Adverse Childhood Experiences in Wisconsin:
Findings from the 2010 Behavioral Risk Factor Survey

Produced By

Children's Trust Fund

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Table of Contents

Executive Summary **2**

Introduction

Effects of Stress and Trauma on the Developing Brain 5

The Study of Adverse Childhood Experiences 8

Assessing ACEs in Wisconsin 10

Wisconsin ACE Findings

Prevalence of ACEs 12

Co-Occurrence of ACEs 14

Mental Health Outcomes 15

Health Risk Behaviors 16

Physical Health Outcomes 17

Socioeconomic Status 20

Health Care Access and Medicaid Enrollment 21

Quality of Life 22

Further Discussion 25

Policy Recommendations **28**

Conclusion **31**

Appendix A: The ACE Module in the Wisconsin BRFS **32**

Appendix B: BRFS Variables in this Report **33**

Acknowledgments **34**

Executive Summary

In recent years, we have learned a great deal about the importance of childhood experiences to lifelong well-being. Early experiences have a broader and more profound impact than most of us would ever guess. Everyday interactions and experiences in infancy and childhood greatly influence the architecture of our developing brains and our subsequent emotional, cognitive, social and neurobiological functioning. In short, these early experiences affect the way we view ourselves and our world, the way we learn, how we cope with life's stressors, and how we form relationships throughout our lives. Positive experiences in childhood often lead to healthy and productive adulthood. Unfortunately, negative experiences can lead to poorer mental and physical health, poorer school and work success and lower socioeconomic status in adulthood.

Epidemiological research links adults' reports of adverse childhood experiences (ACEs) to their current physical and mental health, as well as many other adult outcomes. The original ACE study, conducted from 1995-1997, was the first large-scale study of the correlation between ACEs and negative adult health outcomes. In a collaborative effort between the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente's Health Appraisal Clinic in San Diego, California, over 17,000 adult patients completed a confidential survey about childhood maltreatment and family situations that might cause toxic stress for a child — ACEs. Respondents also reported their current behaviors as well as physical and mental health status. Co-principal investigators Robert F. Anda, MD, MS, and Vincent J. Felitti, MD, analyzed the relationship between multiple categories of childhood adversities (ACEs) and later health and behavioral outcomes. Among the primarily middle-class, well-educated population studied in California, ACEs were linked to an increased risk of unhealthy behaviors such as smoking and alcohol use, chronic disease, impaired mental health, and disability.

The CDC collaborated with Drs. Anda and Felitti to develop questions about ACEs for use by states in the Behavioral Risk Factor Surveillance System. As part of the 2010 Wisconsin Behavioral Risk Factor Survey (BRFS), more than 4,000 randomly selected Wisconsin adults were asked about adverse experiences, or ACEs, they may have had prior to age 18. Funding for inclusion of the ACE module was provided by the Wisconsin Children's Trust Fund, the Child Abuse Prevention Fund of Children's Hospital and Health System (CAP Fund), the Department of Health Services, and the Department of Children and Families. BRFS results, weighted by CDC statistical staff, are representative of Wisconsin adults living in households with landline telephones.

Wisconsin's 2010 BRFS results, reported in more detail in the subsequent pages, echo findings from the Kaiser ACE study and other states' ACE studies: ACEs are prevalent among Wisconsin residents; they often occur in clusters; and they have a serious impact on the adult well-being of our state's residents.

Figure ES1 shows the percentage of Wisconsin adults who experienced each of the ACEs assessed in Wisconsin's BRFS. (See the survey questions in Appendix A.) As shown in Figure ES2, Wisconsin adults with higher ACE scores have poorer outcomes in a variety of areas. The full report details findings related to mental health outcomes, health risk behaviors, physical health outcomes, socioeconomic status, health insurance and access to care, and quality of life.

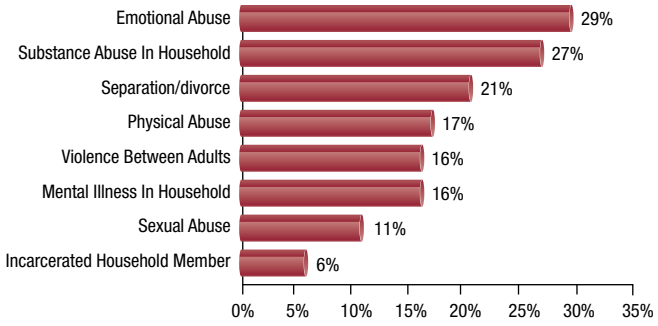


Figure ES1. Prevalence of Individual ACEs in Wisconsin

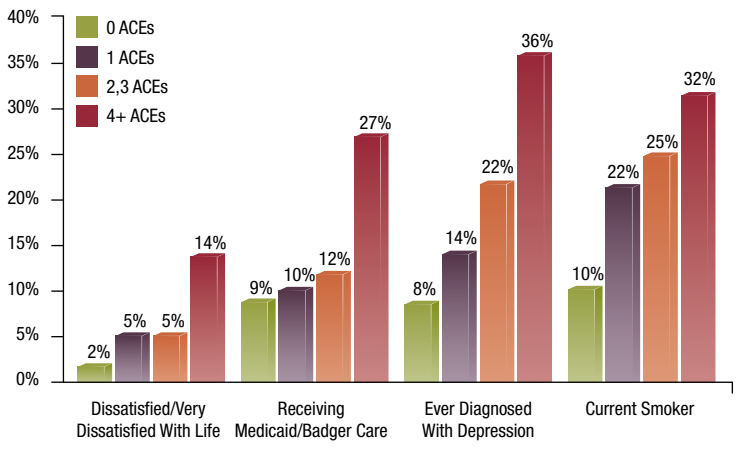


Figure ES2. Selected adult outcomes among Wisconsin residents, by ACE score

Summary of Policy Recommendations

Based on the findings of Wisconsin's 2010 BRFS, we recommend implementing the following strategies to improve the health, functioning, and productivity of Wisconsin residents.

Increase awareness of ACEs and their impact on health and well-being.

1. Develop an educational initiative for the general public on the impact of ACEs on physical and mental health and on school and work success.
2. Work with the state's education, child welfare, mental health, substance abuse, and corrections systems to increase awareness of the impact of ACEs on the people they serve.

Increase assessment of and response to ACEs in health care settings.

3. Partner with the health care community to improve integration of behavioral and primary health care and identify and promote strategies to assess for and respond to ACEs.
4. Identify a standard of care that includes assessing for and responding to ACEs, to be integrated into contracts as performance measures with Forward Health (Wisconsin Medicaid).

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

5. Prioritize Wisconsin's investments in evidence-based prevention programming and promote and fund the implementation and evaluation of promising approaches.
6. Invest resources into evidence-based trauma interventions.
7. Build access to and capacity of mental health and substance abuse services to include trauma-informed care and evidence-based trauma interventions.

Continue to collect Wisconsin-specific data on the relationship between ACEs and health outcomes.

8. Designate funds to continue the collection, analysis, and dissemination of ACE data from Wisconsin residents.
9. Increase the utility and scope of ACE data collected in Wisconsin by:
   - Raising funds to expand the sample size of the Wisconsin BRFS in order to build the capacity to analyze data at the county level.
   - Collecting and analyzing data on individual, family, and community well-being and resilience.
   - Collecting and analyzing information related to the social and financial cost of ACEs and their impact on Wisconsin's economy and the state budget.

See more details about these recommendations on page 28 of the full report.

In recent years, we have learned a great deal about the importance of childhood experiences to lifelong well-being. Early experiences have a broader and more profound impact than most of us would ever guess. Everyday interactions and experiences in infancy and childhood greatly influence the architecture of our developing brains and our subsequent emotional, cognitive, social and neurobiological functioning. In short, these early experiences affect the way we view ourselves and our world, the way we learn, how we cope with life's stressors, and how we form relationships throughout our lives. Positive experiences in childhood often lead to healthy and productive adulthood. Unfortunately, negative experiences can lead to poorer mental and physical health, poorer school and work success and lower socioeconomic status in adulthood.

Effects of Stress and Trauma on the Developing Brain

Experiences during the prenatal and early childhood periods, good and bad, set the blueprint for a person's future. Stress, of course, is a normal part of daily life, and for a developing child, learning how to manage and overcome stress is critical to survival. Nonetheless, when a child is exposed to severe, frequent, and unrelenting stress, particularly without the support of a loving, nurturing adult, it can profoundly alter the body's stress management system and brain architecture.[1] This type of stress is called toxic stress. Toxic stress is often caused by adverse childhood experiences such as child abuse, neglect, and repeated exposure to violence in the home.

When a child feels threatened, cortisol and other hormones are released and circulated throughout the body, triggering the "fight or flight or freeze" response. An excess of the chemicals generated by toxic stress can damage the hippocampus, an area of the brain responsible for learning and memory, and result in a smaller brain.[2,3] Recent research shows that adolescents who report having experienced child maltreatment have less mass in specific regions of their brains, when compared to teens who did not experience maltreatment. For girls, the reduced mass was found in areas associated with emotional regulation, and for boys, in areas associated with impulse control.[4] Moreover, prolonged and repeated toxic stress reinforces the stress-response circuits in a developing brain – to the exclusion of other synaptic connections that then weaken. This process can cause an individual to develop a low threshold for stress, potentially experiencing a "fight or flight or freeze" response to situations that others would not find threatening.[5,6]

1. Perry, B.D., & Pollard, R. (1998). Homeostasis, stress, trauma, and adaptation: A neurodevelopmental view of childhood trauma. Child & Adolescent Psychiatric Clinics of North America, 7, 33-51.
2. National Scientific Council on the Developing Child. (2005). Excessive Stress Disrupts the Architecture of the Developing Brain. Working paper 3. Cambridge, MA: Center on the Developing Child at Harvard University
3. Lupien, S.J., de Leon, M.J., et al (1998). Cortisol levels during human aging predict hippocampal atrophy and memory deficits. Nature Neuroscience, 1(1), 69-73.
4. Edmiston, E. E., Wang, F., Mazure, C. M., Guiney, J., Sinha, R., Mayes, L. C., et al. (2011). Corticostriatal-Limbic Gray Matter Morphology in Adolescents With Self-reported Exposure to Childhood Maltreatment. Archives of Pediatric and Adolescent Medicine, 165(12), 1069-1077.
5. Middlebrooks, J.S., Audage, N.C. (2008). The Effects of Childhood Stress on Health across the Lifespan. Atlanta: Centers for Disease Control and Prevention; National Center for Injury Prevention and Control.
6. Shonkoff, J.P. (2010). Building a New Biodevelopmental Framework to Guide the Future Early Childhood Policy. Child Developm ent, 81(1), 357-367.

