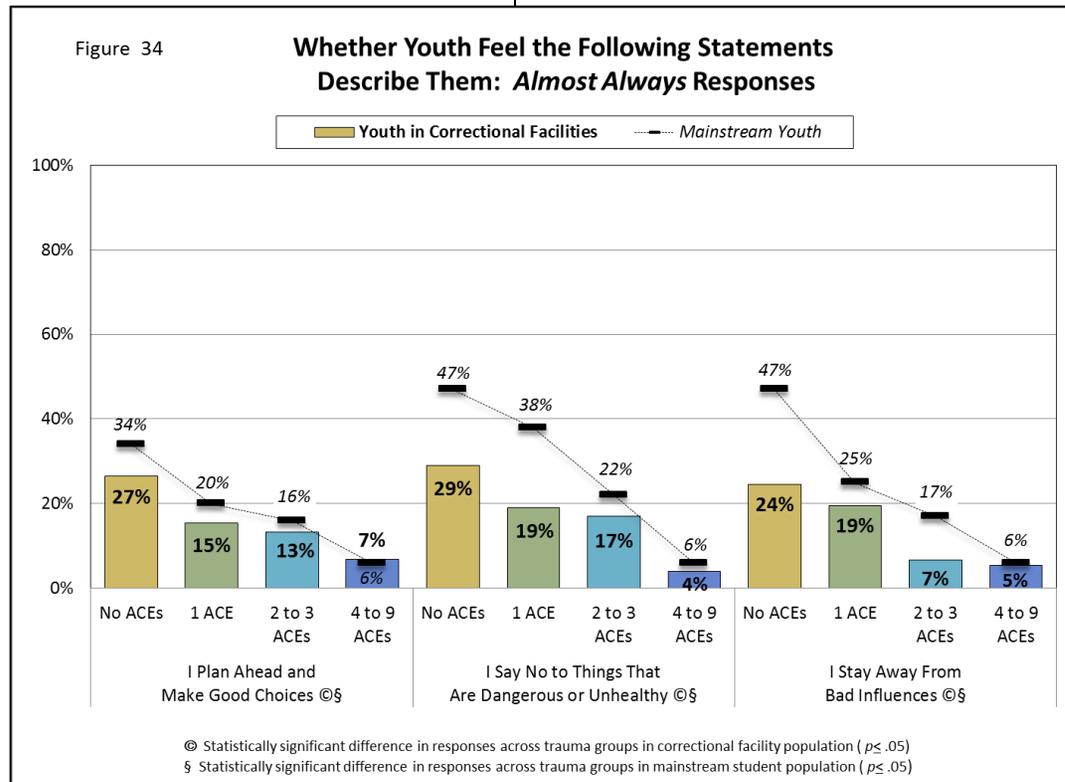
Youth in Correctional Facilities

MSS answers from youth in correctional facilities show a strong relationship between ACE score and the ability to plan ahead, say no to things that are dangerous or unhealthy, and stay away from bad influences.

Figure 34 illustrates that across all three questions, fewer than one-in-10 youth with *four or more ACEs* agreed they consistently possess these skills (4% to 6%). Conversely, youth with *no ACEs* are statistically more likely to have confidence in these areas (24% to 29%).

Mainstream Youth

Youth in mainstream schools also reported a decreased ability to *almost always* plan ahead and make good choices based on their ACE score. One-third of youth with *no ACEs* (34%) report they plan ahead and make good choices compared to just 6 percent of those with *four or more ACEs*.



The difference in perceived skills between those with and without ACEs is even more prominent related to the ability to say no to things that are dangerous or unhealthy, and to stay away from bad influences. Nearly half of youth with *no ACEs* say they *almost always* possess these skills (47%) compared to just 6 percent of those with *four or more ACEs*.

Generally, youth in correctional facilities reported lower levels of confidence in their decision-making skills than mainstream youth. However, among youth who reported *four or more ACEs*, levels of confidence in these skills was comparably low for both populations.

Sense of Self

Numerous questions on the *MSS* are intended to explore how youth feel about themselves, their abilities, and their future. Protective factors against the harmful effects of trauma include positive beliefs about one's-self; positive beliefs about the world as safe, predictable and fair; and the self-efficacy and motivation to take positive action on one's own behalf.⁷⁰ A sampling of *MSS* questions is included to determine if one's sense of self and outlook on life are affected by trauma score.

