



adverse CHILDHOOD EXPERIENCES IN MINNESOTA

FINDINGS & RECOMMENDATIONS BASED ON THE
2011 Minnesota Behavioral Risk Factor Surveillance System

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executive SUMMARY

This report marks the first time that the Minnesota Department of Health has collected data regarding the effects of adverse childhood experiences (ACEs) on the lifelong health and well-being of adults in Minnesota. For two decades, research by the Centers for Disease Control and Prevention (CDC) and other states has demonstrated over and over again the powerful impact of ACEs on health, behavioral, and social problems. An extensive and growing body of research documents that adverse childhood experiences (ACEs)—those causing toxic levels of stress or trauma before age 18—are specifically linked to poor physical and mental health, chronic disease, lower educational achievement, lower economic success, and impaired social success in adulthood.

In 2008, the CDC developed a set of ACE questions for states to use in the **Behavioral Risk Factor Surveillance System (BRFSS)**, a survey used by individual states to determine the status of their residents' health based on behavioral risk factors. In 2011, Minnesota became the 18th state to add the ACE questions to the BRFSS survey.

Minnesota's 2011 BRFSS **results are consistent with the findings from the initial ACE study and other states' ACE studies.** First, **ACEs are common.** Over half of Minnesotans have experienced at least one ACE. In particular, ACEs are more common among Minnesotans who did not graduate from high school, who were unmarried, who rented rather than owned their own home, who were unemployed, or who worried about paying their mortgage or rent or about buying nutritious food. Second, **ACEs frequently occur together.** In Minnesota, over half of Minnesotans experiencing ACEs had more than two ACEs. Third, **ACEs have a strong and cumulative impact on the health and functioning of adults.** For example, Minnesotans with more ACEs were more likely to rate their health as fair or poor, to have been diagnosed with depression or anxiety, to report smoking and chronic drinking, to have been diagnosed with asthma, and to be obese.

Despite all of this, adversity is not the end of the story. There is increasing understanding about resilience and what families, communities, and systems can do to protect children and support adults with ACEs. Resilience is positive adaptation within the context of significant adversity. In the face of adversity, neither resilience nor disease is a certain outcome. The hope of this research is to demonstrate that **by reducing ACEs, we can reliably expect a reduction in many ACE-related health and social problems.** Communities and states such as Washington have improved health and well-being by rallying around the concept of resiliency and reducing ACEs.

...by reducing ACEs we can reliably expect a reduction in many ACE-related health and social problems.



What is an ACE?

AN **ADVERSE CHILDHOOD EXPERIENCE (ACE)** describes a **traumatic experience** in a person's life occurring before the age of 18 that the person recalls as an adult. In the Minnesota BRFSS survey, respondents were asked if they had experienced any of the following **nine types of ACEs**: physical abuse, sexual abuse, emotional abuse, mental illness of a household member, problematic drinking or alcoholism of a household member, illegal street or prescription drug use by a household member, divorce or separation of a parent, domestic violence towards a parent, and incarceration of a household member.



ACEs are common among Minnesotans

Results indicate that ACEs are common among Minnesota adults. **Over half** of the Minnesotans responding to ACE module questions reported experiencing at least one ACE in childhood. The five most common ACEs reported by Minnesotans in the survey are **emotional abuse (28 percent)**, living with a **problem drinker (24 percent)**, **separation or divorce of a parent (21 percent)**, **mental illness in the household (17 percent)**, and **physical abuse (16 percent)**.

PREVALENCE OF INDIVIDUAL ACEs

MINNESOTA 2011



ACEs often occur together

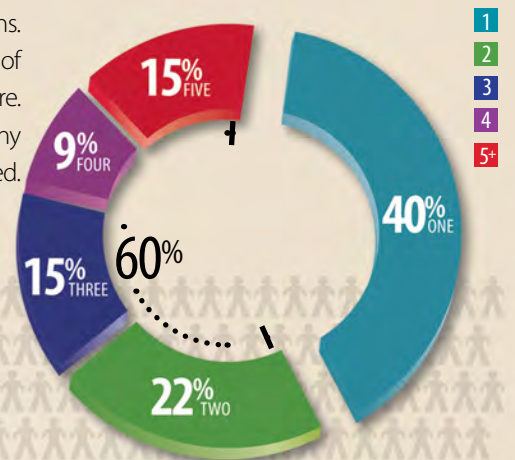
Minnesotans reporting one ACE are more likely to report other ACEs in childhood. The chart below illustrates that for those Minnesotans with at least one ACE, **60 percent** have **two or more** ACEs, and **15 percent** have **five or more** ACEs.

DISTRIBUTION OF ACEs

MINNESOTA 2011

AMONG THOSE WITH AT LEAST 1 ACE

Number of ACEs



The ACE score is a measure of cumulative exposure to particular adverse childhood conditions. Exposure to any single ACE condition is counted as one point. If a person experienced none of the conditions in childhood, the ACE score is zero. Points are then totaled for a final ACE score. It is important to note that the ACE score does not capture the frequency or severity of any given ACE in a person's life, focusing instead on the number of ACE conditions experienced. In addition, the ACE conditions used in the ACE study reflect only a select list of experiences.



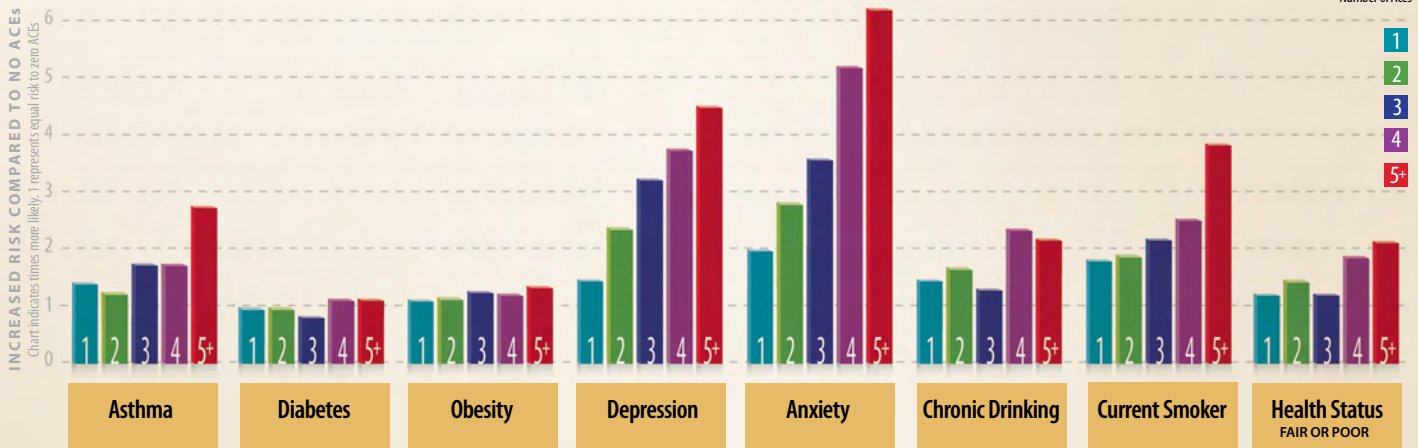
55% of Minnesotans report **experiencing one or more ACE** in childhood

ACEs have a strong and cumulative impact on the health and functioning of adults in Minnesota

As the number of ACEs increases, the risk for health problems increases in a strong and graded fashion in areas such as alcohol and substance abuse, depression, anxiety, and smoking. The chart below shows the association between ACEs of Minnesotans and chronic health conditions later in life. The risk for anxiety, depression, and smoking increases as the number of ACEs increase. However, the correlation between ACEs and obesity or diabetes

INCREASED RISK OF CONDITION/BEHAVIOR WHEN ACE IS PRESENT

MINNESOTA 2011
Number of Aces



is not as evident among Minnesotans. While there is a definite increased risk of asthma for Minnesotans with five or more ACEs, there is no clear pattern for those with four or fewer

ACEs. There is also a clear increase in reported chronic drinking for Minnesotans with four or more ACEs; however, the association between one to three ACEs and reported chronic

drinking is less clear. Minnesotans with more ACEs are more likely to rate themselves as having fair or poor health as compared to those with no ACEs.

Summary of policy recommendations

Based on the findings of Minnesota’s ACE Study, we recommend the following strategies to reduce ACEs and build resiliency in Minnesota communities.

Increase awareness of ACEs, their impact on health and well-being, and Minnesotans’ capacity to act.

1 Develop a **communication strategy** that focuses on the **social and economic benefits** of reducing and preventing ACEs in Minnesota.

2 Work with the state’s education, child welfare, mental health, public health, health care, substance abuse, juvenile justice, corrections, and public safety systems to **increase awareness** of the impact of ACEs on the people these agencies serve.

Enhance the capacity of communities to **prevent** and **respond** to ACEs.

3 Support and **develop resilience** through **investments** that support community, government, and philanthropy partnerships.

4 Build **collaborative leadership** to **form a vision** and support change.

Continue to **collect** Minnesota-specific **data** on the relationship among ACEs, health outcomes, and resilience.

5 Designate **funds** to continue the collection, analysis, and dissemination of **ACE data** from Minnesota residents.

6 Develop a thorough **inventory** of existing agency and community **efforts** to **reduce ACEs** and **support** resilience.

INTRODUCTION

ACEs have a strong and cumulative impact on the health and functioning of persons throughout their lives.

In recent decades, the scientific community has come to understand that childhood experiences significantly shape the developing brain and impact lifelong health and well-being, including educational and economic success. These childhood experiences are built into the human body, creating biological “memories” that shape development, for better or for worse. An extensive and growing body of research documents that **adverse childhood experiences (ACEs)**—those causing toxic levels of stress or trauma—are linked to **poor physical and mental health, chronic disease, lower educational achievement, lower economic success, and impaired social success** in adulthood.

This research suggests that when a child is exposed to severe, frequent, and unrelenting stress without the buffering protection of adult support, it can profoundly impact the body’s stress response systems and may result in the disruption of typical brain development and chemistry. This type of stress is called toxic stress. Toxic stress can be the result of ACEs—such as child abuse, neglect, and repeated exposure to household dysfunction—as well as other traumatic events. **ACEs have a strong and cumulative impact on the health and functioning of persons throughout their lives.**

Moreover, **ACEs represent a preventable public health issue**—the number and severity of ACEs can be reduced through prevention while intervention efforts can be used to mediate the long-term impact of ACEs on individuals and communities.

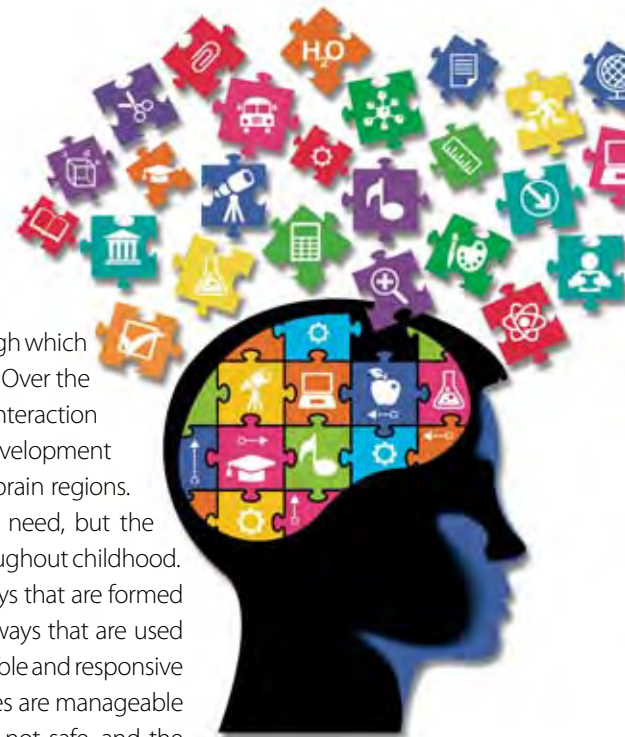
Promoting family and community well-being and reducing ACEs takes all Minnesotans working together. Minnesota’s joint efforts will shift resources by reducing the rates and cost of treating preventable health problems and re-purposing and aligning those resources to efforts that support prevention and wellness.

The factors that contribute to ACEs are complex and are found at the level of individuals, families, communities, and society at large; thus the work to reduce ACEs will be complex as well. Yet, as state and community partners continue to work together to improve health at the individual, family, and community-wide level, Minnesotans need to work toward solutions that solve multiple problems simultaneously. Promotion of community health will draw together all public and private sectors to focus attention on policies, practice, and resource alignment to address behavior and environments that create ACEs.