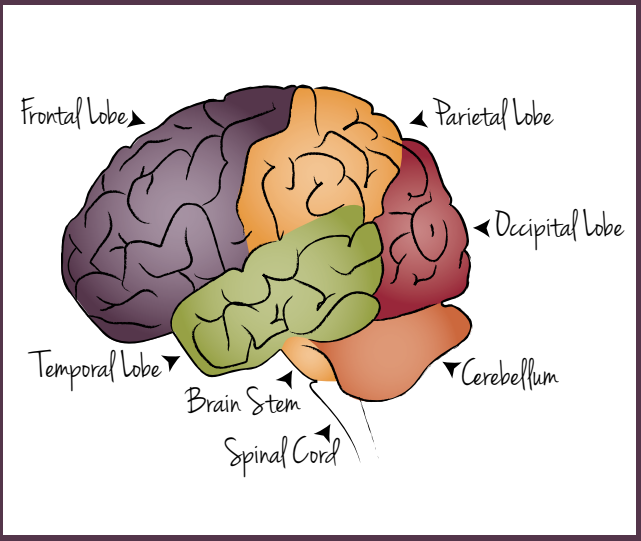
The presence of protective factors, particularly safe, stable and nurturing relationships, can often mitigate the consequences of early childhood adversity.[7] Even the negative consequences of toxic stress can be buffered with the support of caring adults and appropriate intervention and support, which can help return a child's stress response system back to baseline. Resilience, or the ability to successfully adapt in the presence of adversity, is more likely when a person has more of the protective factors listed on the bottom of this page.[8]

Nonetheless, a child's ability to trust and form secure attachments is greatly compromised by exposure to toxic stress or trauma.[9] This effect may be even stronger when a child suffers trauma at the hands of an adult who is supposed to be protecting and caring for the child. As children become older, diminished attachment is expressed in myriad ways, including uncertainty about the reliability and predictability of the world; problems with boundaries; distrust and suspiciousness; social isolation; interpersonal difficulties; and difficulty with empathy.[10]

Protective Factors That Build Resilience Include:

- Caring relationships with parents or extended family members
- Good health & a history of adequate development
- Good peer relationships
- Hobbies and interests
- Above average intelligence
- Easy temperament
- Positive disposition
- Active coping style
- Positive self-esteem
- Good social skills
- Internal locus of control
- Balance between seeking help & seeking autonomy

Brain Development



Unlike other organs in the body, the brain does not come fully developed at birth. The brain arrives with most of its cells or neurons, but important connections between cells called synaptic connections are made during infancy and early childhood. The number, strength and power of connections are directly related to a person's early experiences. Novel and varied experiences express themselves in the brain through increased synaptic connections, while disuse results in atrophied connections. A child's brain adapts uniquely to the set of circumstances the child encounters; thus, early experiences determine how genetic potential is realized.[11]

Brain development happens from the bottom up. The lower, more primitive systems responsible for the regulation of basic bodily functions--heart rate, breathing, body temperature, sleep--develop first, followed by the higher functioning brain components that control rational thought, planning and abstract thinking. This process happens relatively quickly. By age three a child's brain is 90% of its adult size.[12] Brain development continues through adolescence and early adulthood.[13]

7. Centers for Disease Control and Prevention. (no date). Preventing Child Maltreatment through the Promotion of Safe, Stable, and Nurturing Relationships between Children and Caregivers. Strategic Direction for Child Maltreatment Prevention. Atlanta: Centers for Disease Control and Prevention; National Center for Injury Prevention and Control.
8. Cicchetti, D., Rogosch, F. A., Lynch, M., & Holt, K. D. (1993). Resilience in maltreated children: Processes leading to adaptive outcome. Development and Psychopathology, 5(4), 629–647.
9. McEwen, B. S. & Seeman, T. (1999). Protective and damaging effects of mediators of stress: Elaborating and testing the concepts of allostasis and allostatic load. Annals of the New York Academy of Sciences, 896, 30-47.
10. Maunder, R.G., & Hunter, J.J. (2001). Attachment and psychosomatic medicine: Developmental contributions to stress and disease. Psychosomatic Medicine, 63, 556-567.
11. Perry, Bruce D. (2004). Maltreatment and the Developing Child: How Early Childhood Experience Shapes Child and Culture. Inaugural Margaret McCain Lecture; The Margaret McCain Lecture Series an initiative of the Center for Children & Families in the Justice System.
12. Shonkoff, Jack P., & Phillips, D., editors (2000). From Neurons to Neighborhoods: The Science of early childhood development. Washington, DC: National Academy Press.
13. Kaufman, J., Plotsky, P.M., & Nemeroff, C.B. (2000). Effects of early adverse experiences on brain structure and function: Clinical Implications. Biological Psychiatry, 48, 778-790.

Jennifer's Story

A mom, author, and fierce advocate, Jennifer has used her trauma as a catalyst for success. With a MBA, Law Degree and PhD and a track record of professional recognition and stewardship, Jennifer has truly demonstrated that one can go through trauma and survive.

Jennifer grew up in a household marked by terror and confusion. Living in a state of constant fear due to the abuse she and her siblings endured at the hands of their mother, Jennifer developed an acute survival instinct. The role Jennifer had to assume to protect herself and her siblings has provided the impetus for her academic and career success, as well as her ongoing social and relational challenges.

"The way I grew up has shaped my adult life in so many different ways."

Socially, the past continues to haunt Jennifer. Despite numerous academic and professional successes she continues to struggle with relationships. "I have not been able to sustain a good trustworthy and caring relationship with another person or connect in a healthy way." Jennifer has been drawn to abusive men and reports not finding much enjoyment with socializing, physical closeness or asking others for help. Jennifer recognizes these challenges and continues to work hard to address them and be the best person possible.

A theme that runs through Jennifer's story is the sense of strength, confidence and mastery gained in talking about the abuse and the power in the act of "telling." Jennifer continues to advocate and support others in telling their story, healing and striving to find happiness and joy.

What Is An ACE?

An adverse childhood experience is a traumatic experience prior to the age of 18. To assess the presence of ACEs, adults are asked about the following:

1. **Recurrent physical abuse**
2. **Emotional abuse**
3. **Sexual abuse**
4. **An alcohol and/or drug abuser in the household**
5. **An incarcerated household member**
6. **A household member who was chronically depressed, mentally ill, institutionalized, or suicidal**
7. **Violence between adults in the home**
8. **Parental separation or divorce**

Note: The original ACE study also included two categories of neglect which are not measured in the BRFS ACE module.

See Appendix A for the questions used in Wisconsin.

The ACE score is a measure of cumulative exposure to adverse childhood conditions. Exposure to any single ACE condition is counted as one point; points are tallied and totaled for a final score. 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.

The Study of Adverse Childhood Experiences

While many people would accept that negative experiences in childhood might affect later mental health, the connection between early traumatic experiences and physical health has only recently begun to be understood. Drs. Robert Anda and Vincent Felitti led a study beginning in 1995 that revealed unexpected correlations between what they called "adverse childhood experiences," or ACEs, and a wide range of measures of adult health and well-being, from substance use and suicide attempts to cardiovascular disease and obesity.[14]

The original ACE study, as it is now known, was a collaboration between the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente's Health Appraisal Clinic in San Diego, California. Medical and public health professionals had observed for years that risk factors for poor health were not randomly distributed in the population. The ACE study was designed to identify factors that predispose individuals to adopt risky behaviors or develop conditions that put them at risk for cardiovascular disease and other chronic health problems. Over 17,000 Kaiser patients completed a confidential survey about childhood maltreatment and family situations that might cause toxic stress for a child — adverse childhood experiences or ACEs. Respondents also reported their current behaviors as well as physical and mental health status. The study continues to track the medical status of its original participants.

The results surprised even the lead researchers. To begin with, the frequency of ACEs reported by participants was much higher than expected. Within this large sample of adults enrolled in one of the nation's leading HMOs – a middle-class, employed, well-educated demographic – only 36% reported that they had not experienced any ACEs. Over 12% reported four or more ACEs.

Furthermore, there were significant correlations between the number of ACEs a person experienced as a child and his or her adult health and well-being. As the number of reported ACEs increased, the likelihood of depression, cancer, diabetes, sexually transmitted diseases, alcoholism, drug use, smoking, ischemic heart disease, chronic bronchitis or emphysema, skeletal fractures, suicidality, and homelessness significantly increased as well. Figure 2 shows the prevalence of selected outcomes increasing as ACE scores increase.

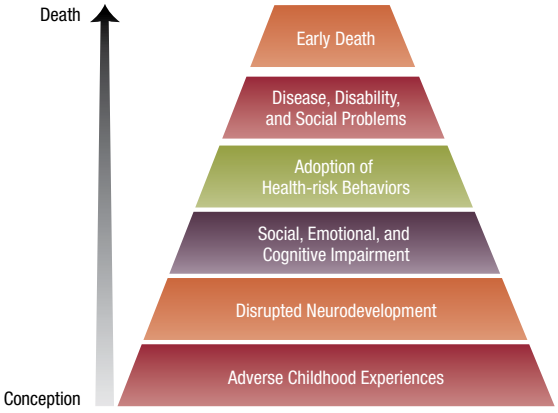


Figure 1: Conceptual framework for the ACE study

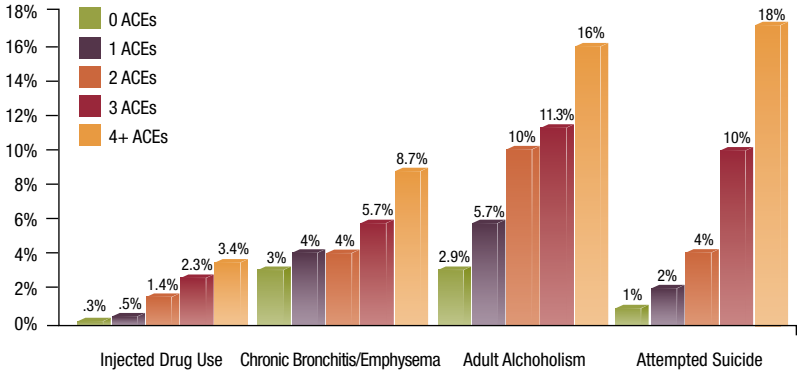


Figure 2. Prevalence of selected outcomes among adults in the Kaiser ACE study[15]

14. Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. American Journal of Preventive Medicine, 14, 245–258.
15. Source: Felitti, et al. (1998).

The study provides compelling evidence that early experiences shape a person's health, well-being, and prosperity, and that adverse experiences in childhood may account for a significant portion of adult risk behaviors, disease, poor quality of life, and early death. The study's results have prompted communities, researchers, policy makers, and medical practitioners to shift the lens through which they view many public health problems and solutions.

More recently, the CDC collaborated with Anda and Felitti to develop questions about ACEs for use in the Behavioral Risk Factor Surveillance System (BRFSS – see sidebar). State and U.S. territory Behavioral Risk Factor Survey (BRFS) programs have the option of using the BRFS ACE module, and several states have already published reports on their results. The state of Washington, for example, published an in-depth report on the connections between ACEs and adult health and quality of life.[16] Among other phenomena, the analysis assessed the increased cost to society associated with ACEs due to increased health care use, lost productivity, and higher rates of poverty and criminality.

As the ACE study has been replicated in different parts of the country and around the world,[17] the results have remained consistent: ACEs are common, they are strong predictors of adult health risk behaviors and disease, and they are related to the 10 leading causes of death in the United States. Finally, ACEs have a cumulative effect: the higher the ACE score, the greater the risk for numerous health and social problems throughout the lifespan.[18]

BRFSS
The Behavioral Risk Factor Surveillance System

Established by the Centers for Disease Control and Prevention in 1984, the Behavioral Risk Factor Surveillance System (BRFSS) is a state-based system of telephone surveys that collects information on health risk behaviors, prevalence of chronic diseases, use of preventative health practices, injury, and health care access. Wisconsin has participated in BRFSS since 1984 and was one of the original BRFSS states. Currently, there are Behavioral Risk Factor Survey (BRFS) programs in all 50 states, the District of Columbia, and U.S. territories.

Wisconsin's BRFS uses a stratified random sample of telephone numbers. At the household level, one adult, 18 years or older, is randomly selected to complete the interview. Annual questionnaires consist of required core questions, standardized optional modules and state-specific questions. Each month, states submit interview data to CDC, where annual data sets are aggregated and weighted. Weighted Wisconsin BRFS results are representative of the state's adult population living in households with landline telephones. Forthcoming BRFS results for 2011 will include data from cell phone as well as landline interviews, thus enhancing the findings.

Wisconsin BRFS interviews are conducted by the University of Wisconsin Survey Center, and the BRFS program itself is located in the Division of Public Health, Department of Health Services.