Youth in Correctional Facilities

Among youth in correctional facilities, ACE score has a statistically significant impact on perceptions of self and future (Figure 35). Those with the highest ACE scores are least likely to report they *almost always* feel good about themselves (16%); feel good about their futures (11%); or feel in control of their lives and futures (17%). Among those with fewer ACEs, levels of agreement are consistently higher.

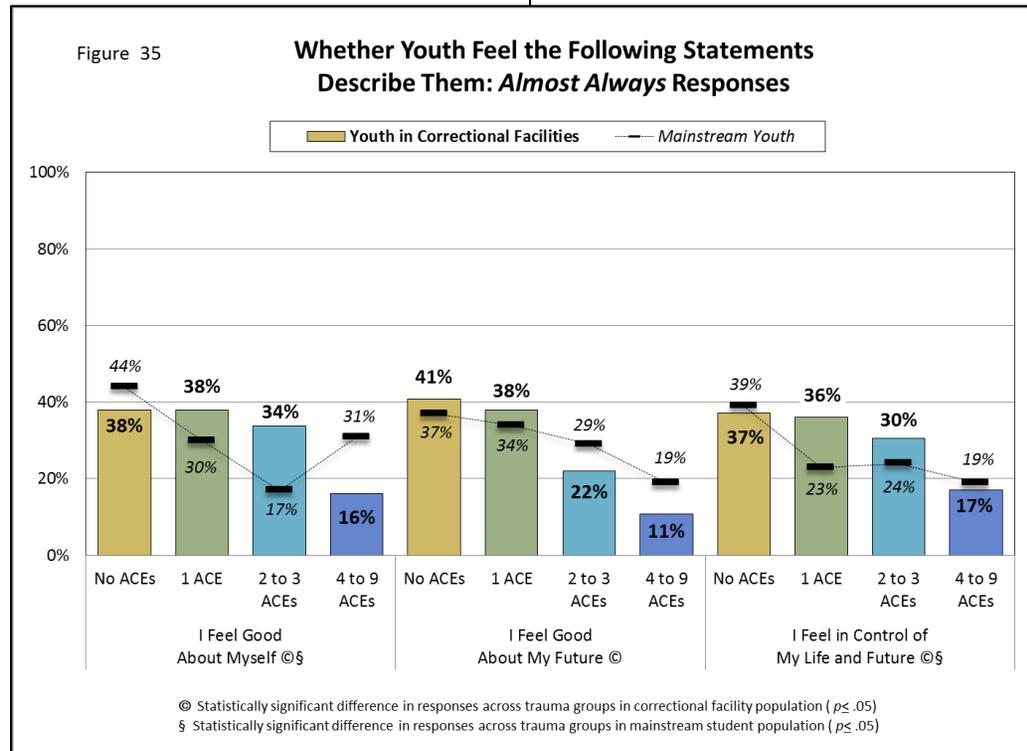
Programming for youth in correctional facilities often involves replacing negative self-perceptions with a sense of self-worth and self-efficacy.

Mainstream Youth

For mainstream youth, ACE score also had a statistically significant impact on whether youth feel good about themselves and whether they feel in control of their lives and futures. Youth with higher ACEs are statistically least likely to feel good about themselves or to feel in control of their lives and futures. Whether youth feel good about their futures is not statistically affected by ACE score for mainstream youth.

Of note is that youth in correctional facilities often reported a greater sense of self and degree of control over their lives and futures than mainstream youth. It appears that all

adolescents potentially share struggles with issues of self-esteem and future orientation.