Understanding how ACEs impact health throughout the lifespan can help Minnesotans design effective policies and practices across systems resulting in families and communities where Minnesotans can grow and develop into healthy, contributing members of society. Reducing the ACE-related disease burden carried by individuals and society may likely decrease the prevalence of Minnesota’s costliest chronic health problems—an interest Minnesotans all share.





The brain and child development

The science of brain development provides an explanation of the mechanisms through which **experiences occurring before the age of 18 impact adult health and well-being**. Over the course of a lifetime, a person's brain develops as a result of the complex, ongoing interaction between his or her **genes** and the **environment**. While some aspects of brain development are determined by genes, experiences influence the strength of connections between brain regions.

Newborn babies already have the vast majority of brain cells they will ever need, but the pathways that allow brain cells to communicate with each other continue to develop throughout childhood. The quality and type of experiences occurring in the first years of life impact the pathways that are formed between neurons in the child's brain. Pathways that are rarely used fade, whereas pathways that are used more frequently grow stronger. Thus, in a safe, secure, and nurturing environment with a stable and responsive caregiver who is able to help the child cope with stressors, the child learns that challenges are manageable and those adaptive pathways in the child's brain grow stronger. If the environment is not safe, and the child has limited positive interactions with an adult, the child may develop a more vigilant approach to the world to avoid known and unknown dangers, and those maladaptive pathways in the brain grow stronger.

In short, **a child's brain is shaped by the environment in which the child is raised**, and this brain architecture will have an enduring influence on how the child responds to new situations and experiences. For instance, a child who is removed from a maltreating environment may continue to be vigilant and wary even if the new environment is not dangerous. **Providing the right conditions for healthy brain development in childhood is critical to avoid treating problems at a later age**. And intervening early, before these maladaptive pathways in the brain grow strong and more difficult to alter, is critical.

National Scientific Council on the Developing Child (2007). "The science of early childhood development: Closing the gap between what we know and what we do." http://www.developingchild.net/pubs/persp/pdf/Science_Early_Childhood_Development.pdf

Providing the right conditions for healthy brain development in childhood is critical to avoid treating problems at a later age.

How does stress affect the developing brain?

Stress in reasonable doses promotes growth and brain development throughout childhood. Stress is a normal part of daily life and learning how to manage stress and regulate stress responses is critical to a child's development. However, acute or prolonged stress can become toxic to the developing brain and body. **ACEs can cause toxic stress**. Children's stress response systems are immature at birth and therefore vulnerable to maltreatment and neglect. If the adults in a child's life are not able to buffer the stress or are themselves the source of the stress, the child may begin to experience the world as dangerous and uncertain. In the face of danger, the body

reacts by producing excess surges in stress hormones, such as cortisol. In childhood, persistent and intense stress stemming from ACEs actually influences how the brain develops, strengthening connections in the parts of the brain that are associated with fear, arousal, and emotional regulation at the cost of other parts of the brain associated with learning and memory. Continuous activation of the stress response system can also produce disruptions of the immune and metabolic systems, resulting in a lifetime of greater susceptibility to physical illness as well as mental health problems. A person's **reaction to ACEs** depends on the person's own biological stress reactions, the person's own

protective characteristics, the **intensity and duration of the ACE**, and the strength of the person's childhood bond to a stable, responsive, **and nurturing caregiver**, which is particularly important in the early years from birth through preschool. Throughout childhood, but particularly from infancy through preschool, **children depend on sensitive, responsive caregivers** to help maintain the normal daily rhythm of the stress hormone, cortisol, and to protect the developing brain from being exposed to too much cortisol.

Center on the Developing Child at Harvard University (2007). "A Science-Based Framework for Early Childhood Policy: Using Evidence to Improve Outcomes in Learning, Behavior, and Health for Vulnerable Children." <http://www.developingchild.harvard.edu>

Types of Stress

ACEs can
cause
toxic stress.

positive

- Meeting new people
- Frustration



tolerable

- Natural Disaster
- Death of Loved One



toxic

- Abuse
- Maternal Depression
- Substance Abuse
- Family Violence



Positive Stress: moderate response associated with brief increases in heart rate and blood pressure and mild elevations in cortisol or cytokine levels. **Important and necessary aspect of healthy development**, especially when occurring in the context of stable and supportive relationships, which tend to keep physiological stress responses small and manageable, assisting the child to develop skills in emotional regulation and self-control.

EXAMPLES: *Stress in meeting new people or dealing with frustration*

Tolerable Stress: associated with experiences that could trigger stress responses large enough to disrupt brain development but don't because they are **relieved by supportive relationships** that facilitate adaptive coping and thereby restore heart rate and stress hormone levels to baseline.

EXAMPLES: *Death of a loved one or natural disasters*

Toxic Stress: associated with intense and prolonged activation of the body's stress response system in the absence of the buffering protection of adult support resulting in the **disruption of typical brain development and chemistry.**

EXAMPLES: *Recurrent child abuse or neglect, severe maternal depression, parental substance abuse, or family violence*

Center on the Developing Child at Harvard University (2007). "A Science-Based Framework for Early Childhood Policy: Using Evidence to Improve Outcomes in Learning, Behavior, and Health for Vulnerable Children." <http://www.developingchild.harvard.edu>

The presence of **protective factors** can often **mitigate** the consequences of ACEs.

Why do some children thrive and others fare less well?

Adversity is only one part of the equation. Children may also have their own characteristics and experiences that protect them and help them develop resilience despite exposure to ACEs. **Resilience** is positive adaptation within the context of significant adversity. In the face of adversity, neither resilience nor disease is a certain outcome. Resilience is the result of a dynamic set of interactions between a person's adverse experiences and his or her protective factors. This interaction is what determines the developmental path towards **health and well-being** or towards **illness and dysfunction**. No child is magically resilient or invulnerable to ACEs, just as no individual child is automatically doomed in the face of ACEs.

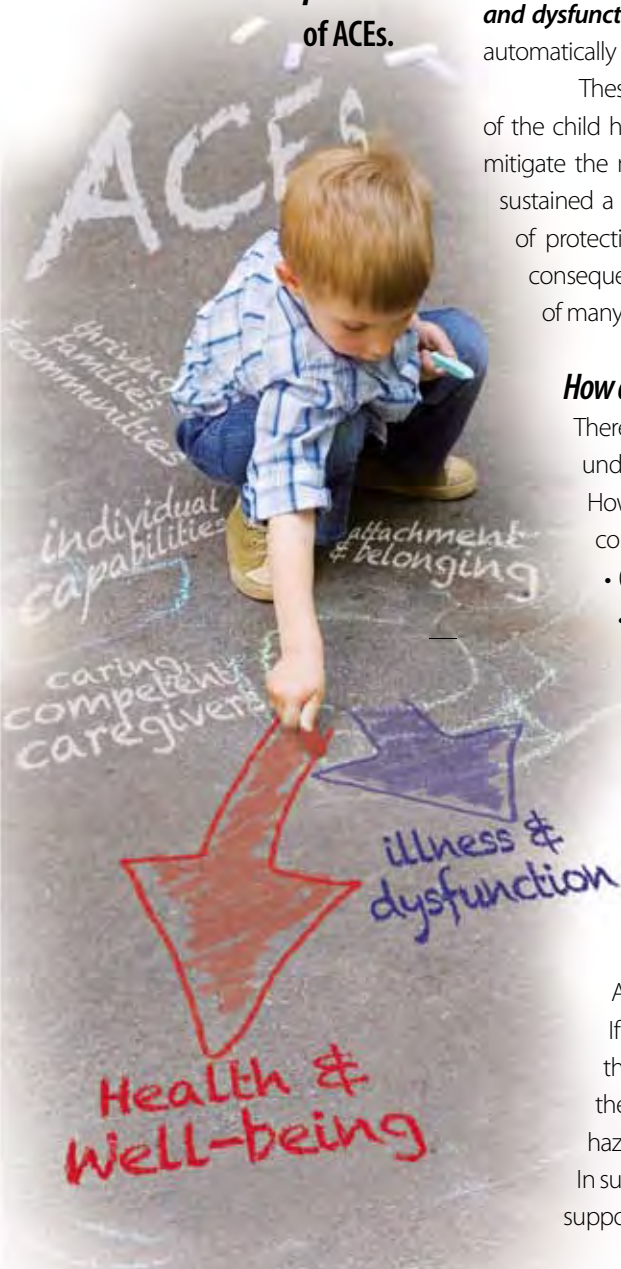
These protective factors can include the individual biological and developmental characteristics of the child himself, as well as the environmental factors of the family, community, and systems that mitigate the negative impacts of ACEs. Protective factors help explain how some people who have sustained a great deal of adversity as children have fared relatively well in adulthood. The presence of protective factors, particularly safe, stable, and nurturing relationships, can often mitigate the consequences of ACEs. Individuals, families, and communities can all influence the development of many protective factors throughout a child's life that can impact his or her development.

How does resilience develop?

There are multiple pathways to resilience. Resilience researchers continue to refine understanding about the ingredients and processes involved in supporting resilience. However, there is agreement about a variety of important individual, family, and community conditions that support resilience, including the following protective factors:

- Close relationships with **competent caregivers** or other caring adults
- Parent **resilience**
 - Caregiver knowledge and application of **positive parenting** skills
 - Identifying and cultivating a **sense of purpose** (*faith, culture, identity*)
 - Individual developmental **competencies** (*problem solving skills, self-regulation, agency*)
 - Children's **social** and **emotional** health
- Social **connections**
- Socioeconomic **advantages** and concrete **support** for parents and families
- **Communities** and **social systems** that support health and development, and nurture human capital

Protective factors help a child feel safe more quickly after experiencing the toxic stress of ACEs and help to neutralize the physical changes that naturally occur during and after trauma. If the child's protective networks are in good working order, development is strong even in the face of severe adversity; if these major systems are impaired, either before or after the ACE, then the risk for developmental problems is much greater, particularly if the environmental hazards are prolonged. (*Masten, A. S. (2001). Ordinary magic: Resilience processes in development. American psychologist, 56(3), 227.*) In summary, even the negative consequences of toxic stress from ACEs can be buffered with the support of caring adults and appropriate intervention and support.



THE ACE STUDY

The **Adverse Childhood Experiences Study** was conducted between 1995-1997 by Drs. Robert Anda and Vincent Felitti. The study was based on the compiled data of over 17,000 adult patients who were enrolled in the

Kaiser-Permanente insurance program. Study participants, who were primarily middle-class and well-educated, were mailed a detailed questionnaire two weeks after going through a health-screening examination. The survey contained questions about early childhood experiences, physical and mental health history, and adult health behaviors. These results were then matched with the clinical record from the recent visit. While enrollment in the study was closed at the end of 1997, the study participants continue to be monitored for health outcomes. More than 100 scientific articles have now been published about the ACE study or subsequent related studies done to add understanding and clarity to these relationships.

In 1984, the Centers for Disease Control and Prevention developed the **Behavioral Risk Factor Surveillance System (BRFSS)**, a survey to be used by individual states to determine the status of their residents' health based on behavioral risk factors. In all BRFSS surveys, there is a set of core questions that participating states must use and thirty-four optional modules. An optional ACE module was added in 2008. In 2011, **Minnesota became the 18th state to add the ACE module** to the BRFSS survey.

ACE FACTS

1995 to 1997
Years Study Conducted

17,000
Adults Contributed Data

100
Published Studies on ACEs



What is an ACE?

An adverse childhood experience (ACE) describes a **traumatic experience in a person's life occurring before the age of 18** that the person recalls as an adult.

The ACE score is a measure of cumulative exposure to particular adverse childhood conditions. Exposure to any single ACE condition is counted as one point. Points are then totaled for a final ACE score. It is important to note that the ACE score does not capture the frequency or severity of any given ACE in a person's life, focusing instead on the number of ACE categories experienced. In addition, the ACE categories used in the ACE study reflect only a select list of experiences.