16. Anda, R.F., & Brown, D.W. (2010). Adverse Childhood Experiences & Population Health in Washington: The Face of a Chronic Public Health Disaster. Results from the 2009 Behavioral Risk Factor Surveillance System. Olympia, WA: Washington State Family Policy Council.
17. ACE studies have been conducted in Canada, China, Jordan, Norway, the Philippines and the United Kingdom. (Centers for Disease Control and Prevention, ACE study homepage, up dated November 7, 2011, http://www.cdc.gov/ace/about.htm.)
18. Felitti, et al. (1998).

Assessing ACEs in Wisconsin

In 2010, for the first time, the Wisconsin BRFS included the ACE questions to assess the effects of adverse childhood experiences on the health and well-being of its adult population.[19] Funding for inclusion of the ACE module was provided by the Wisconsin Children's Trust Fund, the Child Abuse Prevention Fund of Children's Hospital and Health System (CAP Fund), the Department of Health Services, and the Department of Children and Families.

These partners invested in collecting and analyzing ACE data as part of the Wisconsin BRFS for a number of reasons. Prevention leaders in Wisconsin had been following the Kaiser ACE study for a number of years and had taken a keen interest in its implications. The original ACE study and replications in other states illuminated the relationships between child maltreatment, substance abuse, domestic violence, mental health, physical health, and other areas. However, service systems and agencies addressing these issues often operate independently of each other. Looking at ACEs and their effects as measured in other states prompted leaders in Wisconsin to think more broadly about these issues and their interconnectedness, and spurred them to raise the funds to examine ACEs in Wisconsin.

Wisconsin's child maltreatment prevention and public health agencies had each conducted research and published reports in recent years that increased interest in assessing ACEs in Wisconsin. Research by the Wisconsin Children's Trust Fund revealed varying levels of risk for child maltreatment and wide variation in availability of prevention services by county in 2008.[20] At around the same time, the Wisconsin Divisions of Public Health and Mental Health and Substance Abuse Services, in the Department of Health Services, published a BRFS-based report exploring the connections between mental health and physical health, chronic disease, and lowered functioning and quality of life among Wisconsin adults.[21]

While these research efforts were informative, they still left many questions unanswered regarding the extent of child maltreatment and other adversity in childhood, and their effects on Wisconsin residents' lives. Official records of child abuse and neglect are generally believed to reflect only a portion of actual instances, because many abusive and neglectful behaviors are never reported to authorities.[22] It is difficult to ascertain how many children live in households where they are exposed to other types of adversity such as parental mental illness, substance abuse, incarceration, and domestic violence.

At the core of the decision to pursue the study of ACEs in Wisconsin was the need for better data – to drive both prevention and intervention efforts to reduce children's exposure to ACEs and ameliorate the effects of ACEs that Wisconsin residents have already experienced.

19. The ACE questions are included again in the 2011 BRFS questionnaire, and additional reports will be issued as data become available.
20. Maguire-Jack, K., & O'Connor, C. (2010). Child maltreatment prevention: Where we stand and directions for the future. What it will take: Investing in Wisconsin's future by keeping kids safe today. Madison, WI: Wisconsin Children's Trust Fund and Wisconsin Council on Children and Families.
21. Linking Mental and Physical Health: Results from the Wisconsin Behavioral Risk Factor Survey. (2009). Madison, WI: Wisconsin Division of Public Health, Department of Health Services. Available at: http://www.dhs.wisconsin.gov/stats/pdf/brfsmphreport2009.pdf.
22. Daro, D. (2010). Child Abuse Prevention: A Job Half Done. Chicago: Chapin Hall Center for Children at the University of Chicago.
23. Emotional abuse is measured in the BRFS ACE module as recurrent verbal abuse by a parent or caregiver.

Methods

As described above, Wisconsin BRFS data are collected through telephone interviews with adults reached at randomly selected telephone numbers. More than 4,000 adults completed the 2010 BRFS, including the complete module of ACE-related questions.

The ACE questions, which can be seen in Appendix A, assess the occurrence of adverse experiences prior to the age of 18. The ACE categories include physical, emotional,[23] and sexual abuse, and adverse household situations, including the presence of alcohol or other drug abuse, incarceration of an adult, mental illness of a household member, exposure to violence between adults, and parental separation or divorce.

As in the original ACE study, the majority of results shown in this report are based on "ACE scores," or the number of different ACE categories experienced. Each category of adversity experienced counts as one point toward the score, and scores range from 0-8. ACE scores are then analyzed in conjunction with current adult health status indicators, including mental health, health risk behaviors, physical health and chronic diseases, health insurance status and quality of life.

Analysis

All findings presented in this report are from the 2010 Wisconsin BRFS. Analysis was done using SAS survey procedures, which allow analysis of data from surveys with complex sampling designs. Percentages given are calculated at a 95% confidence interval; the significant differences between groups reported here were checked using regression analysis to rule out possible confounding factors. In many of the results presented, small differences between some groups may not be statistically significant, but the larger differences, such as those between people with no adverse childhood experiences and those with more than 4, are statistically significant unless otherwise noted in the text. Additional detail about the variables included in this report can be found in Appendix B.

Wisconsin ACE Findings

Wisconsin's ACE results confirm that ACEs have a serious impact on the adult well-being of our state's residents. In the areas of mental health, health risk behaviors, physical health, socioeconomic status, health insurance and access to care, and quality of life, Wisconsin adults with higher ACE scores have poorer outcomes.

Prevalence of ACEs

As in the Kaiser ACE study and other states' findings, ACEs were found to be common among Wisconsin residents, with 56 percent of the adult population having experienced at least one ACE. Fourteen percent of Wisconsin adults have an ACE score of 4 or higher – meaning that they experienced four or more of the categories of adversity described above before they turned 18.[24] (See page 26 for comparisons to findings from the Kaiser study and other states. See Appendix B for additional details.)

Table 1 shows the distribution of ACE scores among Wisconsin residents overall, as well as breakdowns by age group and sex. Younger adults report more ACEs than those aged 50 and above. There are several possible reasons for this: Older adults may have biased recall or interpret past experiences differently, or adults with multiple ACEs may die younger than those with fewer or no ACEs.[25] Table 1 also shows that females report experiencing more ACEs than males. These findings are consistent with other ACE studies.[26]

	0	1	2,3	4
All Wisconsin Adults	**44%**	**22%**	**20%**	**14%**
AGE GROUP				
18-34	**34%**	**24%**	**23%**	**19%**
35-49	**43%**	**20%**	**20%**	**17%**
50-64	**47%**	**22%**	**18%**	**12%**
65+	**59%**	**21%**	**15%**	**5%**
SEX				
Male	**45%**	**24%**	**19%**	**12%**
Female	**43%**	**20%**	**20%**	**17%**

Table 1. ACE Scores among Wisconsin Adults

Figure 3 shows the prevalence of each ACE among Wisconsin adults. Emotional abuse is the most prevalent ACE, with 29% of adults indicating that a parent or another adult in the home swore at them, insulted them, or put them down on multiple occasions. Parental or other adult substance abuse is also common (27%).

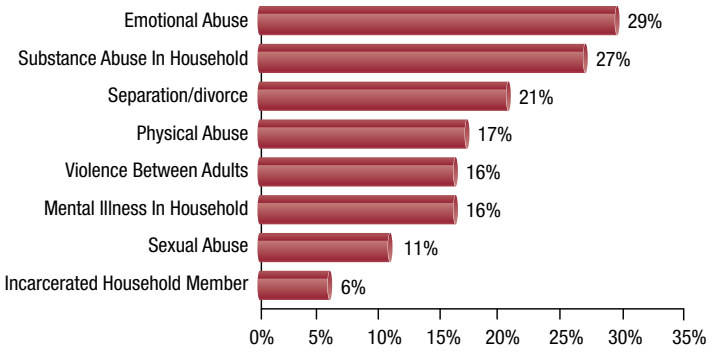


Figure 3. Prevalence of Individual ACEs in Wisconsin

Men and women report relatively similar rates for most ACEs. However, there is a significant difference between men and women for sexual abuse, with 7% of men and 16% of women having experienced sexual abuse as children.

24. Four ACEs was selected as the threshold for a "high" ACE score to allow large enough numbers in each category for statistical comparison. Similar thresholds have been used in other studies of ACEs and their effects.
25. Felitti, et al. (1998).
26. Anda & Brown. (2010).

Anthony's Story

Anthony grew up in a loving home. When he was 8 years old, his mother was diagnosed with breast cancer. The stress of her illness affected everyone in the family. Over the course of approximately four years Anthony's mother's cancer became lethal, causing her death when Anthony was 12 years old. During the final stages of her life his mother met a priest who offered spiritual support to her and began to develop a relationship with her family. Anthony thought this clergy member might be a source of protection and support. Instead, the clergy member sexually abused Anthony throughout his high school years.

Anthony was in a lot of emotional pain throughout his childhood and adolescence, but lacked any outlet to express how he was feeling. Anthony remembers experimenting with alcohol at a young age. Following his mother's death, he fell in with a group of friends who drank and used drugs. From the age of 13 on, he used alcohol as an escape and his use became abusive. He was disengaged from academic work as he was so consumed by emotional pain. He didn't like to be alone because his emotional pain would overwhelm him – yet he was unable to talk about it with anyone. He felt extremely lonely. He was passionate about having a career working with people who were disenfranchised, but had low confidence in his abilities.

As a child and teen, Anthony didn't know that any services were available to help someone like him, and wouldn't have known how to ask for help even if he had known it was available. When Anthony was around 20, something changed and he started reaching out to people. He met an adult he could really talk to for the first time – now his stepmother – and he sought treatment for his drug and alcohol addiction. He started working with at-risk youth in Milwaukee and got a better idea of what he wanted to do with his life. Through that work, he encountered survivors of child sexual abuse and realized that he needed to follow the same advice he was giving them. "I have to face these issues the same way I would encourage these kids to," he thought to himself. He recognized that he was in crisis and needed to ask for help.

> "There's nothing I can't overcome if I acknowledge the problem and ask for the help I need."

Anthony has struggled with gastrointestinal issues as an adult. He currently has a clean bill of health. He credits his recovery from drug and alcohol abuse with keeping him healthy, because it makes him aware of what he needs to do on a daily basis to keep himself physically, emotionally, and socially healthy. He is vigilant about knowing when he needs help to continue healing and repairing his relationships – with himself and others.

Anthony is enrolled in a Masters program to become a clinical social worker so that he can continue to help people with their personal struggles.

Co-Occurrence of ACEs

ACEs also tend to occur in clusters, such that people who experienced at least one ACE are likely to have experienced multiple ACEs in childhood. Of Wisconsin adults with at least one ACE, 61% have two or more ACEs. As Figure 4 shows, over a quarter of those who have any ACEs have four or more.

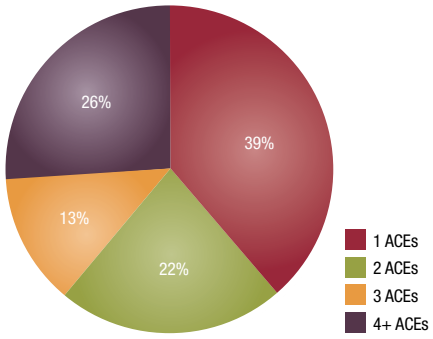


Figure 4. Distribution of ACE Scores among Those with Any ACEs

Emotional abuse and substance abuse by a parent or other household member – the most common ACEs among Wisconsin residents – are also the ones that demonstrate the strongest relationship to other ACEs. Among Wisconsin residents with an ACE score of four or more, nearly nine out of ten experienced emotional abuse, while almost as many (86%) grew up with someone in their household abusing alcohol or other drugs. The presence of emotional abuse or substance abuse in the home may signal other challenges within the household that can threaten the current and future well-being of children.

Certain ACEs tend to indicate a greater likelihood of other traumatic experiences in childhood, as shown in Figure 5. Among those who were sexually abused, for example, 28% have 2-3 ACEs and 57% have 4 or more ACEs. Compare this to the general population, where 14% reported 4 or more ACEs.

