



CARE_{FOR} KIDS



Early & Periodic Screening, Diagnosis & Treatment

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The Impact of Childhood Adversity in Iowa's Adults

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Over the past decade, leading causes of death in the U.S. have included heart disease, cancer, chronic lower respiratory diseases, and stroke. It is commonly understood that these conditions are impacted by a host of factors including genetics, lifestyle, and environment. In addition to those well-known factors, a relatively new body of research shows that experiences in childhood may play a large part in the development and progression of these major killers later in life.

According to the Centers for Disease Control and Prevention (CDC), research on ACEs, or Adverse Childhood Experiences, suggests that certain



Emotional Abuse



Substance Abuse



Physical Abuse



Sexual Abuse



Mother treated violently



Mental Illness

Some Examples of ACEs

experiences in childhood are highly correlated with illness, poor quality of life, and even early death. The original ACE study, which began in the 1990s, was a collaboration between the CDC and Kaiser Permanente's Health Appraisal Clinic in San Diego.

"In the original study, 60-plus percent of respondents had at least one ACE; 12.6 percent had four or more," cites Nadine Burke Harris, M.D., FAAP, M.P.H, founder and chief executive officer of the Center for Youth Wellness in San Francisco. "Their health outcomes were not just bad marriages or feeling sad, but they had diagnosed issues like heart disease and chronic pulmonary disease. ACEs had a higher relationship to negative outcomes than factors typically evaluated in medical examinations."

Today, 19 states including Iowa have used the Behavioral Risk Factor Surveillance

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THE TRUTH ABOUT ACEs

WHAT ARE THEY?

ACEs = ADVERSE CHILDHOOD EXPERIENCES

The three types of ACEs include

ABUSE



Physical



Emotional



Sexual

NEGLECT



Physical



Emotional

HOUSEHOLD DYSFUNCTION



Mental Illness



Incarcerated Relative



Mother treated violently



Substance Abuse



Divorce

The Impact of Childhood Adversity in Iowa's Adults

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System, or BRFSS, to collect population-level data on the extent to which ACEs impact their state. The BRFSS is an annual survey conducted by the CDC in partnership with each of the 50 states.

The results gathered from Iowa's 2012 BRFSS were released in the summer of 2013. A total of 6,361 Iowan respondents answered a series of questions to determine their ACE score. (To learn more about ACE scores and how they are calculated, visit <http://www.cdc.gov/violenceprevention/aces-tudy/>.) A respondent's ACE score was then compared to their responses to a number of questions about personal health conditions, health behavior, and a number of demographic questions such as age, race, annual income, and education level.

Researchers at Iowa State University conducted a complete analysis of the BRFSS responses to determine population estimates of the impact of ACEs on Iowan adults. (An overview of their findings can be accessed here: http://www.iowaaces360.org/uploads/1/0/9/2/10925571/iowa_aces_360_pdf_web_new.pdf.) Their analysis indicates that an estimated 45

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rwjf.org/vulnerablepopulations

Robert Wood Johnson Foundation

¹Source: <http://www.cdc.gov/ace/prevalence.htm> ²Source: Behavioral Risk Factor Surveillance System Survey Data, Iowa Department of Public Health in collaboration with the Centers for Disease Control and Prevention, 2012.

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percent of Iowans experienced no ACEs growing up while 21.3 percent experienced one ACE, 11.8 percent experienced two ACEs, 7.2 percent experienced three ACEs, and 14.7 percent experienced four or more ACEs (See Figure 1).

The impact of ACEs on health is considered cumulative; as ACE scores increase, so does the risk of contracting serious health conditions or experiencing other negative health related outcomes. Based on the results of Iowa's BRFSS analysis, the odds of having a diagnosable physical health condition such as arthritis, asthma, cancer, COPD, diabetes, heart attack, heart disease, kidney disease, stroke, and vision impairment increased as ACE exposure in childhood increased (See Figure 2).