The 2011 Minnesota ACE Study

The 2011 Minnesota BRFSS data were collected through interviews with adults reached at randomly selected telephone numbers. Minnesota results reflect a dual frame sample design that includes both cellular and landline telephone numbers. Respondents reached by cell phone comprised 31 percent of the sample and were selected based on their positive response to three questions confirming Minnesota residency, age (18 years or older), and that the phone was not used for business purposes. For the landline sample, a census of household members by age and gender was enumerated and one adult was selected at random. The Minnesota ACE sample is comprised of 15,266 respondents of which 13,520 responded to the ACE module of questions.¹



ACE Categories used in the Minnesota BRFSS Survey

- 1 Physical abuse.
- 2 Sexual abuse.
- 3 Emotional abuse.
- 4 Mental illness of a household member.
- 5 Problematic drinking or alcoholism of a household member.
- 6 Illegal street or prescription drug use by a household member.
- 7 Divorce or separation of parents.
- 8 Domestic violence between adults in the household.
- 9 Incarceration of a household member.

Note: two categories from the original ACE study, physical and emotional neglect, were not included in the BRFSS survey. In addition, drug and alcohol use by someone living in the home were counted as separate ACEs in the Minnesota BRFSS analysis and not combined into one as in the BRFSS analyses conducted in other states.

The *Minnesota ACE questions are consistent with those that have been used in other states over the course of the last several years.*

There are 11 questions that yield 9 ACEs in the module that assesses the occurrence of adverse experiences prior to the age of 18. The ACE categories include events relating to emotional, physical, and sexual abuse and adverse household situations including mental illness, incarceration of a household member, parent separation or divorce, presence of drug or alcohol abuse, or exposure to violence between adults.

¹All findings presented in this report are from the 2011 Minnesota BRFSS survey unless otherwise indicated. Researchers calculated the 95% confidence interval for 0, 1, 2, 3, 4, and 5 or more ACE categories for the total population and by gender. These findings coincided with those reported by the combined Five State estimates of confidence interval, i.e., there is a statistical significance between 0, 1, 2, 3, 4, and 5 or more ACEs. The only exception found was that there was no difference between the 3 ACE score and the 5-or-more ACE score. This finding was true doing the analysis by gender as well.

MINNESOTA ACE FINDINGS

A

s documented in the initial ACE study and in other states' ACE studies, adverse childhood experiences have a lifelong impact on the physical health, mental health, and social well-being of Minnesotans. This study confirms that a majority of Minnesotans are experiencing ACEs in childhood. As in other states, ACEs tend to occur together. This study also confirms that there is an association between the number of ACEs and health and social outcomes so that the more ACEs a person has the greater the effect on physical and mental health and social well-being. In this section, a summary of ACEs in Minnesota by select socioeconomic factors is provided. This helps to understand who experiences ACEs in Minnesota, the prevalence of ACEs being reported, and the types of ACEs experienced in childhood. In the following section, the ACE scores and the association of these scores with selected health conditions and risk behaviors are presented.

ACEs are common among Minnesota adults.

Prevalence of ACE Variables

ACEs are common among Minnesota adults. Over half (55 percent) of the adults responding to ACE module questions reported experiencing at least one ACE in childhood.

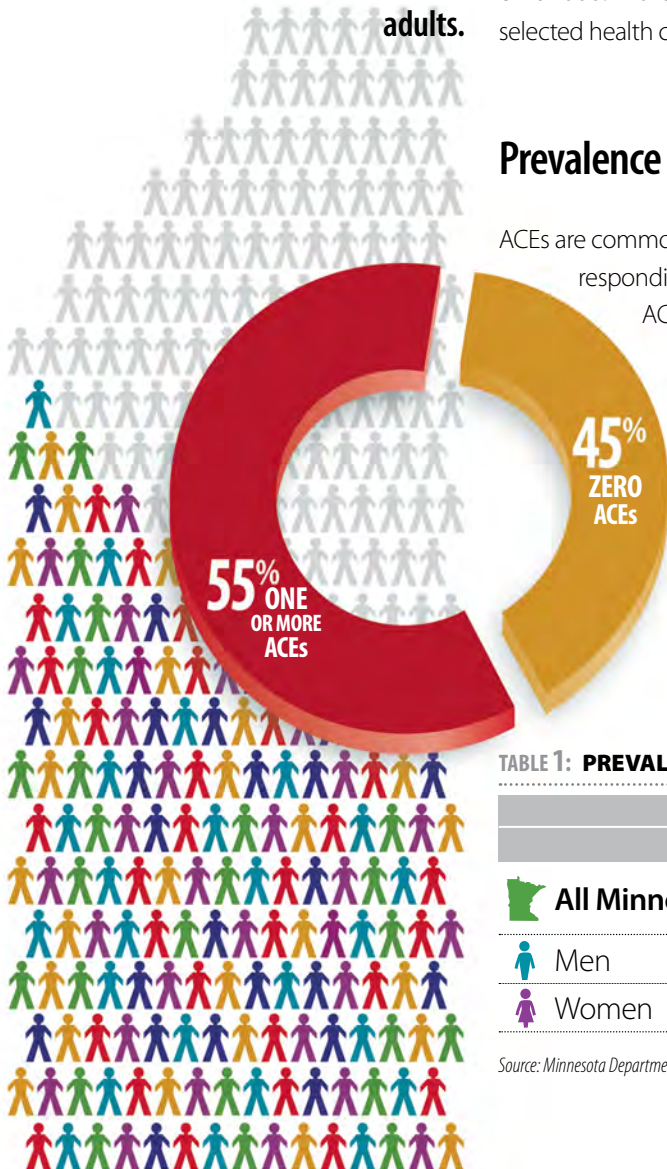


Table 1 shows the distribution of ACE scores for all Minnesotans and by gender. Table 1 indicates that 21 percent of Minnesotans reported three or more ACEs and 8 percent reported five or more ACEs.

Consistent with other states' results, **women experience even greater numbers of ACEs.** In Minnesota, 57 percent of women and 54 percent of men reported experiencing one or more ACE in childhood. Almost a quarter of women (24 percent) reported experiencing three or more ACEs in childhood compared to 19 percent of men.

TABLE 1: PREVALENCE OF ACEs IN MINNESOTA

MINNESOTA 2011

	NUMBER OF ACEs (PERCENT)					
	0	1	2	3	4	5+
All Minnesotans	45	22	12	8	5	8
Men	46	23	12	7	5	7
Women	43	22	12	9	6	9

Source: Minnesota Department of Health, Center for Health Statistics, BRFSS

Due to rounding, the numbers may exceed 100%.

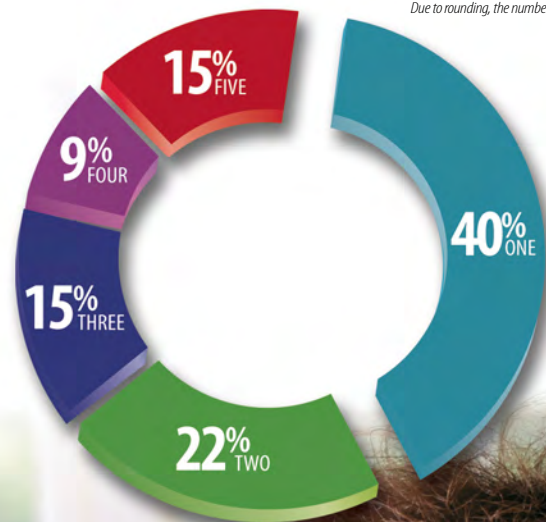
Co-Occurrence of ACEs in Minnesota Adults

ACEs also tend to occur together, meaning that those Minnesotans reporting one ACE are more likely to report other ACEs.

This is consistent with the ACE findings from other states. **Table 2** illustrates that of the 55 percent of Minnesota adults with one ACE, 40 percent have one ACE and 60 percent have two or more ACEs. This graph also shows that among those having at least one ACE, 15 percent have five or more ACEs.

TABLE 2: DISTRIBUTION OF ACEs IN MINNESOTA MINNESOTA 2011

Due to rounding, the numbers may exceed 100%.



ACEs often occur together.



Definitions of ACE Experiences

The Centers for Disease Control and Prevention (CDC) define adverse child experiences as **experiences that represent health or social problems of national importance** including abuse and household dysfunction. Abuse includes physical, sexual, and emotional abuse in childhood. Household dysfunction includes growing up with domestic violence, substance abuse or mental illness in the home, parental divorce or separation, and incarceration.

abuse

Physical

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.)*

Sexual

Anyone at least 5 years older than you or an adult, ever touch you sexually, try to make you touch them sexually, or force you to have sex once or more than once.

Emotional

Parent or adult in home ever swear at you, insult you, or put you down more than once.

household dysfunction

Mental Illness

Lived with anyone who was depressed, mentally ill, or suicidal.

Substance Abuse

Alcohol

Lived with anyone who was a problem drinker or alcoholic.

Drugs

Lived with anyone who used illegal street drugs or abused prescription medication.

Divorce or Separation

Parents separated or divorced.

Domestic Violence

Parents or adults in your home ever slap, hit, kick, punch or beat each other up once or more than once.

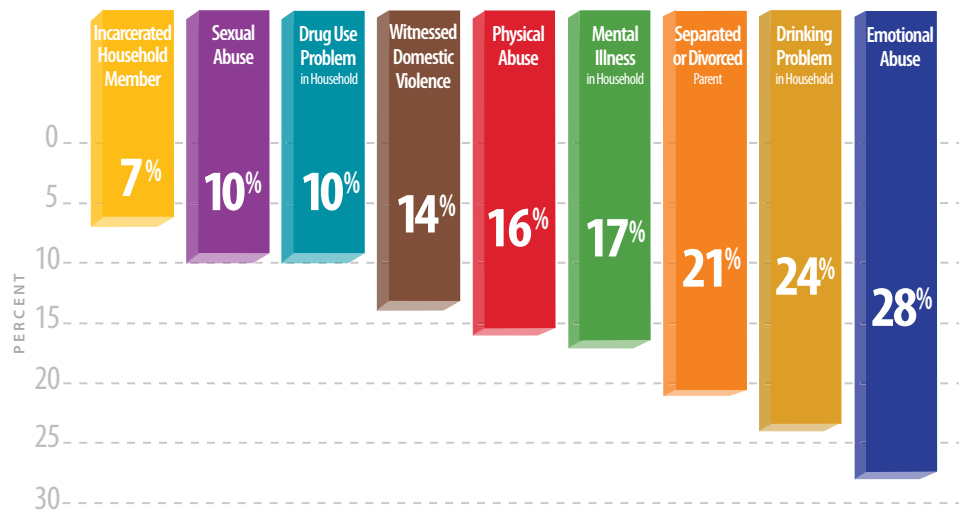
Incarceration

Lived with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility.

Table 3 shows the prevalence of each ACE among Minnesota adults. The **three most common** ACEs reported by Minnesota adults include **emotional abuse** with 28 percent of Minnesotans indicating that a parent or adult in their home swore, insulted or put them down in their youth; **living with a problem drinker** or alcoholic (24 percent); and **separation or divorce** of a parent (21 percent).

TABLE 3: PREVALENCE OF INDIVIDUAL ACEs

MINNESOTA 2011



ACE Variables (type) of MN Adults Vary by Gender

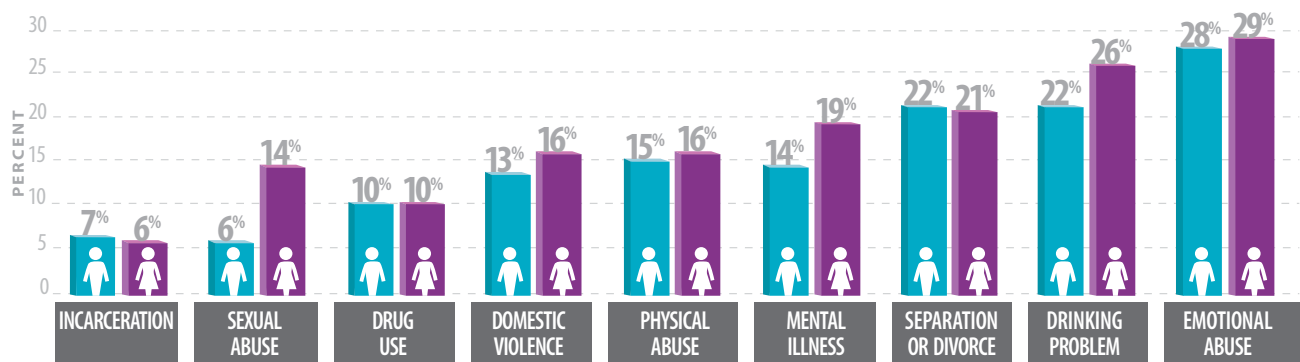
Table 4 also indicates that there are some differences in the type of ACEs experienced by gender. While there are similar rates for men and women for most ACEs, women more often report

experiencing sexual abuse, witnessing domestic violence, mental illness in the household, and problem drinking in the household as compared to men.