Having a parent or other household member incarcerated also tends to cluster with other ACEs. Among adults who had a household member incarcerated during their childhood, an estimated 64% have 4 or more ACEs. Four out of five grew up with someone who had a substance abuse problem – roughly three times the proportion in the rest of the population. Adults in this group are also nearly three times as likely to have been sexually abused (31% of those with household member incarcerated vs. 11% of Wisconsin residents) and to have grown up in a home where adults were violent toward each other (47% vs. 16%). Incarceration of a family member thus goes hand in hand with a number of other problems.

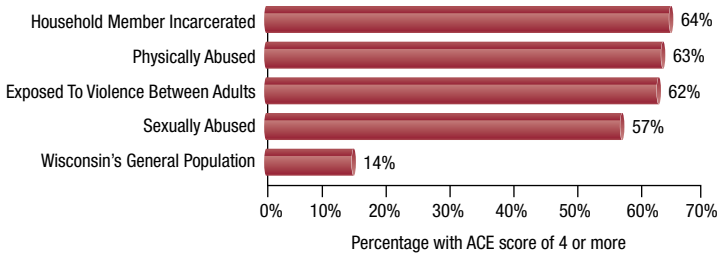


Figure 5. Prevalence of High ACE Scores among Those Who Experienced Specific ACEs

There are additional patterns in the clustering of ACEs. For example, 45% of those who experienced emotional abuse also experienced physical abuse. Among those who experienced physical abuse, 77% also experienced emotional abuse. Children in families with known patterns of emotional abuse are more likely than other children to suffer physical abuse; and children who are physically abused are very likely to be emotionally abused as well.

Mental Health Outcomes

Wisconsin's BRFS shows a strong association between traumatic experiences in childhood and mental health struggles in adulthood. The BRFS Depression and Anxiety module includes the Patient Health Questionnaire-8 (PHQ-8),[27] a brief depression screening tool, to assess current depression symptoms. Figure 6 shows PHQ-8 depression scores (identified as moderate-severe depression), and results for three other BRFS mental health measures, for people with ACE scores of 0, 1, 2-3, and 4 or more. The results indicate that Wisconsin adults who experience greater numbers of ACEs are more likely to have mental health problems – a consistent finding across all four measures.[28] In each instance, as the number of ACEs increases, the prevalence of that mental health problem also increases.

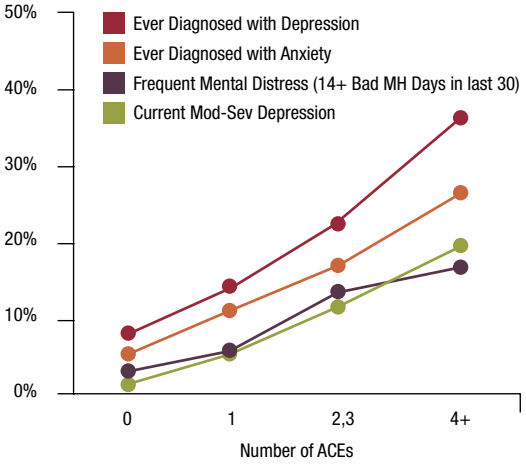


Figure 6. ACEs and Mental Health

This relationship is particularly strong for two specific ACEs – physical abuse and sexual abuse – both of which significantly increase the odds of frequent mental distress (FMD), or having 14 or more "bad mental health days" out of the last 30. Among adults with the physical abuse ACE, the odds of FMD are nearly three times those of adults without that ACE, and for sexual abuse the odds of FMD are more than doubled.

The BRFS provides both a historical and current subjective account of mental health experiences for Wisconsin residents. Those with higher ACE scores are more likely to have been diagnosed with anxiety or depression at some point in their lifetimes than those with 0 ACEs, but they are also more likely to have current or recent mental distress and moderate to severe depression than their counterparts, reflecting a less than optimal level of current functioning. Among those with at least one ACE who have ever been diagnosed with depression, 30% currently have moderate to severe depression symptoms. This proportion is significantly higher than among those who have not had a diagnosis (6%), and suggests that treatment, when present, is frequently inadequate.

These findings are very important when considering the impact mental illness has on families. Unaddressed mental illness perpetuates a cyclical pattern of dysfunction in families, often for generations. Studies show that infants and toddlers whose mothers are severely depressed are almost three times more likely to suffer accidental injuries.[29] Depressed parents also have greater difficulty interacting with their children,[30] affecting their ability to form strong bonds with their children and compromising their child's attachment—a child's foundation for all future relationships. Growing up in a household with someone with depression or other mental health problems is considered an ACE. This may be one piece of the puzzle of intergenerational transmission of mental illness.

Finally, poor mental health outcomes are associated with an array of poor physical health outcomes. As described in the 2009 report *Linking Mental and Physical Health: Results from the Wisconsin Behavioral Risk Factor Survey*, poor mental health predisposes individuals to poorer health outcomes, including increased occurrence of diabetes, asthma and cardiovascular disease.[31]

27. PHQ-8, part of an optional BRFS mental health module, is a shortened version of the Patient Health Questionnaire, which asks about depression symptoms experienced in the past 2 weeks. PHQ-8 scores range from 0-24 with scores of 10 or higher indicating moderate to severe depression. CDC provides the PHQ-8 scoring algorithm to state BRFS programs.
28. The measures include: Frequent Mental Distress (14 or more bad mental health days in the past 30 days); Moderate-Severe Current Depression Symptoms; Depression Diagnosis (ever); and Anxiety Diagnosis (ever).
29. Schwebel, D.C, & Brezausek, C.M. (2008). Chronic Maternal Depression and Children's Injury Risk. Journal of Pediatric Psychology, 33(10), 1108-1116.
30. Cummings, M.E., Davies, P.T. (1994). Maternal Depression and Child Development. Journal of Child Psychology and Psychiatry, 35(1), 73-112.
31. Linking Mental and Physical Health: Results from the Wisconsin Behavioral Risk Factor Survey.

Health Risk Behaviors

Rates of health risk behaviors are also higher among adults who experienced more adversity in their childhoods. Most notably, adults with more ACEs are significantly more likely to smoke cigarettes. There is also a suggestion of increased likelihood of heavy drinking as ACE scores increase.

Smoking

Smoking rates progressively increase with ACE scores, as shown in Figure 7. This was true even when controlling for mental health variables that are correlated with smoking.[32] Interestingly, of those reporting 0 ACEs, only 10% are smokers. This is half the rate of smoking among the population as a whole and less than half the rate among those who had at least one ACE.

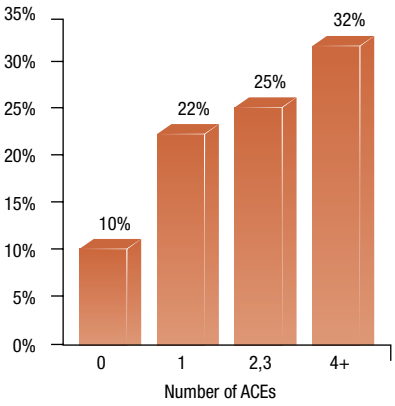


Figure 7. ACEs and Smoking [33]

It is not surprising that those who have suffered early adverse experiences would be more likely to use nicotine. Although nicotine use often leads to serious and deadly medical issues, research now shows that it may provide immediate relief from tension and stress by acting as both a stimulant and a relaxant.[34] The effect of low doses of nicotine is to increase memory, concentration and alertness; at higher doses it has been shown to decrease pain and anxiety.

32. Kalman, D., Morisette, S.B., & George, P.T. (2005). Co-morbidity of Smoking in Patients with Psychiatric and Substance Use Disorders. Journal on Addictions, 14(2), 106-123.
33. Smoking status for BRFS analyses is based on a positive response to the question, "Have you smoked at least 100 cigarettes in your entire life?" and any response other than "not at all" to the question, "Do you now smoke cigarettes every day, some days or not at all?"
34. Kenny P.J., & Markou, A. (2006). Nicotine self-administration acutely activates brain reward systems and induces a long-lasting increase in reward sensitivity. Neuropsycho pharmacology 31(6), 1203-11.

Joann's Story

Joann grew up in a troubled family. Her mother had a mental illness and her father was a heavy drinker. Her mother felt that Joann was favored by her father, and tried to "put her in her place." Her parents were separated for a time during Joann's childhood. During this time, her father came to the house and beat her mother. Joann's confusion when her parents reunited was one of many feelings that she was discouraged from expressing. Her parents, school officials, and therapists all made it clear that "I was the problem," she says now. Joann attempted suicide three times as a teenager.

"Everything was my fault. I got that message clearly."

As an adult, Joann feels the effects of her childhood experiences. She suffers from anxiety accompanied by nausea and diarrhea – all of which have been nearly constant since her son passed away two years ago. She also lost a daughter, years earlier, and these two traumatic losses in adulthood have triggered her anxiety and reactivity to people and situations. She has extreme responses to things – so much so that, when her children were young, she locked herself away from them for six months at one point because she did not want to damage them.

At 37 years old, Joann has been a smoker for over 20 years, and sometimes uses marijuana when her anxiety has been triggered. She has experienced dramatic weight loss and weight gain at different periods in her life following traumatic events.

It was in seeking help for her now-adult daughter seven years ago that Joann learned about trauma-informed care and started to make sense of her own reactions and struggles. She is learning to acknowledge what she's feeling and "filling her toolbox" with more productive ways to respond to problems. Joann is deeply spiritual and feels strongly that her resilience comes from God.

Joann has also become a tireless advocate for trauma-informed care, making presentations around the state to mental health consumers and others. "Consumers need to hear this information," she explains. "I just look around the room while I'm presenting, and I can see lightbulbs going on and connections being made."

Other health risk behaviors

Further research is needed to make stronger inferences around ACEs and health risk behaviors aside from smoking. The original Kaiser study and studies from other states show a powerful relationship between ACE scores and an array of risk behaviors, including smoking and drinking as well as other risk behaviors not measured in the BRFS, such as drug use, sexual activity, and suicidality. [35,36,37]

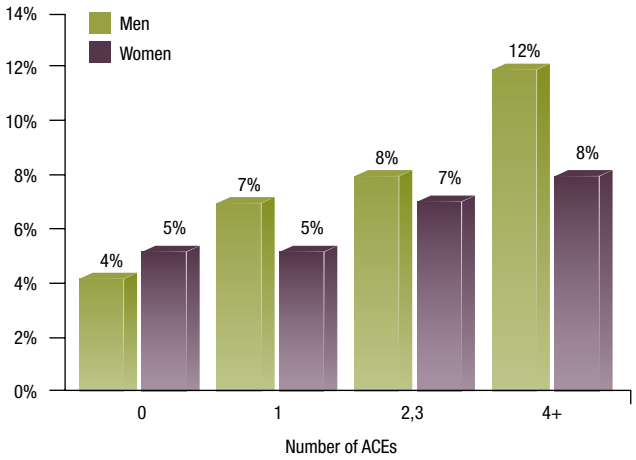


Figure 8. ACEs and Heavy Alcohol Use

Wisconsin BRFS data suggest a higher prevalence of heavy alcohol use among adults with multiple ACEs.[38] As shown in Figure 8, this may particularly be the case among men. However, the relationship is only suggested and is not statistically significant. A larger sample size might produce a significant finding.

In addition to the direct association between number of ACEs and heavy alcohol use, there may also be an indirect relationship through frequent mental distress. As described earlier, there is a direct association between ACEs and frequent mental distress, which is particularly strong for adults who experienced physical or sexual abuse. Regression analysis indicates that frequent mental distress is associated with a significant increase in the odds of heavy drinking, after adjusting for an array of demographic and other mental health variables. This suggested sequence of relationships – from ACEs to frequent mental distress to higher levels of heavy drinking – may warrant further investigation. These results are consistent with proposed models of the pathway from trauma to co-occurring mental health and substance abuse disorders.[39]

Physical Health Outcomes

Wisconsin BRFS 2010 results indicate that physical health is also affected by ACEs, though less directly than mental health. Two findings related to physical health were statistically significant, and are shown in Figure 9.