Respondents with four or more ACEs were more than twice as likely to rate their health as "poor" in comparison to adults who experienced no ACEs. The number of "bad health days in the previous month" reported by adults with four or more ACEs was five to seven days, compared to adults with no ACEs who reported on average only one to three "bad health days" (See Figure 3). The odds of having an HIV risk factor,

Figure 1:

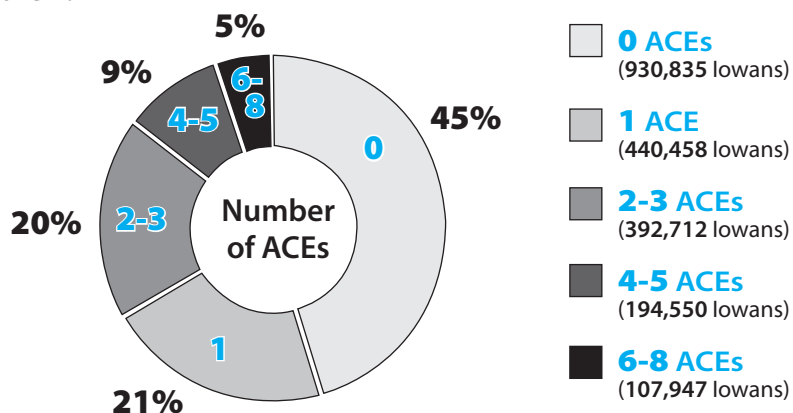
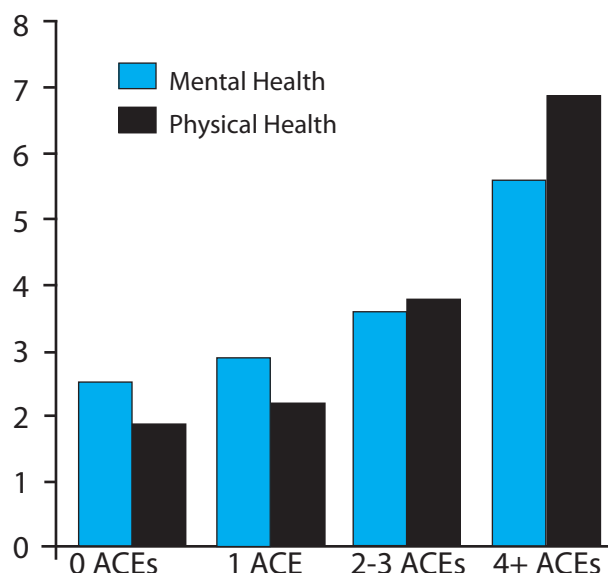


Figure 2:

| Health Condition | 0 ACEs | 1 ACEs | 2 ACEs | 3 ACEs | 4+ ACEs |
|------------------|--------|--------|--------|--------|---------|
| Arthritis | 100% | 130% | 145% | 155% | 236% |
| Asthma | 100% | 115% | 118% | 160% | 231% |
| Cancer | 100% | 112% | 101% | 111% | 157% |
| COPD | 100% | 120% | 161% | 220% | 399% |
| Diabetes | 100% | 128% | 132% | 115% | 201% |
| Heart Attack | 100% | 148% | 144% | 287% | 232% |
| Heart Disease | 100% | 123% | 149% | 250% | 285% |
| Kidney Disease | 100% | -17% | 164% | 179% | 263% |
| Stroke | 100% | 114% | 117% | 180% | 281% |
| Vision | 100% | 167% | 181% | 199% | 354% |

Figure 3:

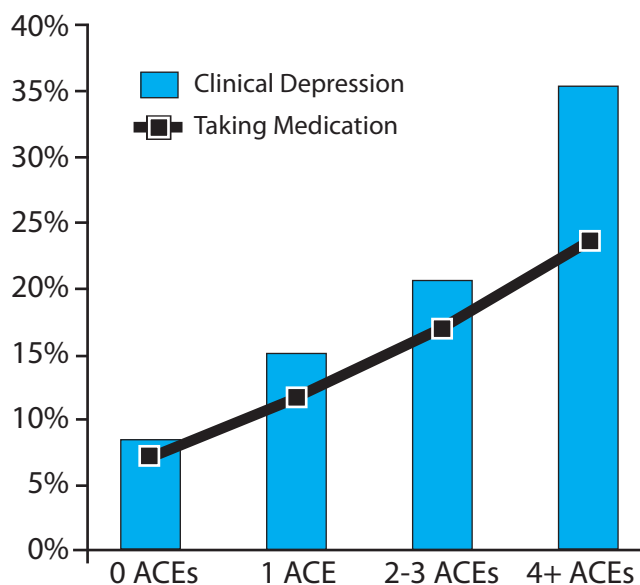


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such as intravenous drug use or risky sexual behavior, increased over fourfold for individuals with three or more ACEs.

While physical health risk increased with higher exposure to ACEs, appropriate response to a diagnosis did not increase at the same rate. For example, among Iowan adults surveyed with 0 ACEs who were diagnosed with depression, nearly 100 percent were taking medication or receiving treatment. However, among adults clinically diagnosed with depression who had an ACE score of four or more, over 33 percent were not taking any form of medication or receiving any treatment (See Figure 4). This indicates that even if individuals with high ACE scores have access to medical care and receive a diagnosis, they may be less likely to pursue and follow treatment plans without additional services or support.