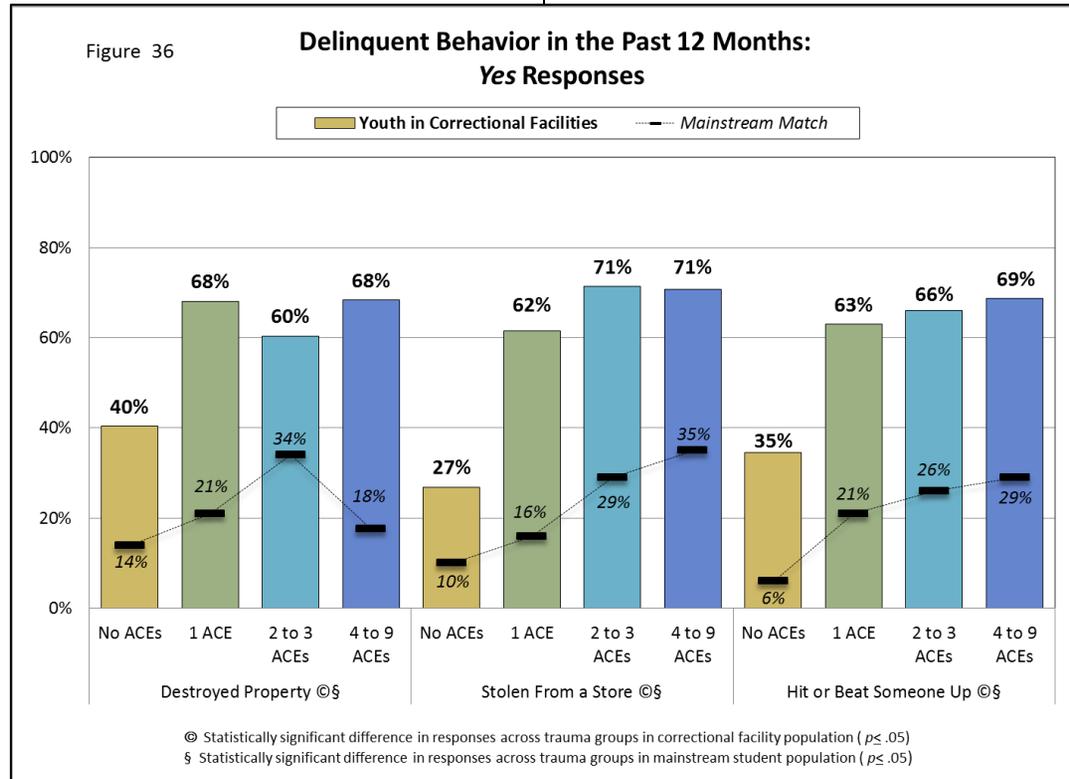
Delinquency and Antisocial Attitudes

Research supports that victims of violence are more likely to be perpetrators of violence, and that those most likely to be victims of crimes are those who report the greatest involvement in delinquent activity.⁷¹ Furthermore, people who experience childhood trauma are more likely to be arrested for serious crimes both as youth and as adults.⁷² While trauma does not inevitably lead to future illegal behavior, it is observed with sufficient frequency to be considered a specific risk factor for future involvement in the juvenile justice system.⁷³ Several questions on the MSS are related to delinquent behavior.

Youth in Correctional Facilities

Youth in correctional facilities who report any ACEs are statistically more likely than those with *no ACEs* to report engagement in several types of delinquency (Figure 36). Four-in-10 youth with *no ACEs* reported destroying property in the past year

(40%) compared to 60 percent or more of youth with *one or more ACEs*. Fewer than three-in-10 youth with *no ACEs* reported shoplifting (27%) compared to 71 percent of youth with *two or more ACEs*. Finally, over 63 percent of youth with any ACEs report they have hit or beat someone up in the past year compared to 35 percent of youth with *no ACEs*. Clearly engagement in delinquent behavior among youth in correctional facilities is high overall, but ACE score is also a contributing factor.