Asthma prevalence is greater among those with higher ACE scores. Asthma is a chronic medical condition and is closely related to a number of other health problems, such as depression, obesity, and increased hospitalizations.[40,41] Its correlation with ACE scores indicates a potential pathway for prevention of serious health problems if ACEs could be reduced.

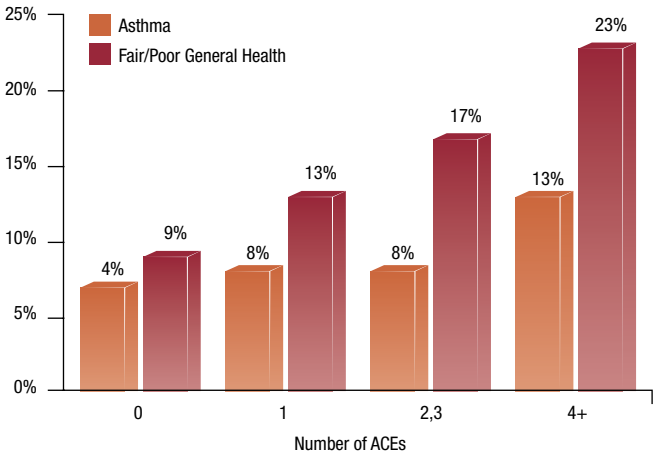


Figure 9. ACEs and Physical Health

35. Anda, R. (no date). The Health and Social Impact of Growing Up With Adverse Childhood Experiences: The Human and Economic Costs of the Status Quo. Accessed December 1, 2011 from http://acestudy.org/files/Review_of_ACE_Study_with_references_summary_table_2_.pdf.
36. Anda & Brown. (2010).
37. Adverse Childhood Experiences Reported by Adults - Five States, 2009. (2010). Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, 59(49).
38. BRFS defines heavy drinking as drinking more than two drinks per day on average for men, or more than one drink per day on average for women.
39. E.g., Molnar, B.E., Burka, S.L., & Kessler, R. C. (2001). Child Sexual Abuse and Subsequent Psychopathology: results from the National Comorbidity Survey. American Journal of Public Health, 91(5), 753-760.
40. Mokdad, A.H., Ford, E.S., Bowman, B. A., Dietz, W.H. (2003). Prevalence of Obesity, Diabetes, and Obesity-related Risk Factors, 2001. Journal of the American Medical Association, 289(1), 76-79.
41. Gershon, A.S., Wang, C., Guan, J., & To, T. (2010). Burden of comorbidity in individuals with asthma. Thorax, 65, 612-618.

Figure 9 also shows that as ACE scores increase, self-reported overall health declines. Those who experienced four or more ACEs report "fair" or "poor" general health nearly twice as often as those with no ACEs. Self-reported physical health measures such as that used in the BRFS have been shown to relate strongly to more objective measures of health, morbidity, and mortality.[42]

The connection between ACE scores and other physical health outcomes is less clear in Wisconsin's 2010 BRFS results than in other ACE studies. In Washington State, which has a larger sample size than Wisconsin, the proportion of adults diagnosed with diabetes, cardiovascular disease, or requiring special equipment for a medical condition rose precipitously with four or more ACEs.[43]

Research outside the area of ACE studies establishes a strong relationship between early childhood trauma and adult physical health.[44] Data from the National Comorbidity Survey demonstrate that childhood physical abuse is associated with increased lung disease, peptic ulcers, and arthritic disorders; childhood sexual abuse with increased cardiac disease; and childhood neglect with increased diabetes and autoimmune disorders.[45]

42. Hennessy, C.H., Moriarty, D.G., Zack, M.M., Sherr, P.A., & Brackbill, R. (1994). Measuring Health-Related Quality of Life for Public Health Surveillance. Public Health Reports, 109(5), 665-672.
43. Anda & Brown. (2010).
44. Springer, K.W., Sheridan, J., Kuo, D., & Carnes, M. (2007). Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. Child Abuse and Neglect, 31(5), 517-530.
45. Goodwin, R.G., & Stein, M.B. (2004). Association between childhood trauma and physical disorders among adults in the United States. Psychological Medicine, 34, 509-520.

Paula's Story

Paula's childhood experiences included five of the ACEs measured in the Wisconsin BRFS as well as the death of one parent. As a child, she tried to tell other people what she was experiencing, but was told to stop being a baby, or not to talk about "that kind of thing." She was held back in second grade for poor school performance, without anyone at the school looking into why she was struggling. She didn't seek help until she was an adult beginning a teaching career herself. She continues to feel the effects of her childhood trauma in her mental health, physical health, and other areas of her life.

Paula is being treated for dissociative identity disorder, a mental health disorder associated with trauma. She also suffers from an eating disorder and has battled obesity. While she has stayed free from addiction to drugs or alcohol, she has struggled with self-inflicted injury (cutting) which some consider an addictive behavior. At times, she has lost the will to live, and has attempted suicide in the past.

"I feel I'm still here for a reason - to help other people who have had the same kind of experiences that I have."

In terms of physical health, Paula faces many challenges. She has been diagnosed with diabetes and irritable bowel syndrome (IBS). She has had reproductive health problems, gall stones, and migraines. She has joint issues, including arthritis, and has had multiple surgeries to address joint problems.

One effect of Paula's childhood abuse is that she struggles to trust men and does not feel safe with men. She has never dated, married, or had children.

Paula is currently working on a Masters degree in social work, with a focus on trauma. She is dedicated to helping others heal from the kind of experiences she had. She is an advocate for trauma-informed care in Wisconsin.

Paula is a woman of strong faith. She feels that her resilience comes from God. Another source of Paula's strength is her knowledge and belief that there are good people in the world who want to help others, including her. Growing up, she was close to her grandparents. They were not aware of everything that was going on in her home, and didn't know how to help with the problems they knew about – but she always knew they loved and cared about her, and that gave her strength.

Gina's Story

Gina had to grow up very quickly. She started working at the age of twelve and dropped out of high school to support herself because her family had lost their housing. "I found strength from working… this was survival to me and probably helped me as an adult." Gina reports very little support from the systems that were involved with her family. The school system tried to intervene but was not successful and Gina and her siblings only found it embarrassing. "CPS was scary to us. Even as kids we knew that those were the people who would split us apart." As an adult Gina feels strongly that it is severely traumatic to remove a child from the home.

Throughout her life Gina has, at times, been extremely depressed. She has a history of self-injury by "cutting," and has been suicidal. She recalls drinking at the age of 10 and trying to walk in front of on-going traffic. Gina was exposed to drugs at a young age through her mom. She remembers doing drugs as a child and teenager in an effort to fit in with her family.

> "I took the ACE test and scored 10 out of 10. This was alarming to me. On one end I was proud because I beat the odds of being a drug addict. On the other end I was sad because I realized that I scored 10 out of 10, which means that I have been through severe trauma."

Gina suffers from numerous physical health problems and has been on Badgercare, which left her with less than optimal medical and dental coverage. She has had to have extensive dental work done and has lived with medical conditions that were not discovered or diagnosed due to minimal coverage. Gina describes herself as obese and as a result has experienced severe obstructive sleep apnea and high blood pressure. Gina sees the obesity as directly linked to the sexual abuse she endured as a child. During times of high weight loss she has felt vulnerable and uncomfortable with the attention she received; recognizing that the extra weight covered her up and prevented people from looking at her in a sexual way.

Gina has struggled in her personal relationships. Her last marriage, which ended in divorce, was with a drug addict who was extremely verbally and emotionally abusive. Gina says that she has always been drawn to people who were abusive. "This was the norm for me…and the scariest to me because I had to always be very aware of what is and is not acceptable." Gina also recognized in herself the tendency to be abusive. "I thought that if I could hit back, or yell enough that it was okay because I could fight back. This was making me into a person that I didn't want to be."

Currently Gina is very busy with being a mom and pursuing a double major in business and human services. Gina has worked very hard to find strength, patience, forgiveness and balance in her life. With help from a home visiting program, Gina learned to parent her children in a very different way from how she was raised. Gina says that she works on healing everyday and has found resilience from telling her story. "Every time I speak about my story I feel that I am breaking the silence." Gina hopes that by sharing her story she is helping someone else take the next step towards healing and happiness. "Every time I share it, a piece of anger or sadness falls off and I gain strength through the power of my words." Gina found support and encouragement from those who would listen with "non-judgmental eyes."

"I also can cry now and I don't have to be strong to hold the tears back. Fortunately most of my tears now are happy ones."

Socioeconomic Status

Health outcomes are known to differ by socioeconomic status, with lower status generally associated with poorer outcomes. BRFS includes a number of sociodemographic questions, which allow analysis of ACEs by education level, household income and employment status, and related indicators of well-being such as Medicaid status and access to health care, all of which have the potential to differ by levels of ACEs.

The results indicate that, among Wisconsin adults, ACEs are related to current income levels. Figure 10 shows that as household income goes up, the percentage of adults with no ACEs goes up and the percentage with four or more ACEs goes down. This comparison is particularly striking between those with incomes above and below $35,000.

ACEs are also related to educational attainment. ACE scores are higher among Wisconsin residents with less education. As shown in Figure 11, 21% of those who did not complete high school have an ACE score of 4 or more, compared to only 10% of college graduates who have ACE scores that high.

Considering that employment is strongly related to both education and income, it would be expected that childhood trauma experiences would also affect unemployment. Those with higher ACE scores appear to be more likely to be "out of work" than those with lower ACE scores, but that finding was not statistically significant.

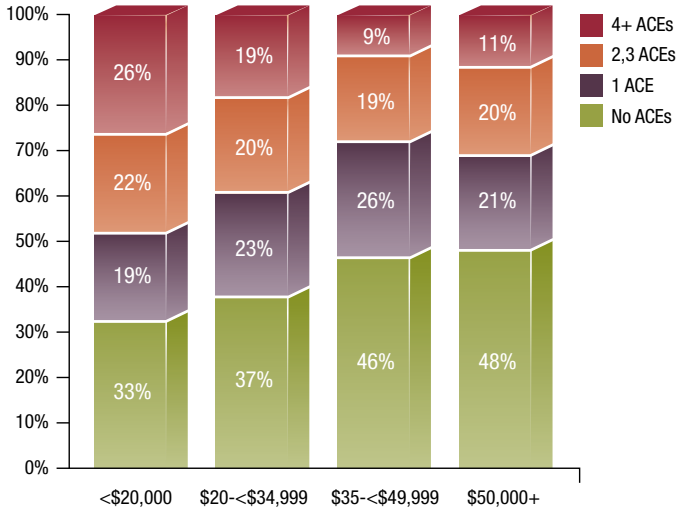


Figure 10. Household Income and ACEs

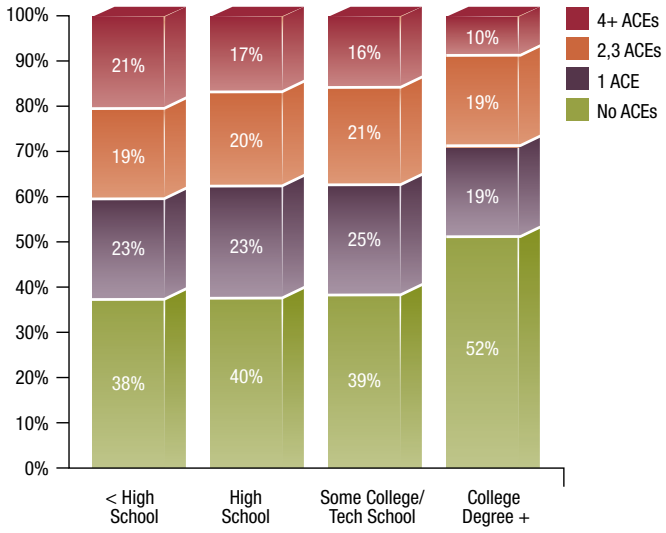


Figure 11. Educational Attainment and ACEs

Health Care Access and Medicaid Enrollment

ACE scores were also found to be related to health insurance status, Medicaid enrollment, and access to health care. Individuals with more traumatic experiences in their childhood are less likely to be covered by any health insurance, and more likely to be enrolled in Medicaid/BadgerCare than in private insurance. Given the current national and statewide debate regarding health care reform and Medicaid, these results are particularly striking.