Figure 4:



OPPORTUNITIES TO RESPOND

Although there are few evidence-based clinical responses to ACEs available at this time, there are a number of ways clinicians and others in the field of healthcare can respond.

REFRAME – Change your focus from, “What’s wrong with you?” to, “What has happened to you?” Visit <http://traumainformedcareproject.org/> for ideas on how to become a more trauma-informed practice.

EDUCATE – Inform colleagues, clients, patients, and participants about the importance of positive early childhood experiences and the impact childhood experiences have on lifelong growth and development. Visit <http://www.cdc.gov/violenceprevention/acestudy/> for national research and information related to ACEs.

REFER – Help families make connections to local resources and supports in their community by providing referrals and resources that are accessible and relevant to them.

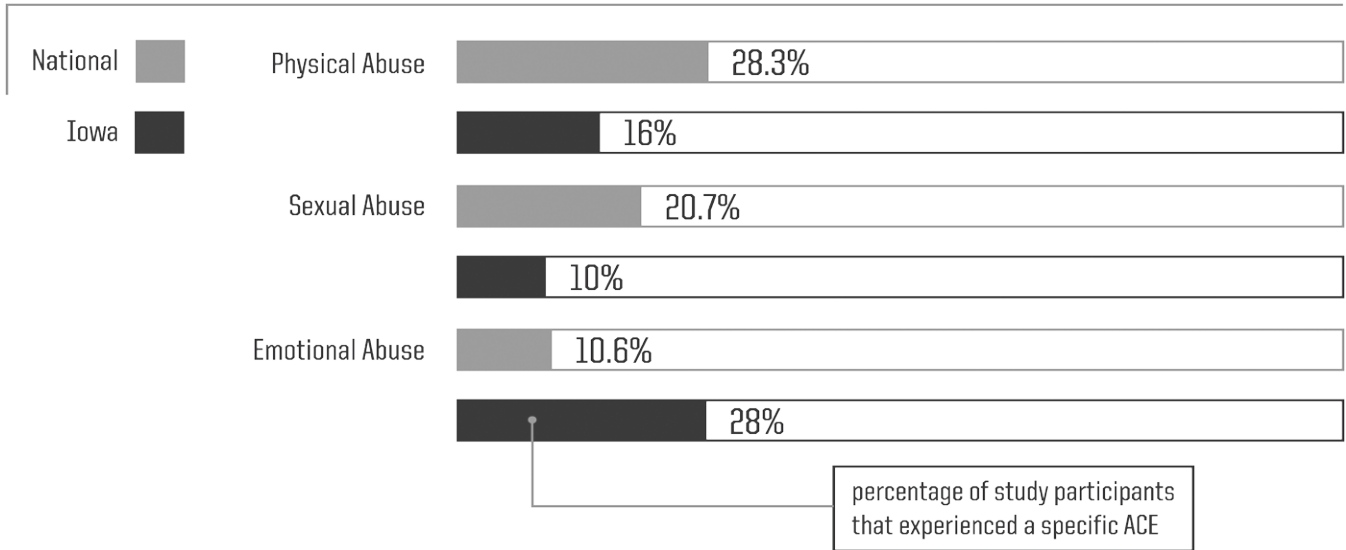
CONNECT – Visit <http://www.iowaaces360.org/> for more information on Iowa ACEs research, updates on activities in Iowa, and other resources as they become available.