There are some differences in the type of ACEs experienced by gender

TABLE 4: COMPARISON OF ACEs BY GENDER

MINNESOTA 2011



education
marital status
employment
housing
financial stress

Socio-Demographic Characteristics

The impact of adverse experiences in childhood has long-standing and significant results. While ACE studies have provided documentation on long term physical and mental health outcomes as well as chronic disease and illness, ACEs also appear to be a factor in numerous socioeconomic indicators like **education, employment status, marital status, living environments,** and those experiencing **financial stress.**

This section uses the ACE scoring system to examine the relationship between ACE scores and a number of demographic and socioeconomic indicators in the Minnesota BRFSS data. The number of ACEs by six of these indicators (education level, marital status, employment and housing status, and two measures of financial stress) is examined.

Race/Ethnicity

There is interest in examining whether some racial/ethnic groups experience ACEs at a greater rate, if these groups experience greater rates of multiple ACEs as compared to other racial/ethnic groups, or if

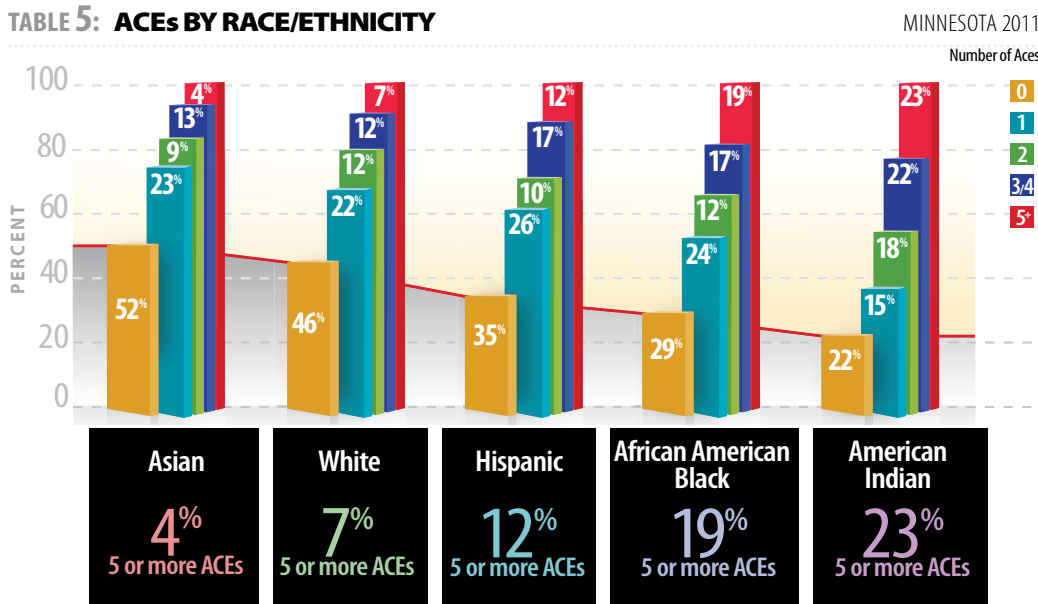
the results of these experiences lead to various health outcomes and health risk behaviors as compared to other groups. In response, while the BRFSS includes a large sample and over-sampling of some racial/

ethnic groups, it does not result in a sample of different groups that is large enough to conduct a detailed analysis of this data by race/ethnicity. More specifically, we cannot make a connection between ACEs and

health outcomes or health risk behaviors by race/ethnicity from the available data.

However, the race/ethnicity data that is provided indicate that some racial/ethnic groups are more likely to experience one or more ACEs and that a greater percent of some racial/ethnic groups experience five or more ACEs. From the BRFSS data, **Table 5** provides the percent of racial/ethnic groups that reported ACEs in childhood. While the sample size for some groups is small, there are some differences by race/ethnicity that can be noted. For example, African Americans and American Indians had a significantly higher percent of individuals reporting five or more ACEs as compared to Whites.

TABLE 5: ACEs BY RACE/ETHNICITY



Due to rounding, the numbers may exceed 100%.

The Minnesota Student Survey

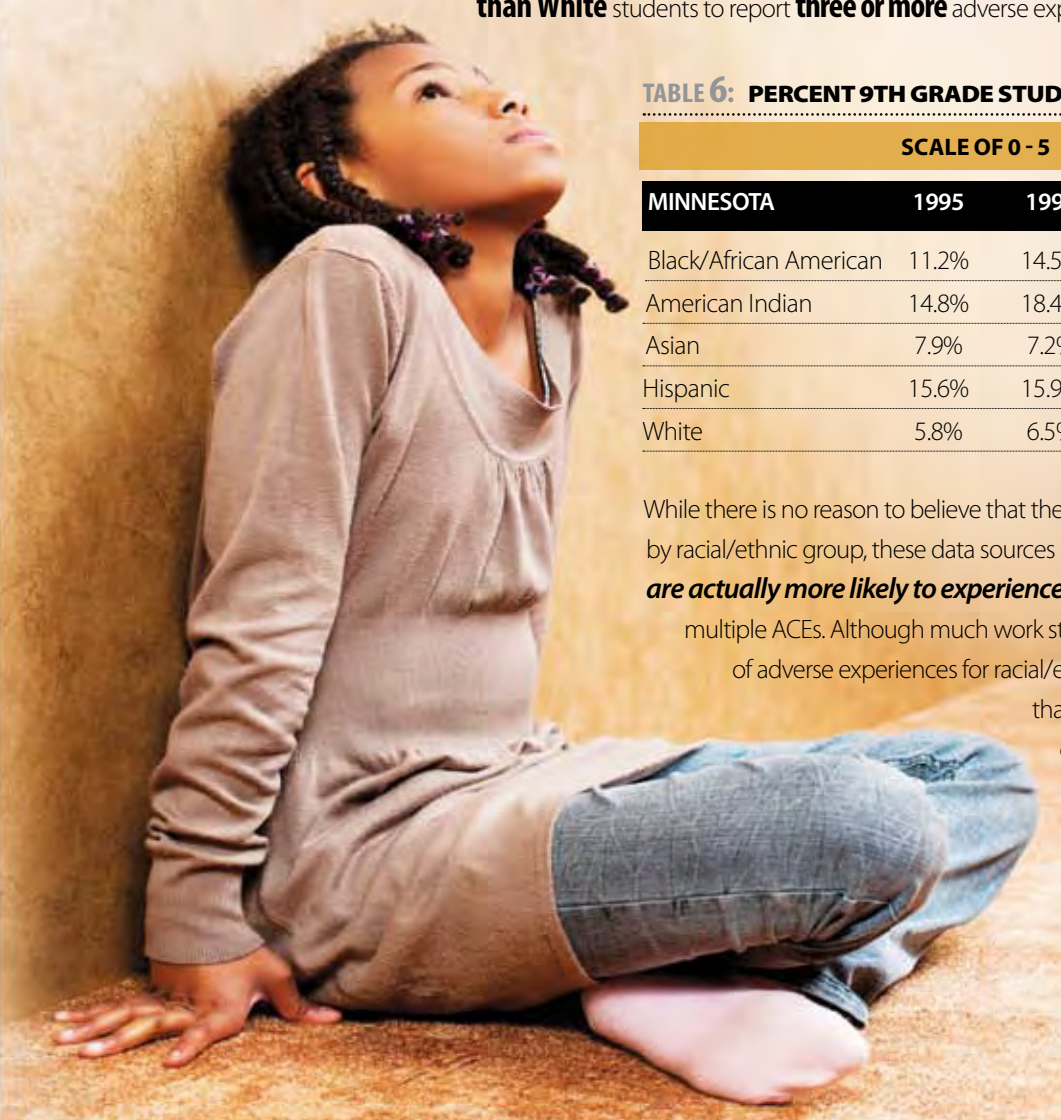
The Minnesota Student Survey provides corresponding data on race/ethnicity and adverse experiences in childhood from a different perspective—Minnesota youth themselves. Since the 1990s, the Minnesota Student Survey, a census survey of **6th, 9th and 12th grade students in the state**, has included questions covering five categories of adverse childhood experiences discussed in this report including: physical abuse, sexual abuse, witnessing household violence, alcohol use by a family member that has repeatedly caused problems, and drug use by a family member that has repeatedly caused problems. *(The four categories not included in the Minnesota Student Survey that are included in the 2011 Minnesota BRFSS ACE questions are emotional abuse, mental illness of a household member, divorce or separation of a parent, and incarceration of a household member.)* The answers to the Minnesota Student Survey questions can be used to form an ACE-type score that ranges from zero to five. The student survey provides adequate samples of students from different racial/ethnic groups.

The results from the Minnesota Student Survey show that differences among racial/ethnic groups have been very consistent over the last 15 years. In every year the survey has been administered since 1995, **African American, American Indian and Hispanic 9th graders** have been at least **twice as likely as White** students to report **three or more** kinds of adverse experiences. In every year, **Asian students** have been slightly **more likely than White** students to report **three or more** adverse experiences.

TABLE 6: PERCENT 9TH GRADE STUDENTS REPORTING 3 OR MORE ACEs

SCALE OF 0 - 5 BY RACIAL/ETHNIC GROUP AND YEAR						
MINNESOTA	1995	1998	2001	2004	2007	2010
Black/African American	11.2%	14.5%	12.7%	13.3%	11.1%	11.8%
American Indian	14.8%	18.4%	18.7%	18.9%	16.7%	15.5%
Asian	7.9%	7.2%	6.4%	8.5%	7.1%	6.3%
Hispanic	15.6%	15.9%	14.4%	14.5%	12.5%	11.8%
White	5.8%	6.5%	6.2%	6.7%	6.1%	5.4%

While there is no reason to believe that the distribution of ACE scores would vary by racial/ethnic group, these data sources imply that **some racial/ethnic groups are actually more likely to experience ACEs** in childhood and oftentimes, multiple ACEs. Although much work still needs to be done to explore other kinds of adverse experiences for racial/ethnic groups including traumatic events that might impact particular racial/ethnic groups (e.g., the effects of historical trauma, immigration), it appears as if racial/ethnic differences are evident within the existing data.



ACEs are more common among those with less education.

Sixty-four (64) percent of adults who did **not graduate from high school** have one or more ACEs compared to 55 percent of high school graduates and 51 percent of college graduates (Table 7).

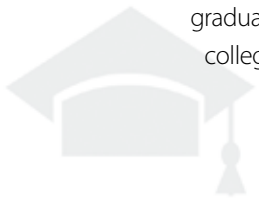
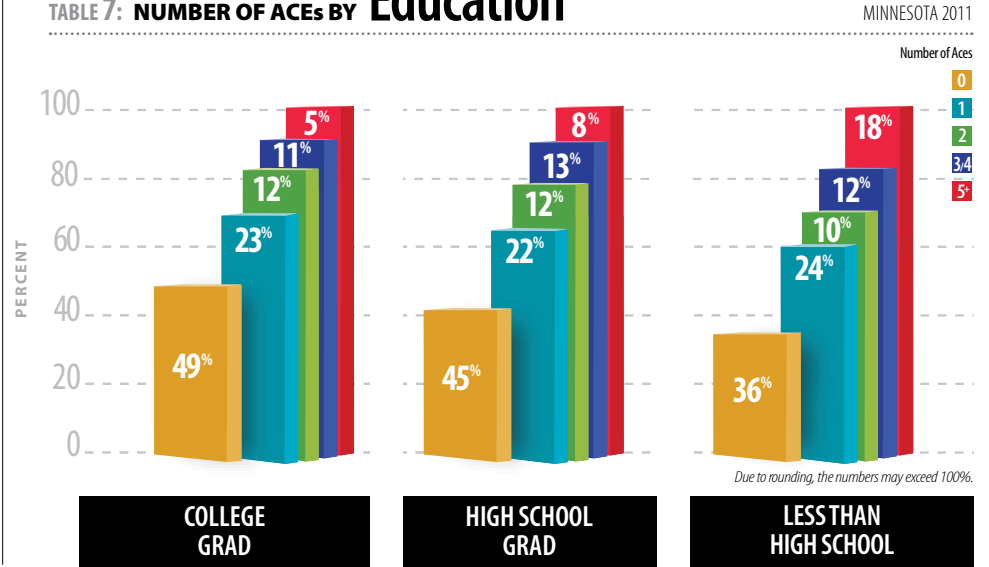


TABLE 7: NUMBER OF ACEs BY Education



ACEs are more common for adults who never married.