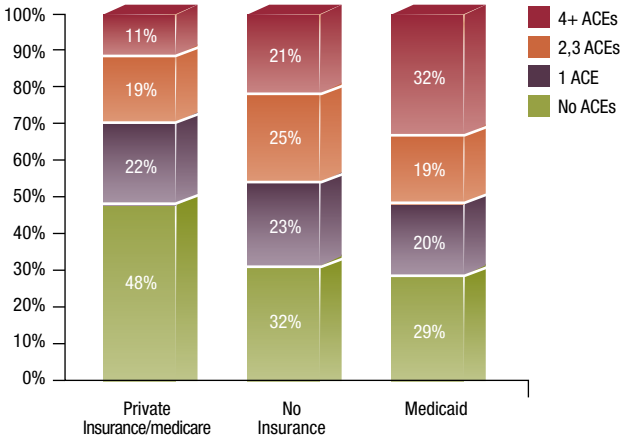


Figure 12. Distribution of ACE Scores by Insurance Type

Figure 12 shows that people with health insurance (including private insurance and Medicare) are more likely to have no ACEs and less likely to have four or more ACEs, when compared to those with no insurance and those receiving Medicaid/ BadgerCare. Those with no insurance are less likely to have high ACE scores than those receiving Medicaid/BadgerCare (21% vs. 32%).

Looking more closely at receipt of Medicaid/ BadgerCare, 27% of those with an ACE score of 4 or higher receive Medicaid. As shown in Figure 13, this is about three times the rate of Medicaid/ BadgerCare enrollment among people with no ACEs.

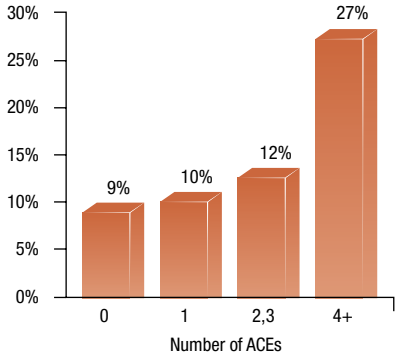


Figure 13. ACEs and Medicaid Enrollment

Medicaid/BadgerCare recipients in Wisconsin have experienced every category of ACE at much higher rates than the rest of the population. Differences between Medicaid recipients and non-Medicaid recipients are statistically significant for all ACEs.

As Figure 14 demonstrates, recipients of Medicaid/ BadgerCare are more than three times as likely as the rest of the population to have had a household member incarcerated during their childhood. Medicaid/ BadgerCare recipients are at least twice as likely as others to have been exposed to violence between adults and to have experienced sexual abuse as children.

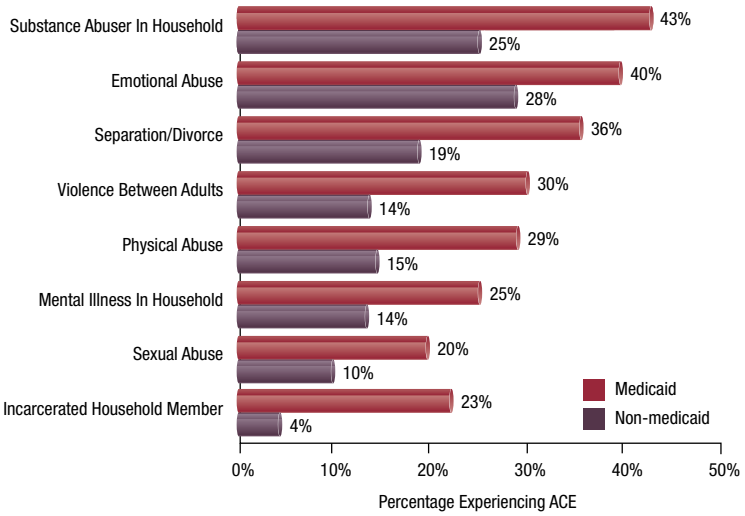


Figure 14. Prevalence of Specific ACEs among Medicaid Recipients

Finally, the data suggest that Wisconsin residents with high ACE scores are more likely to have limited ability to see a doctor due to cost of care, compared to adults with no ACEs. An estimated 23% of adults with ACE scores of 4 or more have this restriction, compared to 5% of those with no ACES.

Quality of Life

In addition to the mental health, physical health, and socioeconomic outcomes already discussed, ACEs affect quality of life in adulthood on a more general level. In particular, we focus on self-reports of bad physical and mental health days, inability to work, and receipt of needed social and emotional support.

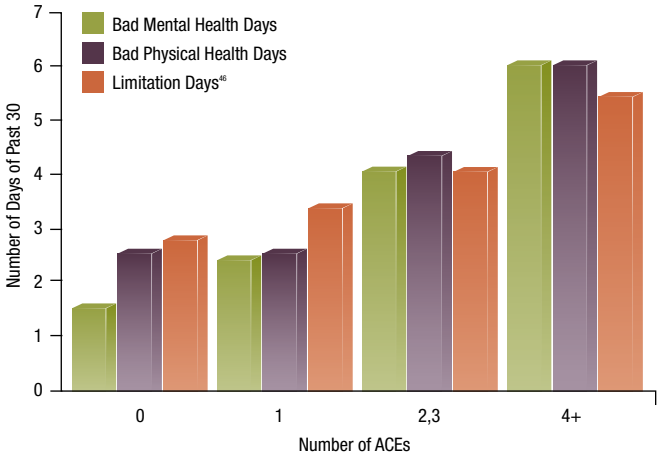


Figure 15. Bad Mental Health, Physical Health, and Limitation Days[46] in Past Month

As Figure 15 shows, people with higher ACE scores have greater numbers of "bad days" in terms of mental health, physical health, and limitations to their activity due to either mental or physical health. The number of bad days in the past month rises steadily on all three measures as the ACE score increases. (The question about bad mental health days is also the basis for the "frequent mental distress" category discussed earlier in this report.

While Figure 15 shows a steady increase in the average number of bad days in the past month as ACE scores increase, Figure 6 on page 15 showed that people with more ACEs are also more likely to have had 14 or more such days in the past month.)

Closely related to being limited in activities by poor physical or mental health, people who experienced four or more ACEs are far more likely than others to be "unable to work." As Figure 16 shows, 2% of adults with ACE scores between 0 and 3 are unable to work, compared to 7% of those with 4 or more ACEs.

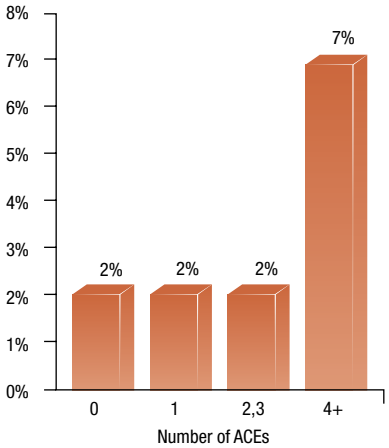


Figure 16. ACEs and Inability to Work

46. Days of activity limitation due to poor mental or physical health.

Individuals with higher ACE scores also receive less social support and emotional support, as shown in Figure 17. The BRFS question asks whether people get the social and emotional support they need – which could mean from friends, family, neighbors, or formal service providers. There is a striking, and statistically significant, trend of less support received as ACEs increase.

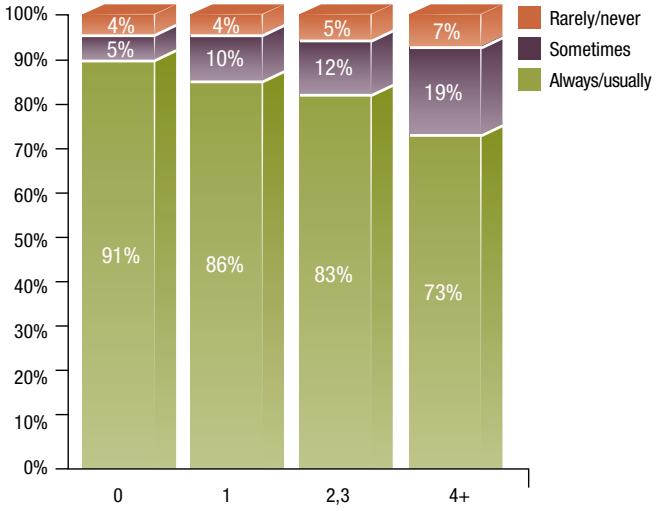


Figure 17. ACEs and Receipt of Social/Emotional Support

Individuals who experienced more adversity in childhood are also more likely to be dissatisfied with their lives as adults. An overwhelming majority of Wisconsin residents are either "satisfied" or "very satisfied" with their lives. However, as Figure 18 shows, among people with ACE scores of 4 or more, responses of "dissatisifed" and "very dissatisfied" are significantly more likely than in any other group, and seven times as likely as among those with no ACEs.

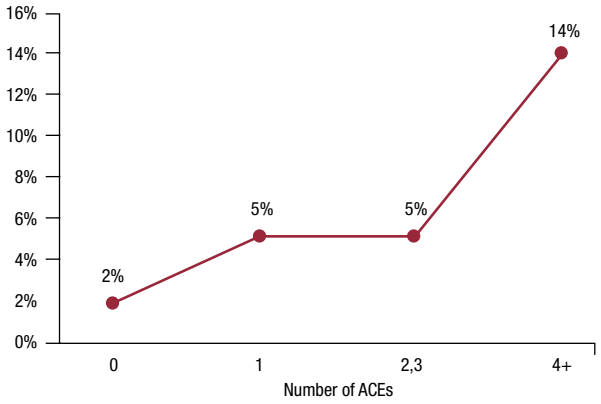


Figure 18. ACEs and Dissatisfaction with Life

Melissa's Story

Melissa was exposed to a number of adverse childhood experiences (ACEs) that have had a profound influence on her life. Melissa grew up with household dysfunction—her mother suffered from severe mental illness and her father was an alcoholic. She also suffered from abuse. Her father started sexually abusing her at a very young age and continued to sexually abuse her throughout childhood and into adolescence. During her teens, her brother and his friends started to abuse her. Melissa was told that she would be killed if she ever told anyone about the abuse. Melissa's mother was not able to or available to protect her. Her parents divorced after 25 years of marriage; subsequently, her mother developed alcoholism.

> "ACEs have impacted my life deeply and still impact my life and my way of viewing and being in the world."

Melissa's early experiences have had a deep and powerful impact on her life. Her world view has been greatly altered and her spirituality has suffered considerably, believing for many years that she was not a good person. Melissa has been diagnosed with depression and post traumatic stress disorder. Melissa describes a life of isolation—living alone and having few friends—and although eager to form connections, she has struggled to maintain connections due to lack of trust, fear of abandonment, anxiety, shame and feelings of worthlessness. Melissa also reports health concerns. She suffers from rheumatoid arthritis and fibromyalgia.

Melissa has struggled to find healing and wholeness. Melissa tried to get help. She sought support and comfort from those she truly believed were there to help, only to be told "never speak of this again" or kindly ignored. Melissa was even victimized at the hands of a professional. It's no wonder that she has suffered enormously in her ability to form trusting, long-lasting relationships. The "system of care" designed to help her heal only contributed to her sense of helplessness, pain and grief.