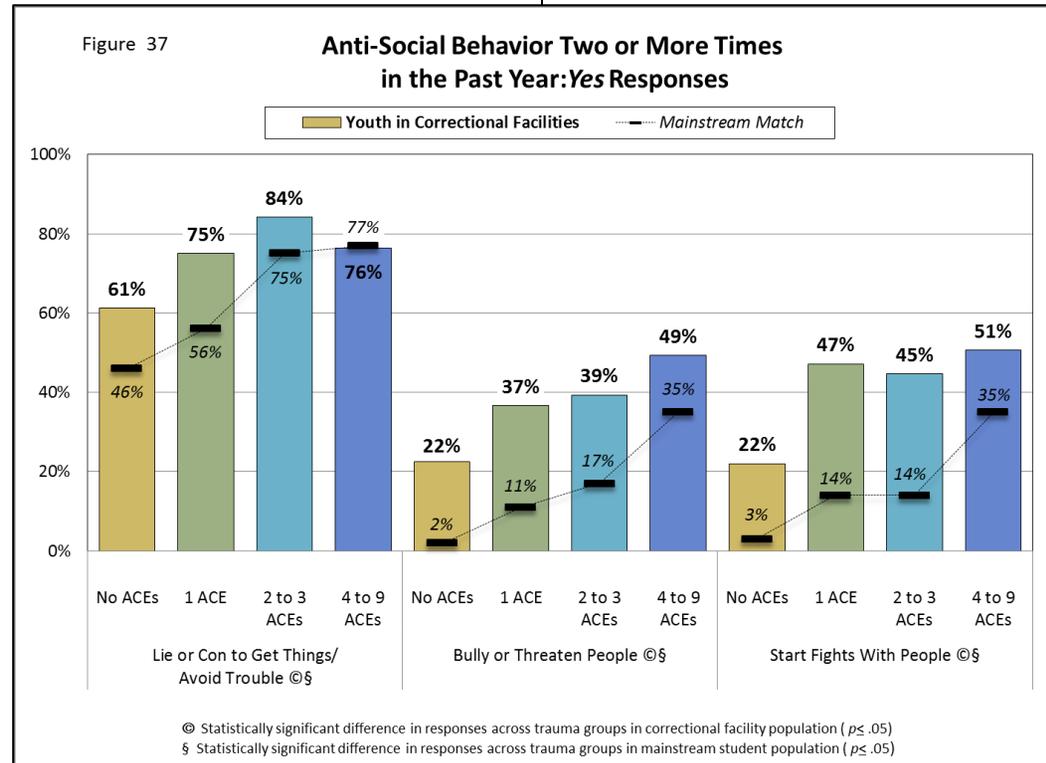
Youth in correctional facilities are also statistically more likely to engage in antisocial behavior as ACEs increase (Figure 37). Youth in correctional facilities with *two or more ACEs* are most likely to report they lie or con to get things or to avoid trouble (76% to 84%); and that they bully or threaten other people (39% to 49%). Youth with any ACEs are also statistically more likely to start fights with people (47% to 51%) than those with *no ACEs* (22%).

Mainstream Youth

Levels of self-reported delinquent behavior among mainstream students are considerably lower than those reported by youth in correctional facilities. Nevertheless, analysis of mainstream student responses to the *MSS* illustrates that delinquency is also statistically affected by ACE score for this population.

Property damage, shoplifting, and assaulting others are all lowest among youth with *no ACEs* (Figure 36) and, with one exception, peak with the highest number of ACEs. Mainstream youth may have other protective factors keeping them from engaging in as much delinquency as their peers in correctional facilities.

As it relates to anti-social attitudes among mainstream youth, ACE score is again statistically significant. Mainstream youth with higher ACEs are more likely to report they lie or con to get things or avoid trouble; that they bully or threaten others; or that they start fights with people (Figure 37).



Other Risk Factor Section Summary

- Both youth in correctional facilities and their mainstream school counterparts are statistically more likely to run away from home as ACE scores increase.
- Mainstream youth with more ACEs are less likely than those with fewer ACEs to report they are able to deal with disappointment, resolve conflicts without anyone getting hurt, or express their feelings in proper ways. Overall, youth in correctional facilities reported less confidence in these skills than mainstream youth.
- As ACE scores increase, youth in correctional facilities are less likely to feel good about themselves, or to feel in control of their lives and futures. Mainstream youth with higher ACE scores are also less confident in these areas, suggesting a connection between trauma, self-esteem, and future outlook.

- Youth in correctional facilities with any number of ACEs are more likely than those with *no ACEs* to report participation in property damage, shoplifting and assaulting others. Delinquent behavior among mainstream youth also increases with more ACEs, though not nearly to the levels reported by youth in correctional settings.
- For both youth in correctional facilities and mainstream youth, antisocial attitudes and behaviors increased with ACE scores. Those with the highest ACE scores are most likely to say they lie or con to get things or avoid trouble; that they bully or threaten other people; and that they start fights with others.