Sixty-three (63) percent of **never married** adults reported one or more ACEs compared to 51 percent of never married adults (Table 8).



Never married adults also tend to have multiple ACEs in childhood.

Twenty-eight (28) percent of never married adults had three or more ACEs compared to 18 percent of married adults.

Adults who have never married are **more than twice as likely to have experienced five or more ACEs** as compared to adults who are currently married; on the other hand, those who have never married are less likely than those who are currently married to have experienced no ACEs.

TABLE 8: NUMBER OF ACEs BY Marital Status

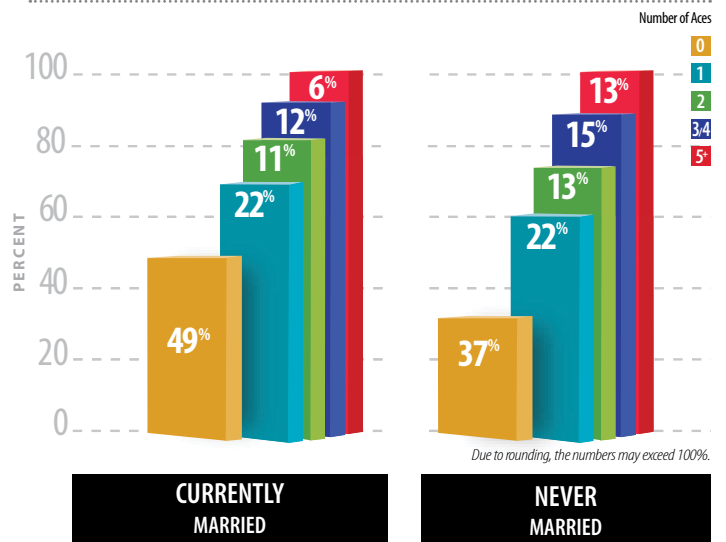


TABLE 9: NUMBER OF ACES BY Employment Status



ACEs are more common among unemployed adults.

Several differences in those reporting one or more ACEs were associated with reported employment status.

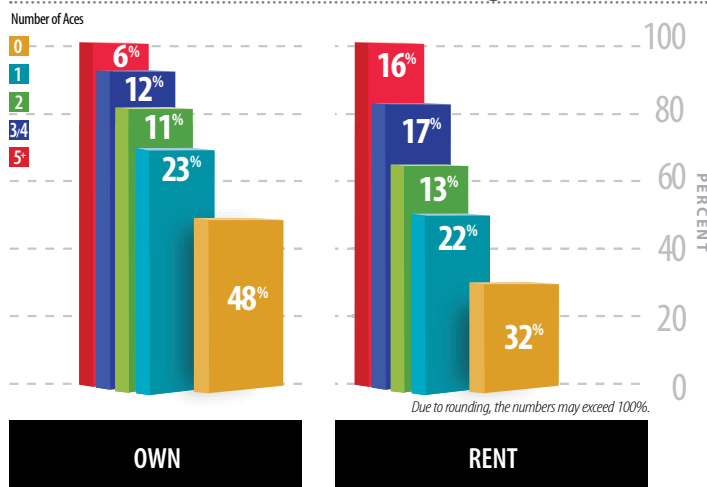


Seventy-two (72) percent of **unemployed adults** reported one or more ACEs compared to 57 percent of those who reported that they were employed with wages.

Also, unemployed adults more often reported multiple ACEs. Thirty-seven (37) percent of unemployed adults and 21 percent of adults employed with wages reported three or more ACEs. The currently unemployed were **over 2.5 times as likely to have experienced five or more ACEs** as currently employed adults. (Table 9)

**For this study, current unemployment includes respondents who were out of work for less than one year and more than one year.*

TABLE 10: NUMBER OF ACES BY Housing Status



Renters are more likely to report ACEs in childhood.

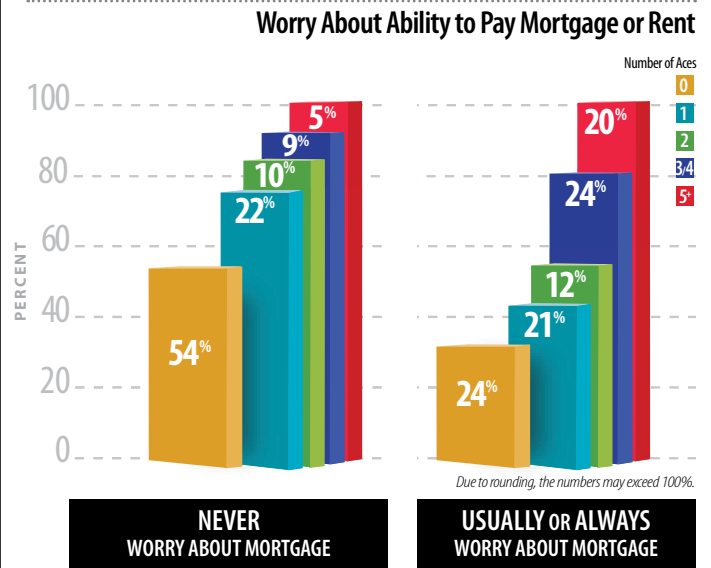
Sixty-eight (68) percent of renters reported one or more ACEs as compared to 52 percent who **owned their housing**. Also, renters more often reported multiple ACEs as compared to those who owned their own homes. Thirty-three (33) percent of renters and 18 percent of homeowners reported three or more ACEs. Also, considering housing arrangements, those who currently rent their home are **more than two times more likely to have experienced five or more ACEs** than adults who currently own their own home. Also, adults who own their own home are the most likely to have experienced no ACEs. (Table 10)



Adults experiencing financial stress more often experienced ACEs in childhood.

A high percent (76 percent) of adults who “always” or “usually” worry about their ability to pay mortgage or rent experienced one or more ACEs in childhood as compared to those who “never” (46 percent) worried about this financial stress. Of those that always or usually worried about paying their mortgage or rent, forty-four (44) percent experienced three or more ACEs as compared to those who never worried (14 percent). Adults who “always” or “usually” were worried or stressed in the past 12 months about having enough money to pay mortgage or rent were **four times as likely to have 5 or more ACEs** than those who “never” worried about this stressor. (Table 11)

TABLE 11: NUMBER OF ACEs BY Financial Stress



This pattern is also consistent for another financial stress, **worry about ability to buy nutritious meals**, where 79 percent of adults who “always” or “usually” worried about their ability to buy nutritious meals experienced one or more ACEs in childhood as compared to 49 percent of those who “never” worried about this financial stress.

Fifty (50) percent of those that always or usually worry about their ability to buy nutritious meals experienced three or more ACEs as compared to 15 percent that never worry about their ability to buy nutritious meals.

Adults who “always” or “usually” were worried or stressed in the past 12 months about having enough money to buy nutritious meals, are nearly **five times more likely to have experienced five or more ACEs** than adults who never had these feelings. Those who “never” were worried or stressed about these financial issues are nearly 2.5 times more likely to have experienced no ACEs than those who “always” or “usually” felt this way in the past 12 months. (Table 12)

TABLE 12: NUMBER OF ACEs BY Financial Stress

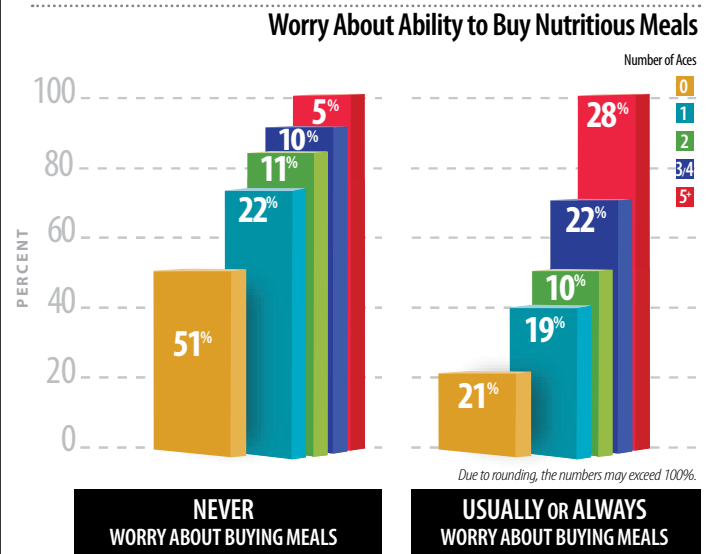


TABLE 13: RATIO OF SES Indicators AMONG THOSE WITH 5 OR MORE ACEs

MINNESOTA BRFSS 2011

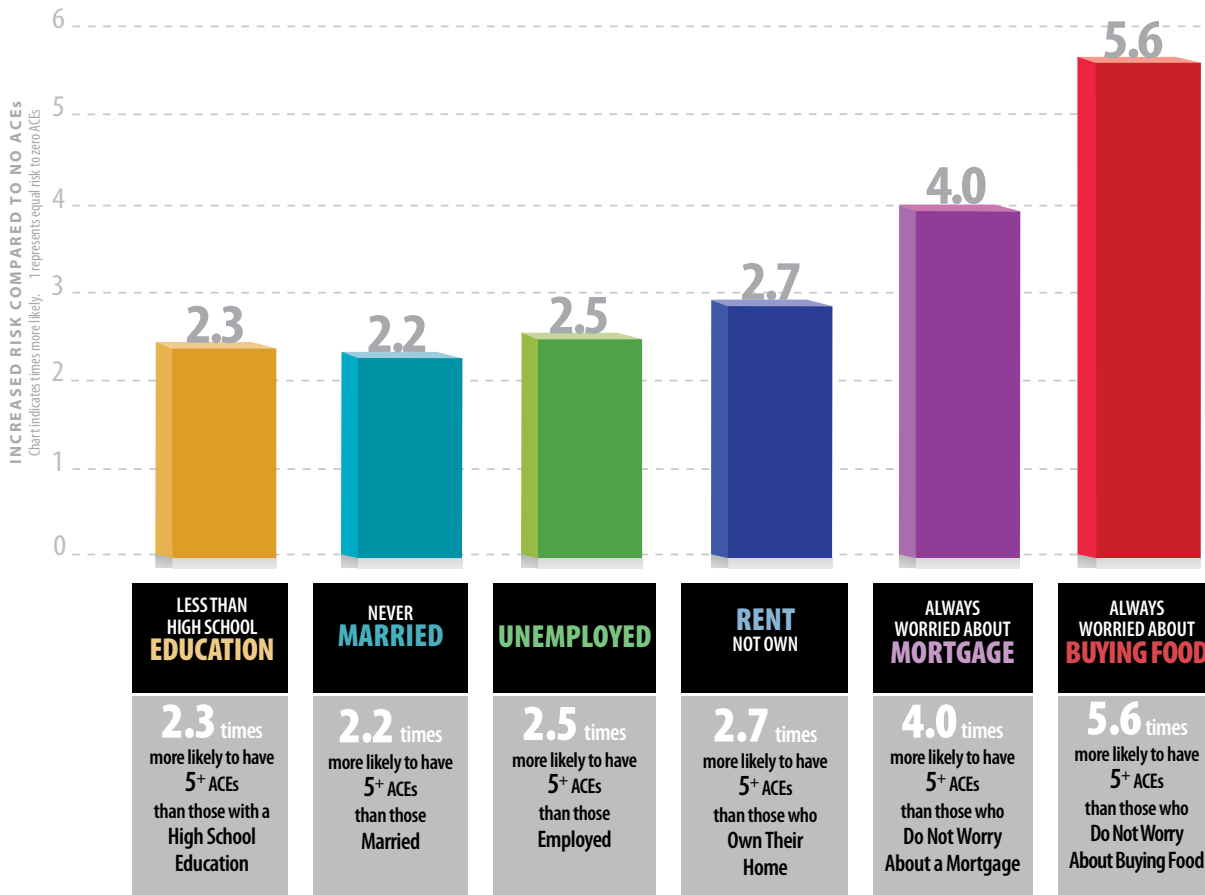


Table 13 shows the ratios for selected socioeconomic indicators. The ratio is computed by dividing an indicator by another indicator serving as a baseline. Table 13 provides both the indicator and baseline indicator.

For example, the first bar in this chart is the ratio comparing those reporting that they had less than a high education to high school graduates for those that reported five or more ACEs in childhood – those with *less than a high school education* were **2.3 times** as likely to have five ACEs as compared to high school graduates.