But Melissa finally connected with someone who truly listened and allowed her to tell her story. Currently, at 63, Melissa reports greater resiliency-- "I have become resilient, a survivor and sometimes a thriver." Melissa, with the help of a good therapist, has worked through her story and started to heal, beginning to genuinely believe in her own goodness. Melissa continues to build on that inner strength by sharing her story and teaching others about the impact of trauma.

Further Discussion

ACEs are related to poor mental, social and physical outcomes. Results from the study of ACEs in Wisconsin and elsewhere, combined with research in the area of early childhood and neurological development, suggest a compromised life trajectory for those who have experienced early toxic stress. ACEs represent potential disruptions to brain development. Without "buffering" support from a consistent, nurturing adult, the architecture of the brain can be altered through toxic stress. A child exposed to ACEs is therefore more likely to experience challenges with learning, managing stress, performing well in school, and forming healthy relationships. Mental health issues, relationship challenges, and low self-esteem may lead to behaviors that alleviate the discomfort, such as tobacco use, alcohol or other drug use, overeating, and risky sexual behavior. Though many of these behaviors may provide relief for the individual in the short term – often defined as "compensatory use" – they can compromise one's health and well-being in the longer term. Ultimately, higher ACE scores are strongly associated with a multitude of health and social problems, increased suicide attempts, dependency on public benefits, and early death.

The human toll of ACEs is clear – in terms of suffering children, unmet potential, risky behaviors, and mental and physical health impairments. These findings also demonstrate that ACEs have a significant impact on public benefit systems and our economy as a whole. Successful prevention and treatment of ACEs could have significant impacts on decreasing reliance on public benefits and increasing self-sufficiency.

Implications

The results presented in this report have important implications for prevention, intervention, and health care services and for policy-making at the state and local level. These implications are discussed briefly below and reflected in the policy recommendations beginning on page 28.

Wisconsin's BRFS findings about the prevalence and co-occurrence of ACEs have clear implications for prevention and intervention professionals. For example, programs that are designed to prevent child abuse and neglect may need to broaden their scope to address other types of adversity that also affect children's current and future well-being – and that often co-occur with abuse. One evidence-based home visiting program, for example, was shown to be less effective with mothers who reported more domestic violence.[47] This suggests that home visitors may need additional training to address other issues in the home.

In another example, the data show that certain ACEs – incarceration of a family member, violence between adults in the home, physical abuse, and sexual abuse – are often associated with higher overall ACE scores. Thus, when a child comes to the attention of professionals for any of these ACEs, close attention should be paid to what else is going on in that child's life and home. In the case of sexual abuse in particular, some evidence suggests that children who have experienced other forms of adversity may be more likely to be targeted by sexual predators.[48] This suggests that preventive services may be needed for children whose experiences may have made them more vulnerable to that type of abuse.

The relationships between childhood adversity and adult outcomes presented in this report have implications for medical and mental health professionals and for policymakers. Medical and mental health professionals may need to pay closer attention to a history of toxic stress in childhood as a clue to understand and address the struggles in their adult patients – as well as paying closer attention to current and past adversity among pediatric patients.

Social problems have complex roots, as illustrated by this report and the findings of other ACE studies. Policymakers should look at addressing adversity in the lives of children as an effective long-term strategy for improving outcomes for Wisconsin residents and reducing the burden on public benefit systems. While there is no silver bullet, ACEs and their effects could be reduced through prevention services, trauma-informed care, and improvements to cross-systems integration.

47. Eckenrode, J., Ganzel, B., Henderson, C. R., Smith, E., Olds, D. L., Powers, J., et al. (2000). Preventing child abuse and neglect with a program of nurse home visitation: The limiting effects of domestic violence. JAMA: The Journal of the American Medical Association, 284(11), 1385-1391.
48. Salter, A. (2003). Predators: Pedophiles, Rapists and Other Sex Offenders. Who They Are, How They Operate and How We Can Protect Ourselves and Our Children. New York: Basic Books.

Resilience

All of these findings refute the common assumption that childhood stressors and trauma experiences simply resolve themselves and cease to have an impact over time. Nonetheless, some individuals experience early traumas but do not display health risk behaviors and physical and mental health challenges as adults. Recent research illuminates some possible mechanisms for this type of resilience, suggesting that it may have as much to do with the presence of supportive relationships as it does with innate, individual qualities.[49,50] While we know that ACEs increase the likelihood of negative outcomes, it is also important to remember that statistical likelihood is not fate – and that human beings have the capacity to overcome adversity and thrive. Better understanding of what makes that possible is a critical piece of the puzzle in improving well-being for all Wisconsin residents.

Comparisons With Other States

The ACE module was administered in five states (Arkansas, Louisiana, New Mexico, Tennessee and Washington) in 2009 using the BRFSS.[51] The 2010 Wisconsin ACE findings are comparable to findings from these five states and from the original Kaiser study conducted in San Diego, California. However, Wisconsin's BRFS results also indicate some notable differences that are discussed.

Table 2 shows the percentage of adults reporting ACEs, by ACE category, in each of the state ACE studies and in the original Kaiser study. Table 3 shows the percentage of adults reporting ACEs, by number of ACEs reported. Despite variability in sample sizes, the results are similar across different demographics and regions of the country.[52]

ACE CATEGORIES	WI n=4781	AR n=3660	LA n=8147	NM n=5271	TN n=2327	WA n=7471	Kaiser n=17337
Abuse	**%***	**%***	**%***	**%***	**%***	**%***	**%****
Physical	17	14	11	20	13	18	28
Sexual	11	11	10	13	13	14	21
Emotional	29	24	21	28	19	35	11
Household Dysfunction							
Mental Illness	16	17	17	19	17	24	19
Substance Abuse	27	26	27	30	28	33	27
Divorce/Separation	21	23	27	24	29	26	23
Domestic Violence	16	15	15	19	17	17	13
Incarceration	6	6	7	7	9	7	5

** State population estimates are based on weighted analysis of BRFS results and are reported at a 95% confidence interval.*
*** Kaiser results reflect true percentages among study participants.*
Modified from: Adverse Childhood Experiences Reported by Adults - Five States, 2009. Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, 59(49).

Table 2. Percentage of adults reporting each category of adverse childhood experience across studies

STATE	0 ACEs	1 ACEs	2 ACEs	3 ACEs	4 ACEs
Wisconsin*	44	22	12	7	14
Arkansas*	47	21	11	7	14
Louisiana*	43	25	13	10	12
New Mexico*	39	22	13	10	17
Tennessee*	44	21	13	8	15
Washington*	35	23	15	10	18
Kaiser**	36	26	16	10	13

** State population estimates are based on weighted analysis of BRFS results and are reported at a 95% confidence interval.*
*** Kaiser results reflect true percentages among study participants.*
Modified from: Adverse Childhood Experiences Reported by Adults - Five States, 2009. Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, 59(49).

Table 3. Percentage of adults reporting adverse childhood expereiences (ACEs), by number of ACEs reported

49. Masten, A. S. & Obradovic, J. (2006). Competence and resilience in development. Annals of the New York Academy of Sciences, 1094, 13–27.
50. Ozbay, F., Fitterling, H., Charney, D., & Southwick, S. (2008). Social support and resilience to stress across the life span: A neurobiologic framework. Current Psychiatry Report, 10(4), 304-10.
51. Adverse Childhood Experiences Reported by Adults – Five States, 2009.
52. Adverse Childhood Experiences Reported by Adults – Five States, 2009.

In all of the six states studied, women reported four or more ACEs with greater frequency than men. In the other five states, men also reported 0 ACE scores more than women. This trend was less pronounced in Wisconsin. Participants 55 and older reported fewer ACEs, as did those with more education.

Some notable differences include the rates of reported physical and sexual abuse from respondents, which were higher in the original Kaiser study than in the individual state studies. Conversely, individual state respondents reported approximately three times more emotional abuse than what was reported in the original study. Participants in New Mexico, Tennessee, and Louisiana reported higher incidences of domestic violence and incarceration of household members than participants in the Wisconsin, Arkansas, Washington, and Kaiser studies.

Wisconsin's findings are similar to those of other states regarding prevalence of ACEs. Findings linking ACEs to adult outcomes in Wisconsin were similar to those from other states, although fewer statistically significant relationships were found in Wisconsin, particularly in the area of physical health. This may be due, in part, to Wisconsin's smaller sample size compared to some of the other studies.

Limitations

The findings in this report are about Wisconsin's adult population, based on interviews with a scientific sample. As is always the case, some limitations arise from the research design and survey methods and some of the findings should be interpreted with caution.

First, the prevalence of ACEs may be underestimated because BRFS sampling excludes persons in institutions, prisons, or hospitals, or who are homeless, and people in these population segments may have experienced ACEs disproportionately. This is true in all state BRFS models.

Second, 2010 BRFS data exclude persons who rely on cellular telephones as their only telephone service. (BRFS data collected in 2011 and beyond does not have this limitation.) Persons with only cell phones were absent from the sampling frame, or the universe of possible eligible respondents. This population segment may be systematically different from the population that still use a landline telephone.

Third, the retrospective nature of the ACE questions raises the potential for recall error in all studies of this type. People may have limited memories of their childhood experiences as they age. A potential related error involves confounding between the study's health outcomes and reports of ACEs. For example, respondents' current health status may influence how they respond to questions about their past, perceive their past, or recount their experiences.[53] However, research suggests that the credibility of self-reported exposure to traumatic events is less of a concern than some might suggest.[54]

Fourth, age cohorts introduce generational and socio-cultural influences that may produce variation in the recall and interpretation of past events. For example, older adults may have forgotten some of their childhood experiences; and they may also have interpreted some experiences, such as corporal punishment, differently than younger cohorts would have. More research is needed on whether and how these factors influence the reporting and effects of childhood experiences.

Finally, Wisconsin's relatively small BRFS sample size (n=4,781) limits the ability to detect relationships between variables. For example, the connection between ACEs and physical health outcomes was less clear in the Wisconsin data than in the Kaiser data (n=17,337) and BRFS data from states with larger sample sizes. This concern may be remedied as ACE data continues to be collected in Wisconsin, and data from multiple years can be combined to increase the ability to detect differences between groups. Another strategy to remedy this weakness would be to increase the sample size for one or more years, as has been done in some other states, most notably in Washington State.

53. Shaw, B.A. & Krause, N. (2002). Exposure to Physical Violence during Childhood, Aging, and Health. Journal of Aging & Health, 14(4), 467-494.
54. Bernstein, D.P., Fink, L., Handelman, L., Foote, J., et al. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. American Journal of Psychiatry, 151, 1132-1136.

Policy Recommendations

Based on the findings presented in this report, we recommend implementing the following strategies to improve the health, functioning, and productivity of Wisconsin residents.

Increase awareness of ACEs and their impact on health and well-being.

Recommendation 1: Develop an educational initiative for the general public on the impact of ACEs on physical and mental health and on school and work success.

ACEs are common and associated with many mental and physical health problems and with poorer success in education and employment. As the general public begins to understand the connection between ACEs and health, educational, and work outcomes, individuals and families will be empowered to make better decisions and be stronger advocates for their social, mental and physical health needs. Informed individuals can create opportunities for children that will build resiliency, such as ensuring that children are in safe, stable, and nurturing environments. Parents who have high ACE scores themselves can be educated about the risk of transmitting the trauma to their children. Through advanced awareness, education, and understanding we can work together to decrease the occurrence of ACEs, support those who have already had traumatic experiences, and increase the potential for each child to develop optimally and contribute more fully to society.

Recommendation 2: Work with the state's education, child welfare, mental health, substance abuse, and corrections systems to increase awareness of the impact of ACEs on the people they serve.