Part 5 Conclusion

Youth in Correctional Facilities Experience the Most Trauma

Data collected from the 2013 Minnesota Student Survey illustrate that youth in Minnesota correctional facilities experience more trauma than a matched sample of peers who participated in the survey in a mainstream school setting. While 57 percent of mainstream students reported no adverse childhood experiences (ACEs) on the survey, this was true for just 18 percent of youth in correctional facilities.

This study also reveals that youth in Minnesota correctional facilities are more likely to have experienced trauma than Minnesota adults. Data collected on the 2011 Minnesota *BRFSS* shows that 45 percent of adults reported *no ACEs* in their youth: 27 percent more than youth in correctional facilities. Conversely, mainstream youth were less likely to report ACEs than adults. Youth in the justice system experience the most ACEs, followed by adults, followed by mainstream adolescents.

Youth in correctional facilities are also most likely to report exposure to multiple types of trauma. One-quarter of youth in correctional facilities (25%) reported exposure to *four or more ACEs* compared to 13 percent of adults and 5 percent of mainstream students. Unlike adults, students taking the *MSS* still have the potential to be exposed to additional types of trauma before they reach adulthood.

Trauma Affects Health

A key goal of ACE studies is to investigate the effect of ACEs on health and wellness. Generally, the *MSS* does not reveal a statistically significant relationship between trauma score and physical health indicators such as obesity, asthma, or diabetes among youth. These conditions were more common among adults with higher ACE scores. Many of these conditions are progressive and may not have fully developed in the youth populations.

Very clear relationships exist however, between trauma score and mental and emotional health in both student populations. Youth with higher ACE scores are significantly more likely to report a long-term mental health problem and issues with anxiety, depression, and symptoms consistent with PTSD. Youth with more traumas also reported more self-harm, suicidal ideation and suicide attempts than those with fewer ACEs. Minnesota adults with higher ACEs also were more likely to have clinical diagnoses of anxiety and depression.

Chemical use is also strongly related to trauma score in both youth populations. Youth with more ACEs are more likely to have tried alcohol, marijuana and other drugs, and are more likely to report agreement with questions designed to indicate abuse or dependency. Even in the corrections population, where reports of chemical use are prevalent for all youth, a trauma effect is evident.

Trauma Affects Behavior Connected to Delinquency

Trauma exposure can place youth at increased risk for problems in many other areas of life. A link has been established between trauma exposure, traumatic stress, and behavior.⁷⁴ Youth may be brought in to the justice system in response to behavior associated with a trauma history.

Data collected in this study support that youth with more traumas are more likely to run away from home; to start fights with others; to shoplift and to damage property. Youth with more ACEs are less likely to report that they resolve conflicts peacefully or express their feelings appropriately. In addition, youth with higher ACEs are less likely to feel positive about their future or to feel like they make good decisions.

The Juvenile Justice System Must be Trauma-Informed

The majority of youth in correctional facilities (82%) report exposure to at least *one ACE* ranging from incarceration of a parent to being the victim of physical, emotional, or sexual abuse. Those working with youth in the justice system should presume the existence of a trauma history and abide by trauma-informed policies and practices.

In 2013, the National Center for Child Traumatic Stress convened a roundtable in which justice system experts identified essential

elements of a trauma-informed juvenile justice system. The following are key elements identified by the roundtable:⁷⁵

- Trauma screening and assessment, and evidence-based trauma treatments designed for justice settings
- Partnership with families to reduce the potential traumatic experience of justice involvement
- Collaboration across systems to enhance continuity of care
- The creation of a trauma-responsive care environment

Many correctional practices can exacerbate mental health issues or re-traumatize youth. Trauma-informed institutions can protect the safety of youth in their care and be active participants in youths' healing.

In order to implement these changes, the roundtable emphasized that a cultural shift is needed in juvenile justice from the correctional mindset to one that

embraces trauma-informed practices that support social and emotional health, successful community re-entry, resilience, and family-oriented approaches. This must be accomplished without failing to hold youth accountable for their actions.⁷⁶

Residential settings such as those in this study specifically require trauma-informed practices. Youth with traumatic histories often do not believe adults can or will protect them. Policies and practices in facilities must include adequate staff training and staffing ratios to keep youth safe; judicious use of consequences and disciplinary confinement; and extreme care when using physical restraints and seclusion. Uninformed correctional practices can exacerbate mental health issues and re-traumatize youth.⁷⁷ Trauma-informed institutions can protect the safety of youth in their care and be active participants in youths' healing.