The largest ratios were for financial stressors “worry about paying mortgage or rent” and “worry about being able to buy nutritious food”. Those that “always” or “usually” *worried about paying their mortgage or rent* were **4.0 times** more likely to have five or more ACEs than those that “never” worried about this financial stressor.

Those that “always” or “usually” *worried about being able to buy nutritious food* were over **5.0 times** likely to have five or more ACEs as compared to those that “never” worried about this stressor.



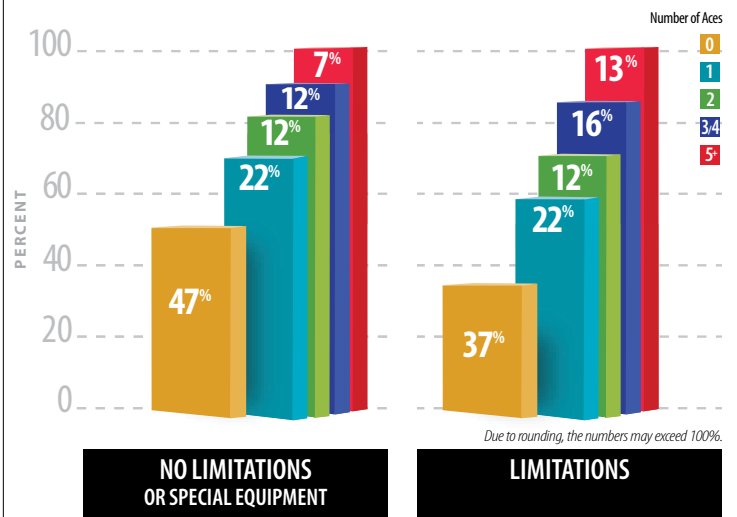
Minnesotans reporting activity limitation or use of special equipment for disability status reported more ACEs in childhood.

The BRFSS includes two questions to determine disability status among respondents. The first question asks about whether the respondent is limited in any way in any activities because of physical, mental, or emotional problems. The second question asks if the respondent has health problems that require the use of special equipment such as a cane, a wheel chair, a special bed, or special telephone. Any “yes” responses are included in the “limitations/special equipment use” group.

Table 14 provides a view of these results by the number of ACEs in childhood reported. Minnesotans with **“limitations/uses special equipment” in activities** (63 percent) are more likely to report ACEs as compared to 53 percent of Minnesota adults with “no limitations.”

Table 14 also confirms that multiple ACEs have a graded effect on disability status. For those reporting three or more ACEs, 29 percent reported limitations/use of special equipment while 19 percent reported no limitations. A **higher percent of those reporting five or more ACEs also indicated limitations/use** of special equipment in activities, more often than no limitations.

TABLE 14: NUMBER OF ACEs BY Disability Status



Health Conditions and ACEs

The stressful experiences included under the broad concept of adverse childhood experiences can cause trauma and suffering for the child and everyone in the family. For this reason alone, society has an interest in reducing the prevalence of these experiences. The concept of ACEs has additional power and importance because of its association with an individual's health and well-being years or decades after those experiences occurred. In this section, we discuss the associations between ACEs and key health indicators.

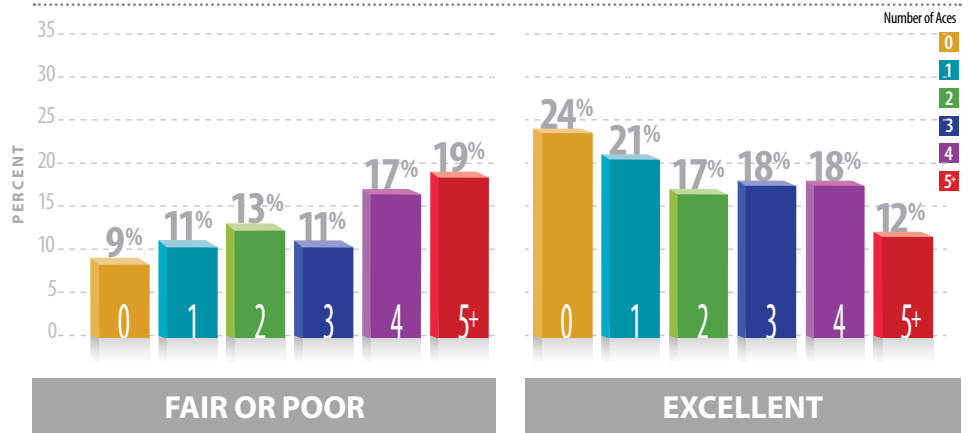
ACEs can affect an individual's health and well-being years or decades after those experiences occurred.

Health Status

The number of ACEs are related to an individual's self-reported health status later in life. Minnesotans reporting five or more ACEs are less likely to view their health as "excellent" and more likely to rate it as "fair or poor" compared to persons reporting no ACEs. For example, 19 percent of adults with five or more ACEs rated their health as "fair or poor" compared to 9 percent of adults with no ACEs. (Table 15)

TABLE 15: NUMBER OF ACEs BY Health Status

MINNESOTA 2011



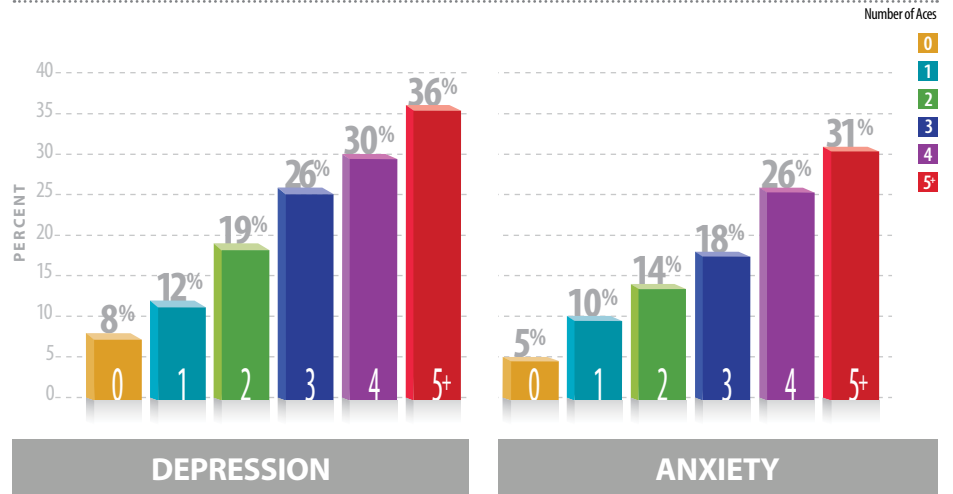
asthma
diabetes
obesity
smoking
drinking
depression
anxiety

Mental Health

ACEs are powerfully associated with indicators of mental health issues later in life, and the higher the ACE score, the more likely adults are to report depression or anxiety in adulthood. The percentage of adults who report that they have ever been **diagnosed with a depressive or anxiety disorder rises steadily and rapidly as the number of adverse childhood experiences increases.** For example, 36 percent of adults with an ACE score of five or more have been diagnosed with depression, compared to only 8 percent of those with an ACE score of zero. Similarly, 31 percent of adults with an ACE score of five or more have been

TABLE 16: NUMBER OF ACEs BY Chronic Mental Health

MINNESOTA 2011



diagnosed with an anxiety disorder, compared to only 5 percent with no ACEs. (Table 16) These strong associations

hold true for both males and females.

Chronic Health Conditions

The pattern of associations between **adverse childhood experiences and chronic health conditions later in life is not so clear cut.** Adults who reported five or more ACEs

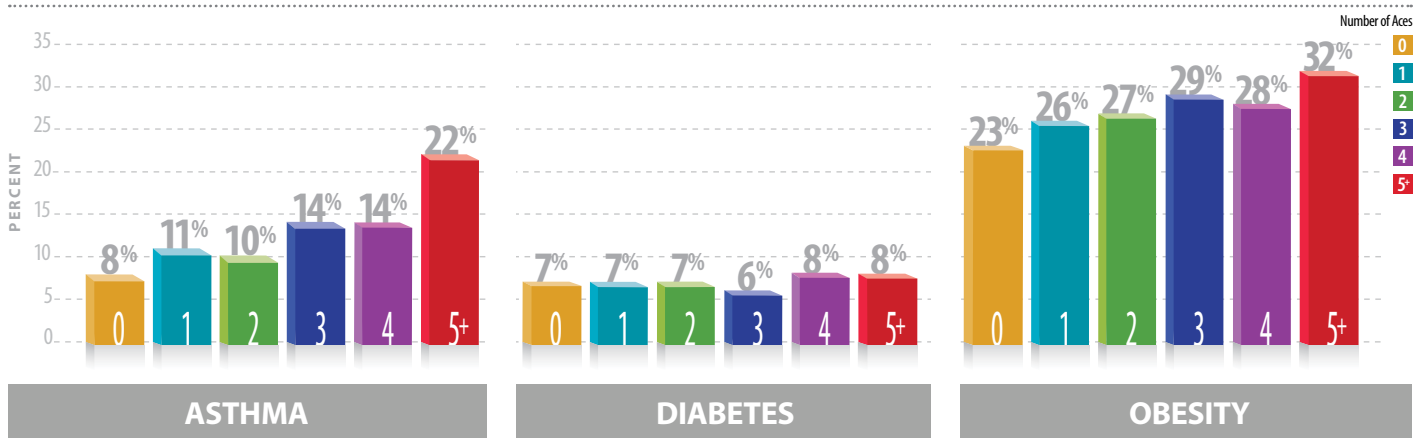
are more than twice as likely to have been diagnosed with asthma, compared to adults reporting no ACEs (22% to 8%). Table 17 shows that the association becomes strong

only at the highest levels of adverse childhood experiences. However, the percentage of adults who are obese increases only slightly as the ACE score increases, and the percentage

of adults who have been diagnosed with diabetes appears to change very little no matter how many ACEs have been reported.

TABLE 17: NUMBER OF ACEs BY Chronic Health Conditions

MINNESOTA 2011



Health Risks and ACEs

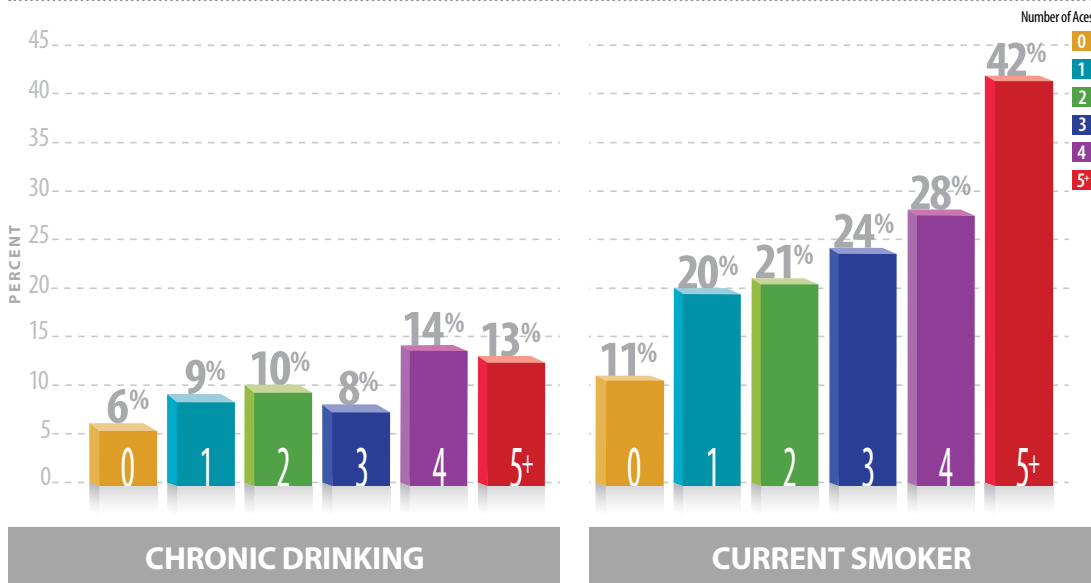
Adverse childhood experiences are also associated with key health risk indicators such as smoking and chronic drinking as adults.

The percentage of adults who are **current smokers** rises from 11 percent for adults with no ACEs to 42 percent for adults with five or more ACEs. The **smoking rate rises most sharply when the number of ACEs reaches five or more**. Many studies have documented the strong links between mental health problems and smoking, and the data suggests the possibility that adverse childhood experiences may underlie both.

ACE related studies have identified strong links between high ACEs and chemical dependency.