ACEs result in significant expenditures in "deep end' services such as child welfare, mental illness, substance abuse treatment, and juvenile and criminal justice. Efforts have begun to educate providers and policy makers within many of these systems about the effects of ACEs. However, additional work is needed to ensure that professionals in these fields are aware of ACEs and that trauma-informed care is consistently available across the state and across service systems.

Increase assessment of and response to ACEs in health care settings.

Recommendation 3: Partner with the health care community to improve integration of behavioral and primary health care and identify and promote strategies to assess for and respond to ACEs.

ACEs frequently result in a life trajectory that includes high rates of mental, behavioral, and physical health problems. Mental health and physical health are intertwined. Assessing adults' history of ACEs, particularly when patients have health issues, can be critical to identifying and providing optimal, holistic treatment. Assessing a pediatric patient's home life, including the presence of any maltreatment or other adversity, should be part of regular pediatric care. Adequate education and necessary tools for health care providers to assess for and respond to a history of ACEs in their patients will be an important step towards optimal treatment; and health care systems designed to treat patients using an integrated approach to screening, assessment, referral and treatment of mental and physical health will ensure the best path to healing and positive health outcomes.

Recommendation 4: Identify a standard of care that includes assessing for and responding to ACEs, to be integrated into contracts as performance measures with Forward Health (Wisconsin Medicaid).

Given the high frequency of ACEs among Medicaid recipients, appropriate ACE screening and response should be integrated into Wisconsin Medicaid contracts. Building an effective process for the assessment of and response to ACEs into Wisconsin's Medicaid system is crucial to achieving better outcomes for Medicaid recipients – and reducing costs within that system.

55. For more information about effective programs for the prevention of child maltreatment, see "What it will take: Investing in Wisconsin's future by keeping kids safe today," a report and series of policy briefs published by the Wisconsin Children's Trust Fund and the Wisconsin Council on Children and Families in 2010, available at: http://wichildrenstrustfund.org/index.php?section=stats-and-reports.

Medicaid policies and practices in addressing the impact of ACEs could have a positive impact on all Wisconsin residents as these standards could be recognized as a universal standard of care in all health care systems, public and private. As a starting point, the state should consider reimbursing Medicaid providers for ACE screenings in order to encourage uptake.

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

Recommendation 5: Prioritize Wisconsin's investments in evidence-based prevention programming and promote and fund the implementation and evaluation of promising approaches.

The best results and the most significant economic savings will come from services designed to prevent the occurrence of ACEs. Any action initiated prior to an adverse experience will have greater likelihood of success and will be exponentially more cost effective than action taken after an ACE occurs. CDC, the Substance Abuse and Mental Health Services Administration (SAMHSA) and other leading national organizations have prioritized the development, evaluation, and promotion of child maltreatment prevention programs in particular. State funding priorities should focus on prevention strategies proven effective in preventing maltreatment – which can also be effective in reducing other types of household dysfunction.[55] Local communities and human service agencies should be encouraged to be innovative in their approaches to prevention. The state should support such efforts and take the lead in ensuring that local communities and agencies statewide are aware of new, promising, or effective approaches and supported in their efforts to implement and evaluate new approaches.

Recommendation 6: Invest resources into evidence-based trauma interventions.

Most ACEs go undetected at the time they occur, as evidenced by the discrepancy between the incidence of confirmed cases of abuse reported to child protective services and retrospectively reported prevalence such as that described in the ACE study. Even when child maltreatment or other adverse experiences are detected, adequate response and treatment do not always follow. Interventions designed to treat trauma-related symptoms in children who have been exposed to child maltreatment, household dysfunction, and other adverse experiences – or to adults who are still affected by their childhood experiences – should be accessible throughout Wisconsin. Empirically supported treatments are available to mitigate the progression of ACE-related health problems and facilitate healing and health. In addition, communities need networks of formal and informal supports to improve resilience and well-being for both children and adults after traumatic experiences. Wisconsin should invest resources in trauma interventions that have proven effective in helping children and families heal when they have been exposed to and impacted by ACEs.

Recommendation 7: Build access to and capacity of mental health and substance abuse services to include trauma-informed care and evidence based trauma interventions.

Wait lists, restrictions imposed by insurance companies, inadequate provider training, and low reimbursement rates contribute to problems with service accessibility and capacity. Sufficient training, support, and compensation should accompany the infusion of trauma-informed care into the child welfare system, mental health services for children and adults, and other systems that serve the children and families of our state. Barriers to timely and effective treatment can be alleviated through identification of gaps in services and redesign of policy and programming at the local, state, and federal levels.

55. For more information about effective programs for the prevention of child maltreatment, see "What it will take: Investing in Wisconsin's future by keeping kids safe today," a report and series of policy briefs published by the Wisconsin Children's Trust Fund and the Wisconsin Council on Children and Families in 2010, available at: http://wichildrenstrustfund.org/index.php?section=stats-and-reports.

Continue to collect Wisconsin-specific data on the relationship between ACEs and health outcomes.

Recommendation 8: Designate funds to continue the collection, analysis, and dissemination of ACE data from Wisconsin residents.

Our capacity to effect positive change in the health and well-being of Wisconsin 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 WI BRFS for continued collection, analysis and dissemination of Wisconsin-specific data.

Recommendation 9: Increase the utility and scope of ACE data collected in Wisconsin.

Several enhancements could be made to ACE data collection that would allow communities to make better policy, programmatic and funding decisions and ultimately improve the lives of children and families throughout the state. We recommend:

- *Raise funds to expand the sample size of the Wisconsin BRFS in order to build the capacity to analyze data at the county level.* An expanded sample size – even for one year of data collection – would significantly improve the utility of the data for state and local jurisdictions. For example, with its larger sample, Washington State is able to document local reduction in ACE scores in communities that have undertaken community resiliency development initiatives. The CDC is the sole funder of Wisconsin's BRFS. It is not known whether 2011 BRFS funding levels will be maintained for 2012. Wisconsin should seek additional public and/or private resources to support maintaining and expanding the sample size of its BRFS.
- *Collect and analyze data on individual, family, and community well-being and resilience.* Not all individuals suffer the long-term consequences of ACEs. In some instances individuals and communities actually thrive in the face of adversity. Data is needed to better understand the factors that contribute to Wisconsin residents and communities overcoming and healing from toxic stress. Increased understanding of the factors related to successful outcomes can lead to the development of programs that build upon strengths at the individual, family and community levels.
- *Collect and analyze information related to the social and financial cost of ACEs and their impact on Wisconsin's economy and the state budget.* The financial costs of ACEs could be assessed based on differences in outcomes like employment and health care usage between Wisconsin residents with low ACE scores and those with high ACE scores. This information would help to quantify what could be achieved through prevention and intervention and guide decisions about future investments.

Conclusion

ACEs are related to poor mental, social and physical health outcomes. Wisconsin's BRFS results paint a picture of life trajectories for Wisconsin residents profoundly influenced by early experiences. These findings shed light on the root causes of many social and health problems. The growing body of knowledge about ACEs and their effects holds promise for our society's ability to improve the lives of its citizens.

Through more effective prevention of child maltreatment and other ACEs, as well as better intervention with those who have already had adverse experiences, Wisconsin will not only enhance the lives of individuals so they can be healthy, productive citizens, but it will also reduce the heavy burden ACEs seem to have on our economy, physical health, mental health, and public benefit systems.

Appendix A: The Ace Module In The Wisconsin BRFS

Categories of adverse childhood experiences (ACEs), survey questions, and in brackets, responses that indicate occurrence of an ACE:

1. Physical Abuse

"How often did a parent or adult in your home ever hit, beat or physically hurt you in any way?"
[Once or more than once]

2. Sexual Abuse

"How often did anyone at least 5 years older than you, or an adult, ever touch you sexually?"
"How often did anyone at least 5 years older than you, or an adult, try to make you touch them sexually?"
"How often did anyone at least 5 years older than you, or an adult, force you to have sex?"
[Once or more than once, any question]

3. Emotional Abuse

"How often did a parent or adult in your home ever swear at you, insult you or put you down?"
[More than once]

4. Mental Illness

"Did you live with anyone who was depressed, mentally ill or suicidal?"
[Yes]

5. Substance Abuse

"Did you live with anyone who was a problem drinker or alcoholic?"
"Did you live with anyone who used illegal street drugs or who abused prescription medications?"
[Yes, either question]

6. Separation/Divorce

"Were your parents separated or divorced?"
[Yes]

7. Violence between Adults

"How often did your parents or adults in your home ever slap, hit, kick, punch or beat each other up?"
[Once or more than once]

8. Incarceration

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

Appendix B: BRFS Variables In This Report

	%	±	n
TOTAL			4,781
GENDER			
Male	49%	2%	1,888
Female	51%	2%	2,893
AGE			
18-34	29%	3%	469
35-49	26%	2%	1,117
50-64	27%	2%	1,722
65+	18%	1%	1,430
RACE			
African-American	3%	1%	513
White	89%	2%	3,925
MENTAL HEALTH			
Current moderate-severe depression	7%	1%	345
Ever diagnosed with depression	16%	2%	759
Ever diagnosed with anxiety	12%	2%	550
Frequent mental distress	8%	1%	436
HEALTH RISK BEHAVIORS			
Current smoking	22%	2%	728
Heavy alcohol use	6%	1%	266
PHYSICAL HEALTH			
Asthma	8%	1%	452
Fair/Poor general health	14%	1%	835
SOCIOECONOMIC STATUS			
< High school	6%	1%	375
High school	32%	2%	1,634
Some college	29%	2%	1,378
College degree/Higher	33%	2%	1,363
<$20,000	9%	1%	584
$20,000-$34,999	31%	2%	1,423
$35,000-$49,999	15%	2%	666
$50,000 or more	45%	2%	1,444
HEALTH CARE ACCESS/MEDICAID ENROLLMENT			
Any health insurance	89%	2%	4,352
No insurance	11%	2%	413
Medicaid/BadgerCare	14%	1%	748
Did not see a doctor due to cost	10%	2%	463
QUALITY OF LIFE			
Unable to work	3%	1%	278
Always/usually receive social support	86%	2%	3,591
Sometimes receive social support	9%	1%	506
Rarely/Never receive social support	5%	1%	291
Very satisfied/Satisfied with life	95%	1%	4,162
Dissatisfied/Very dissatisfied with life	5%	1%	257
Average #		±	n
Bad mental health days	3.7	.5	4,781
Bad physical health days	4.4	.5	4,781
Days of limitations	4.7	.6	2,495
PREVALENCE OF INDIVIDUAL ACEs	%	±	n
Emotional abuse	29%	2%	1,114
Substance abuser in household	27%	2%	1,054
Separation/Divorce	21%	2%	778
Physical abuse	17%	2%	708
Violence between adults	16%	2%	666
Mental illness in household	16%	2%	551
Sexual abuse	11%	2%	501
Incarcerated household member	6%	1%	189
PREVALENCE OF EACH ACE SCORE	%	±	n
0	44%	2%	1,836
1	22%	2%	890
2	12%	2%	489
3	7%	1%	300
4	6%	1%	240
5	4%	1%	146
6	3%	1%	76
7	1%	1%	29
8	<.5%	Cannot compute – too small	15

SOURCE: Wisconsin Behavioral Risk Factor Survey, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Note: Approximately 10% of respondents do not report their income. The denominator for income is all cases with data. Education, income and race may not reflect true population proportions, as BRFS data were not weighted for these characteristics in 2010. (They were weighted for age and sex.)

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Voices of Wisconsin ACE Survivors

This report features the voices and stories of Wisconsin residents who experienced adversity in their childhoods. Some of their names have been changed in this report. These individuals graciously agreed to share their stories as part of their commitment to advancing understanding of the effects of childhood abuse and adversity, and their passion for helping others who are recovering from childhood trauma.

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Children's Hospital and Health System™

Child Abuse PREVENTION Fund

Adverse Childhood Experiences in Wisconsin:

Findings from the 2010 Behavioral Risk Factor Survey