Appendix A: Original ACE Question Content⁷⁸

1995 & 1997 ACE Study	
ACE	Definition
Emotional Abuse	Often or very often, a parent or other adult in the household swore at you, insulted you, or put you down, and sometimes, often or very often acted in a way that made you think that you might be physically hurt.
Physical Abuse	Sometimes, often, or very often you were pushed, grabbed, slapped, or had something thrown at you or hit so hard that you had marks or were injured.
Sexual Abuse	An adult or person at least 5 years older ever touched or fondled you in a sexual way, or had you touch their body in a sexual way, or attempted oral, anal, or vaginal intercourse with you or actually had oral, anal, or vaginal intercourse with you.
Emotional Neglect	Respondents were asked whether their family made them feel special and loved, and if their family was a source of strength, support, and protection. Emotional neglect was defined using scale scores that represent moderate-to-extreme exposure on the Emotional Neglect subscale of the Childhood Trauma Questionnaire (CTQ) short form.
Physical Neglect	Respondents were asked whether there was enough to eat, if their parents' drinking interfered with their care, if they ever wore dirty clothes, and if there was someone to take them to the doctor. Physical neglect was defined using scale scores that represent moderate-to-extreme exposure on the Physical Neglect subscale of the Childhood Trauma Questionnaire (CTQ) short form.
Mother Treated Violently	Your mother or stepmother was sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at her and/or sometimes often, or very often kicked, bitten, hit with a fist, or hit with something hard, or ever repeatedly hit over at least a few minutes or ever threatened or hurt by a knife or gun.
Household Substance Abuse	Lived with anyone who was a problem drinker or alcoholic or lived with anyone who used street drugs.
Household Mental Illness	A household member was depressed or mentally ill or a household member attempted suicide.
Parental Separation or Divorce	Parents were ever separated or divorced
Incarcerated Household Member	A household member went to prison.

Appendix B: BRFSS and MSS Question Content⁷⁹

ACE	MSS Question Wording	BRFSS Question Wording
Physical Abuse	Has a parent or another adult in your household ever hit, beat, kicked or physically hurt you in any way? (Yes responses)	Parent or adult in home ever hit, beat, kick or physically hurt you in any way once or more than once (does not include spanking).
Emotional Abuse	Does a parent or other adult in your home regularly swear at you, insult you or put you down? (Yes responses)	Parent or adult in home ever swear at you, insult you, or put you down more than once.
Sexual Abuse	Has any adult or person outside of the family ever touched you sexually against your wishes or forced you to touch them sexually? Yes responses. And/Or Has any older or stronger member of your family ever touched you or had you touched them sexually? Yes responses	Anyone at least 5 years older than you or an adult, ever touched you sexually, try to make you touch them sexually, or force you to have sex once or more than once.
Mental Illness	<u>Not asked on MSS</u>	Lived with anyone who was depressed, mentally ill, or suicidal.
Substance Abuse: Alcohol	Do you live with anyone who drinks too much alcohol? (Yes responses)	Lived with anyone who was a problem drinker or an alcoholic.
Substance Abuse: Drugs	Do you live with anyone who uses illegal drugs or abuses prescription drugs? (Yes responses)	Lived with anyone who used illegal street drugs or abused prescription medication.
Divorce or Separation	<u>Not asked on MSS</u>	Parents separated or divorced.
Domestic Violence	Have your parents or other adults in your home ever slapped, hit, kicked, punched or beat each other up? (Yes responses)	Parents or adults in your home ever slap, hit, kick, punch or beat each other up once or more than once.
Incarceration	Have any of your parents or guardians ever been in jail or prison? (Yes, Now &/or Yes, in the Past responses)	Lived with anyone who served time in a prison, jail or other correctional facility.
Dating: Violence	Have you ever had a boyfriend or girlfriend in a dating or serious relationship who hit, slapped, or physically hurt you on purpose? (Yes responses)	<u>Not an ACE</u>
Dating: Sexual Abuse	Have you ever had a boyfriend or girlfriend in a dating or serious relationship who pressured you into having sex when you didn't want to? (Yes responses)	<u>Not an ACE</u>

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