TABLE 18: NUMBER OF ACEs BY Health Risk Behaviors

MINNESOTA 2011



Chronic drinking does not increase when the number of ACEs is in the low to middle range, but then **rises sharply among those adults reporting four or more ACEs**. (Table 18) Other ACE related studies have identified strong links between high ACEs and chemical dependency.

Disparity Ratios

Disparity ratio patterns illustrate the graded effect of ACEs on health conditions and behaviors. **Tables 19 & 20** shows the association between ACEs and chronic health conditions later in life. Disparity ratios are computed by **dividing the percent of respondents with one or more ACEs by the percent of respondents with no ACEs**. **Tables 19 & 20** further illustrates that there are associations between increases in ACEs and selected health conditions. The risk for anxiety, depression and smoking increases as the numbers of ACEs increases. In fact, the likelihood of depression goes from 1.5 (one ACE) to 4.5 (5 or more ACEs). In other words, a person with **5 or more ACEs is 4.5 times more likely to be depressed** than a person with no ACEs. The stepwise increase is not as evident for obesity and diabetes. The increased risk for diabetes ranges from 1.0 for one ACE to 1.1 for five or more ACEs. This means that **a person with one ACE is at equal risk for diabetes as a person with no ACEs**.

While there is definite **increased risk of asthma for those with five or more ACEs**, there is no clear pattern for four or fewer ACEs. There is also a clear **increase in reported chronic drinking for those with four or more ACEs**; however, the association between one to three ACEs and reported chronic drinking is less clear.

TABLE 19: NUMBER OF ACEs BY Increased Risk MINNESOTA 2011

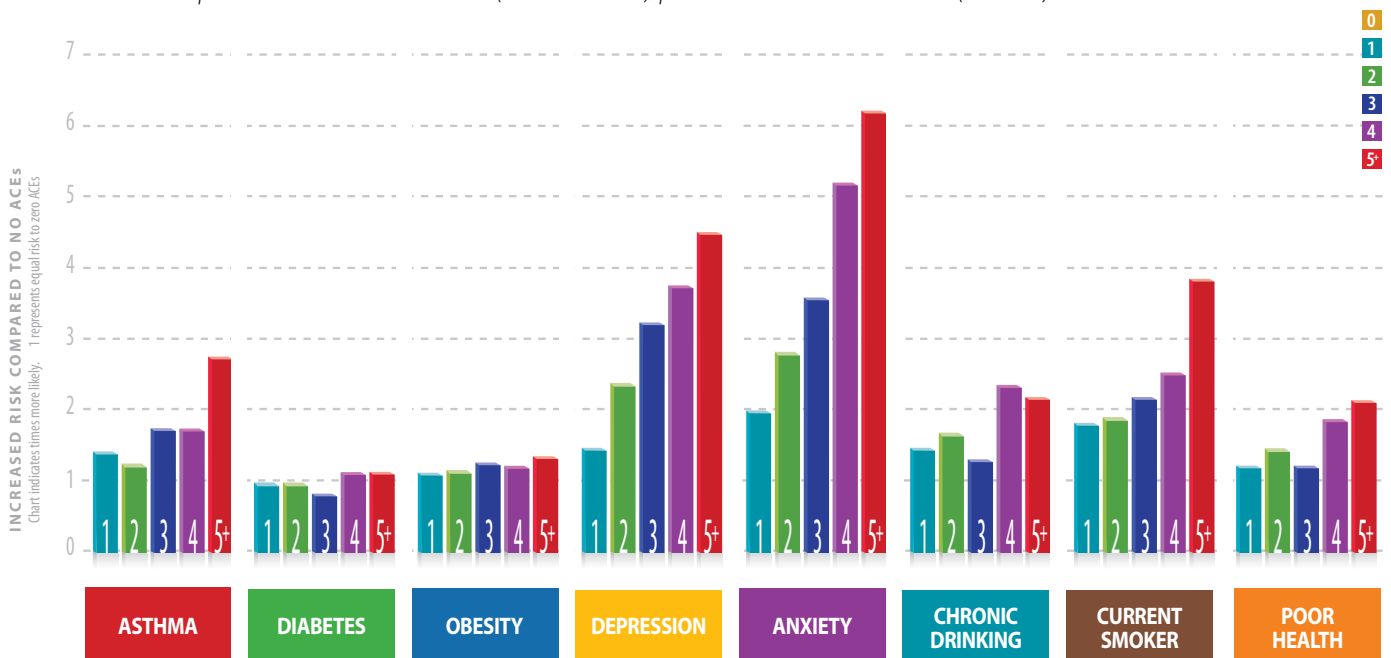
CHRONIC CONDITIONS	RATIO TO 0 ACEs				
	1	2	3	4	5+
Asthma	1.4	1.3	1.8	1.8	2.8
Diabetes	1.0	1.0	0.9	1.1	1.1
Obesity	1.1	1.2	1.3	1.2	1.4
Depression	1.5	2.4	3.3	3.8	4.5
Anxiety	2.0	2.8	3.6	5.2	6.2
Chronic Drinking	1.5	1.7	1.3	2.3	2.2
Current Smoker	1.8	1.9	2.2	2.5	3.8
Health Status Fair or Poor	1.2	1.4	1.2	1.9	2.1

TABLE 20: Increased Risk* OF CONDITION/BEHAVIOR WHEN ACE IS PRESENT

MINNESOTA 2011

*Increased risk = percent with chronic condition (1 or more ACEs)/percent with chronic condition (No ACEs)

Number of ACEs



Other State Comparisons

In 2011, Minnesota (the Minnesota Department of Health) became the 18th state to include the ACE module in the BRFSS survey. The MMWR (2010) report comparing ACE results for five of these states (Arkansas, Louisiana, New Mexico, Tennessee, and Washington) and the 2010 findings from Wisconsin's BRFSS are








comparable to Minnesota ACEs results.

Table 21 shows the percentage of adults reporting each type of ACE for each of these states. These figures indicate *although there may be differences in demographics and regions in the country, the results for these states are similar.*

There are associations between increases in ACEs and selected health conditions.

TABLE 21: ADULTS REPORTING ACEs BY Category & State

MINNESOTA 2011

	PERCENT						
	MN ¹ Minnesota	WI ² Wisconsin	AR ³ Arkansas	LA ³ Louisiana	NM ³ New Mexico	TN ³ Tennessee	WA ³ Washington
ABUSE							
Physical	16	17	14	11	20	13	18
Sexual	10	11	11	10	13	13	14
Emotional	28	29	24	21	28	19	35
HOUSEHOLD DYSFUNCTION							
Mental Illness	17	16	17	17	19	17	24
Substance Abuse*	*	27	26	27	30	28	33
<i>Alcohol</i>	24	*	*	*	*	*	*
<i>Drugs</i>	10	*	*	*	*	*	*
Divorce/Separation	21	21	23	27	24	29	26
Domestic Violence	14	16	15	15	19	17	7
Incarceration	7	6	6	7	7	9	7

SOURCE: BRFSS, Modified from: *Adverse Childhood Experiences Reported by Adults – Five States, 2009*, Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report* (59(4)), and *Adverse Childhood Experiences in Wisconsin: Findings from the 2010 Behavioral Risk Factor Survey*, Children's Trust Fund.

*Substance abuse in Minnesota was divided into two categories: alcohol and drug use.

¹2011

²2010

³2009

NOTE: MN ACEs report alcohol and drug use in the home separately. Other states have combined these scores to include both alcohol and drug use in the home as substance abuse. The number of ACEs in MN may be over-represented when total ACEs are compared to other states because MN reports ACEs for alcohol use and drug use in the home separately. Other states combine these two ACEs and reported one ACE for substance abuse.

NEXT STEPS/FURTHER RESEARCH

The *impact* of adverse childhood experiences on health is *in its infancy*.

RATHER THAN look at ACEs as isolated incidents, these results implore us to examine the cumulative effect of ACEs or the sustained, excessive, and prolonged stress experienced in childhood that lead to toxic stress.

The Center of the Developing Child at Harvard University notes that the constant activation of the body's stress response systems due to chronic or traumatic experiences in the absence of caring, stable relationships with adults, especially during sensitive periods of early development, can be toxic to brain architecture and other developing organ systems.

In this report, the ACE score was used as a measure of cumulative exposure to traumatic stress during childhood. Children experiencing ACEs and exposed to toxic stress are more likely to experience challenges with learning, development, handling stress, and forming healthy relationships. This report assessed the relationship of the ACE Score to social, economic, health risk behaviors, and self-reported health status outcomes of BRFSS respondents that completed the ACEs module. We found that the ACE score had a strong and graded relationship to these outcomes. Identification of ACEs in childhood

was likely to lead to self-reports of poor social, economic, health status, and health risk factors later in life and the identification of multiple ACEs was even more likely to lead to these poor outcomes.

Minnesota results support the supposition that health effects, particularly in the areas of mental health and risk behaviors, are magnified when many kinds of adverse experiences have piled up one on top of the other. However, the use of Minnesota data to study the impact of adverse childhood experiences on health is in its infancy. This report simply introduces the concept and some of its potential. Further work is needed along the following lines.

First, we need to *explore the impact of ACEs within different age, race, and other demographic groups*. For example, there is a noticeable decline in the number of adverse childhood experiences reported by persons 65 and older. This might explain why diabetes, a condition that becomes more common later in life, shows little association with ACEs. To examine the premature arrival of such chronic conditions, we should explore these associations among adults aged 18 to 64 years old, or perhaps an even younger age group.

more work

Second, this report does not **explore the nuances of race and ethnicity differences** in responses. It is important to recognize that the current ACE questions do not explore how historical trauma becomes embedded by virtue of epigenetic mechanisms into the intergenerational hand-me-downs associated with our DNA. **Exposure to adversity decreases the potential to escape adversity throughout life.** It decreases the capacity to learn and to earn, thereby perpetuating a process of unchecked decay of our community capacity, productivity, and safety. Future efforts could explore the impact of ACEs on racial/ethnic populations and perhaps shed greater light on the effect of adverse childhood experiences on current racial/ethnic health disparities in Minnesota.

Third, nine types of experiences are combined into the concept of ACEs, and it would be worthwhile to **look at the possible health impacts of each kind of experience separately.** Do some appear to have stronger health effects than others?

Fourth, it is important to recognize that these nine types of experiences are not the only formative and powerful experiences occurring during childhood and adolescence. When interviewing adults, the BRFSS does not measure the economic situation, poverty, homelessness, deprivation, death of parents, educational factors, toxic exposures, and **other powerful experiences that may have occurred during childhood.** In addition, the BRFSS does not measure resiliency factors or assets that may help the child overcome the negative impacts of adverse childhood experiences. We need to find additional data to more properly assess the role that adverse childhood experiences play in the development of adult health.

Lastly, there are innumerable dimensions of ACEs that can be explored in the future. The intentions of this report were to present the concept of ACEs, the prevalence of ACEs, and the cumulative impact of ACEs among Minnesota adults. And further, to provide recommendations on the prevention of childhood ACEs to both communities and agencies, with ways to **focus planning and resources** for future generations.

Intentions of this report were to present the concept, prevalence, and cumulative impact of ACEs among Minnesota adults.

Study ACE impact based on demographics

Study ACE impact based on ethnicity

Individually study the nine ACE categories

Identify additional ACEs that can affect health

Provide recommendations on ACE prevention

POLICY RECOMMENDATIONS

Based on the findings presented in this report, the following strategies to reduce ACEs and build resiliency in Minnesota communities are recommended.

Increase awareness of ACEs, their impact on health and well-being, and Minnesotans' capacity to act.

RECOMMENDATION 1:

Develop a communication strategy that focuses on the social and economic benefits of reducing and preventing ACEs in Minnesota.

Adverse childhood experiences have a strong and cumulative impact on the health and functioning of adults in Minnesota. In order to reduce the occurrence of ACEs, a statewide communication strategy should be developed that reinforces the key message that ***ACEs can be reduced through the promotion of familial, community, and statewide protective factors.*** Through a communication initiative, communities will come to understand that *'adversity is not destiny'* but it does create risk and that community members have the capacity to improve resilience and reduce ACEs. Through advanced awareness, education, and understanding Minnesotans can work together to reduce the occurrence of ACEs, by protecting children and supporting those who have already had traumatic experiences.

RECOMMENDATION 2:

Work with the state's education, child welfare, mental health, public health, substance abuse, juvenile justice, and corrections systems to increase awareness of the impact of ACEs on the people these agencies serve.

ACEs frequently result in significant public expenditures in services such as child welfare, mental illness, substance abuse treatment, and juvenile and criminal justice. Efforts to educate practitioners and policy makers within many of these systems about the effects of ACEs, however, have just begun in Minnesota. Additional work is needed to build and sustain effective services and organizational infrastructure. ***Cross-agency training should be developed and implemented to transfer knowledge, build staff skills, and promote and reinforce effective practice.***

This will ensure that professionals in these fields are aware of the link between the promotion of protective factors and ACE reduction. Specifically, the Minnesota-specific ACE data supplies a compelling case for adjusting both prevention and treatment practices to become more trauma-informed. ***Trauma screening and assessment should be integrated into both health care and mental health settings,*** and mental health providers should be specifically trained to assess and treat for trauma across a range of clinical presentations.

Enhance the capacity of communities to prevent and respond to ACEs.

RECOMMENDATION 3:

Support and develop resilience through investments that support community, government, and philanthropy partnerships.

To prevent ACEs, change must be driven by people in their communities, together with state and local governments and private sector partner organizations. Efforts to reduce ACEs must be closely linked to broader community initiatives that strengthen individual, family, and neighborhood protective factors. These efforts must aim to **increase social connectedness, encourage community mobilization, and facilitate access to supports and services.** Each community must shape the strategies and network of services based on its own resources, needs, and culture. State agencies and community partners should work together to build the capacities of families and communities to strengthen the foundations of lifelong health, with a **focus on communities that have the highest compounded ACE score.** Specifically, Minnesota should fund the development of community pilot projects designed to implement strategies to increase protective factors. States like Washington have documented significant community-wide reductions in ACE scores and increased rates of success in education, health, and economic stability of residents through locally developed and implemented solutions.

RECOMMENDATION 4:

Build collaborative leadership to form a vision and support change.

Working across **multiple sectors of government and society is key to making the structural changes necessary.** Such work should be in partnership with community and advocacy groups that continue to pursue an agenda to reduce ACEs. Meaningful public conversation is needed with attention to community engagement and follow-through. Government and private **funding agencies should actively support efforts** to build community members' capacity to engage. For example, Minnesota should fund projects that educate the community, provide technical assistance to community coalitions, and distribute information about effective community-driven strategies from other states and counties. The state should support the development and maintenance of local databases designed to enable communities to evaluate their needs and assess their progress.

reduced



ACEs

Continue to collect Minnesota-specific data on the relationship among ACEs, health outcomes, and resilience.

RECOMMENDATION 5:

Designate funds to continue the collection, analysis, and dissemination of ACE data from Minnesota residents.

Minnesota's capacity to effect positive change in the health and well-being of state residents is contingent on understanding factors that contribute to health outcomes. For this reason, **resources should be invested in the permanent integration of the ACE module** into the Minnesota BRFSS for continued collection, deeper analysis, and dissemination of Minnesota-specific data. Minnesota should also **provide fiscal support for two to three local pilot projects**, to which the state agencies could provide technical assistance, monitor the impact of local efforts, and gain valuable insight about key elements of effective community capacity development.

RECOMMENDATION 6:

Develop a thorough inventory of existing agency and community efforts to reduce ACEs and support resilience.

It is important to **identify what state agencies and communities already know and how they are or are not using the ACE research**. This would also be an opportunity to survey practitioners and policy makers about identified opportunities for enhancing our state's response to this research. Moreover, state agencies must coordinate and take the lead in ensuring that local public health agencies, county human service agencies, school districts, and health providers are aware of this information and research. Several state agencies are beginning to analyze the policy implications of ACEs. There are countless opportunities across existing systems and programs to promote resilience and prevent trauma by orienting these systems towards known protective factors, including those identified in this report. **Minnesota should identify a framework that can be applied statewide across agencies to develop an inventory of policy and program recommendations**. The Governor's Children's Cabinet should review and prioritize the recommendations for implementation.

Resilient

resiliency



CONCLUSION

People can bounce forward after ACEs, but never back.

Adverse childhood experiences have a powerful impact on health, behavioral, and social well-being in adulthood. Specifically, Minnesota's BRFSS results demonstrate a clear link between adverse experiences in childhood and poor physical and mental health, chronic disease, lower educational achievement, lower economic success, and impaired social success among Minnesotans in adulthood. These findings shed light on the likely root causes of many health and social problems—high cost problems that society has not always been successful in reducing but may now begin to do so more effectively and efficiently through the prevention of adverse childhood experiences. ***Minnesotans have a great deal to gain in the long term through statewide policies and practices that are directed at reducing the transmission of ACEs in the present.*** State-community partnerships that have increased communities' own capacity for making population-level improvements to health, safety, and prosperity—to overcome stress, trauma, and other life challenges by drawing from, and contributing to, healthy social and cultural networks and practices—have very effectively reduced ACEs in those communities. As the ACE research has demonstrated over and over again, people can bounce forward after ACEs, but never back. Society must interrupt the intergenerational cycle of ACEs, in order to improve health and social well-being for the generations to come. ●

APPENDIX:

Minnesota ACE
Data, 2011

TABLE 22: Estimated Percent of ACEs in the Minnesota Adult Population

MINNESOTA ACE DATA 2011

	NUMBER OF ACEs (PERCENT)		
	All	Male	Female
Incarcerated Household Member	7	7	6
Sexual Abuse	10	6	14
Drug Use Problem, Household	10	10	10
Witnessed Domestic Violence	14	13	16
Physical Abuse	16	15	16
Mental Illness in Household	17	14	19
Parent Separated or Divorced	21	22	21
Drinking Problem, Household	24	22	26
Emotional Abuse	28	28	29

TABLE 23: Percent of ACEs by Age Group, Gender and Geographical Region

MINNESOTA ACE DATA 2011

	NUMBER OF ACEs (PERCENT)					
	0	1	2	3	4	5+
All Minnesotans	45	22	12	8	5	8
Age Group						
18 – 24	40	20	13	8	8	12
25 – 34	38	25	12	9	6	12
35 – 44	38	22	13	9	6	11
45 – 54	43	23	12	8	6	9
55 – 64	46	22	12	9	5	6
65+	62	21	9	4	3	2
Gender						
Men	46	23	12	7	5	7
Women	43	22	12	9	6	9
Geographic Region						
Metro Area	42	23	13	8	6	10
Greater MN	48	21	11	8	5	7
Race						
White	46	22	12	7	5	7
Black	29	24	12	11	6	19
Hispanic	35	26	10	11	6	12
Asian	52	23	9	7	6	4
American Indian	22	15	18	6	16	23
Other	20	21	14	14	7	24

Due to rounding, the numbers may exceed 100%.

TABLE 24: Percent of ACEs by Educational Status and Marital Status MINNESOTA ACE DATA 2011

	NUMBER OF ACES (PERCENT)					
	0	1	2	3	4	5+
Educational Status of Respondent						
College Grad	49	23	12	7	4	5
Some College	43	21	12	9	7	9
High School	45	22	12	8	5	8
< High School	36	24	10	7	5	18
Marital Status of Respondent						
Currently Married	49	22	11	7	5	6
Never Married	37	22	13	8	7	13
Other	43	23	12	8	5	9

Due to rounding, the numbers may exceed 100%.

TABLE 25: Percent of ACEs by Employment Status and Homeownership MINNESOTA ACE DATA 2011

	NUMBER OF ACES (PERCENT)					
	0	1	2	3	4	5+
Employment Status of Respondent						
Retired	60	21	8	5	3	3
Employed with Wages	43	22	12	8	5	8
Homemaker	43	24	11	8	6	9
Unemployed	28	24	12	8	9	20
Housing Arrangement of Respondent						
Own	48	23	11	7	5	6
Rent	32	22	13	9	8	16
Other Arrangement	42	22	15	6	6	9

Due to rounding, the numbers may exceed 100%.

TABLE 26: Percent of ACEs by Selected Social Determinants of Health MINNESOTA ACE DATA 2011

	NUMBER OF ACES (PERCENT)					
	0	1	2	3	4	5+
Respondent's Worry about Paying Mortgage/Rent						
Always or Usually	24	21	12	12	12	20
Seldom or Rarely	40	23	13	9	6	9
Never	54	22	10	6	3	5
Respondent's Worry about Buying Nutritious Food						
Always or Usually	21	19	10	12	10	28
Seldom or Rarely	32	24	13	11	8	12
Never	51	22	11	6	4	5

Due to rounding, the numbers may exceed 100%.

TABLE 27: Percent of ACEs by Health Status

MINNESOTA ACE DATA 2011

	NUMBER OF ACES (PERCENT)					
	0	1	2	3	4	5+
By Health Status						
Excellent	24	21	17	18	18	12
Very Good	40	36	43	36	35	40
Good	27	32	27	35	30	29
Fair or Poor	9	11	13	11	17	19
By Disability						
No limitations/No Special Equipment	47	22	12	7	5	7
Limitations	37	22	12	9	7	13
Unable to Work	30	18	15	7	11	19

TABLE 28: Chronic Disease and Risk Behaviors

MARCH 11, 2013

	NUMBER OF ACES (PERCENT)						Total Prevalence
	0	1	2	3	4	5+	
Asthma	8	11	10	14	14	22	11
Diabetes	7	7	7	6	8	8	7
Depression	8	12	19	26	30	36	15
Anxiety	5	10	14	18	26	31	11
Obesity	23	26	27	29	28	32	26
Chronic Drinking	6	9	10	8	14	13	8
Current Smoker	11	20	21	24	28	42	19
Health Status Fair or Poor	9	11	13	11	17	19	12

TABLE 29: Chronic Conditions

	NUMBER OF ACES (Ratio to 0 ACES)				
	1	2	3	4	5+
Asthma	1.4	1.3	1.8	1.8	2.8
Diabetes	1.0	1.0	0.9	1.1	1.1
Obesity	1.1	1.2	1.3	1.2	1.4
Depression	1.5	2.4	3.3	3.8	4.5
Anxiety	2.0	2.8	3.6	5.2	6.2
Chronic Drinking	1.5	1.7	1.3	2.3	2.2
Current Smoker	1.8	1.9	2.2	2.5	3.8
Health Status Fair or Poor	1.2	1.4	1.2	1.9	2.1

Minnesota ACE Questions

I'd like to ask you some questions about events that happened during your childhood. This information will allow us to better understand problems that may occur early in life, and may help others in the future. This is a sensitive topic and some people may feel uncomfortable with these questions. At the end of this section, I will give you a phone number for an organization that can provide information and referral for these issues. Please keep in mind that you can ask me to skip any question you do not want to answer.

All questions refer to the time period before you were 18 years of age.
Now, looking back before you were 18 years of age—

1 Did you live with anyone who was depressed, mentally ill, or suicidal?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

2 Did you live with anyone who was a problem drinker or alcoholic?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

3 Did you live with anyone who used illegal street drugs or who abused prescription medications?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

4 Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

5 Were your parents separated or divorced?

- 1 Yes
- 2 No
- 8 Parents not married
- 7 Don't know / Not sure
- 9 Refused

6 How often did your parents or adults in your home ever slap, hit, kick, punch or beat each other up?

- 1 Never
- 2 Once
- 3 More than once

Do not read:

- 7 Don't know / Not sure
- 9 Refused

7 Before age 18, how often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way? Do not include spanking.

Would you say---

- 1 Never
- 2 Once
- 3 More than once

Do not read:

- 7 Don't know / Not sure
- 9 Refused

8 How often did a parent or adult in your home ever swear at you, insult you, or put you down?

- 1 Never
- 2 Once
- 3 More than once

Do not read:

- 7 Don't know / Not sure
- 9 Refused

9 How often did anyone at least 5 years older than you or an adult, ever touch you sexually?

- 1 Never
- 2 Once
- 3 More than once

Do not read:

- 7 Don't know / Not sure
- 9 Refused

10 How often did anyone at least 5 years older than you or an adult, try to make you touch them sexually?

- 1 Never
- 2 Once
- 3 More than once

Do not read:

- 7 Don't know / Not sure
- 9 Refused

11 How often did anyone at least 5 years older than you or an adult, force you to have sex? (487)

- 1 Never
- 2 Once
- 3 More than once

Do not read:

- 7 Don't know / Not sure
- 9 Refused

As I mentioned when we started this section, I will give you a phone number for an organization that can provide information and referral for these issues.

Would you like me to give you that number?

NOTE: If no local or state hotline is available, the National Hotline for Child Abuse is 1-800-4-A-CHILD (1-800-422-4453).



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