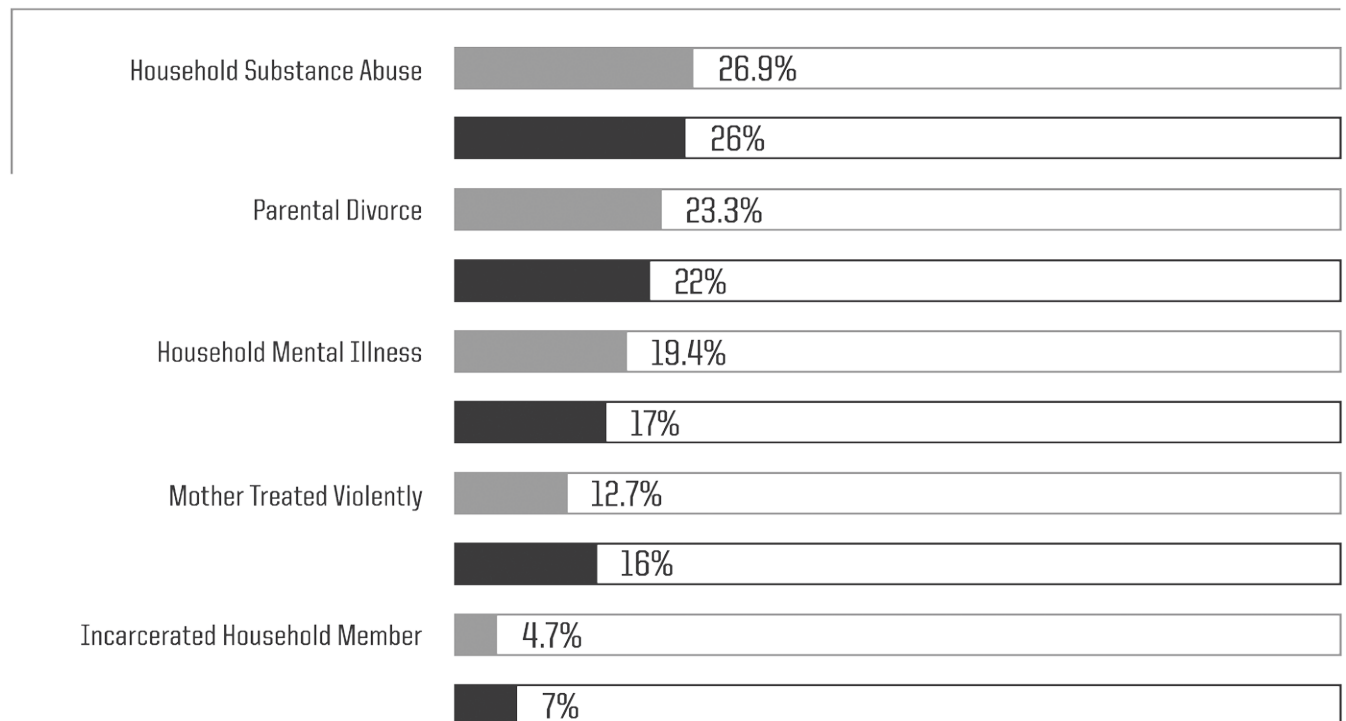
HOW PREVALENT ARE ACEs?

The Initial ACE study¹ and an analysis of Iowa's Behavioral Risk Factor Surveillance System (BRFSS)² participants revealed the following estimates:

ABUSE



HOUSEHOLD DYSFUNCTION

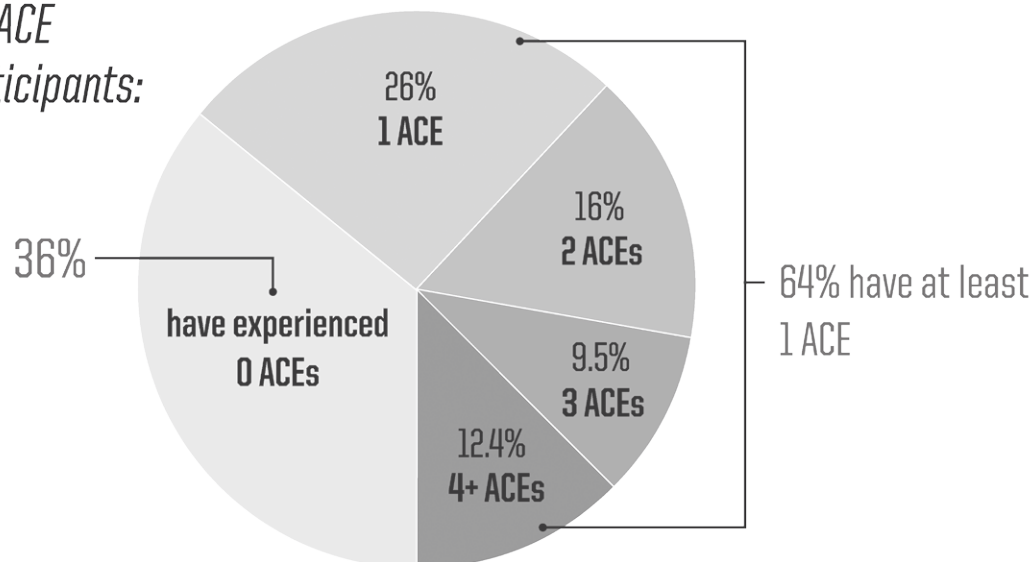




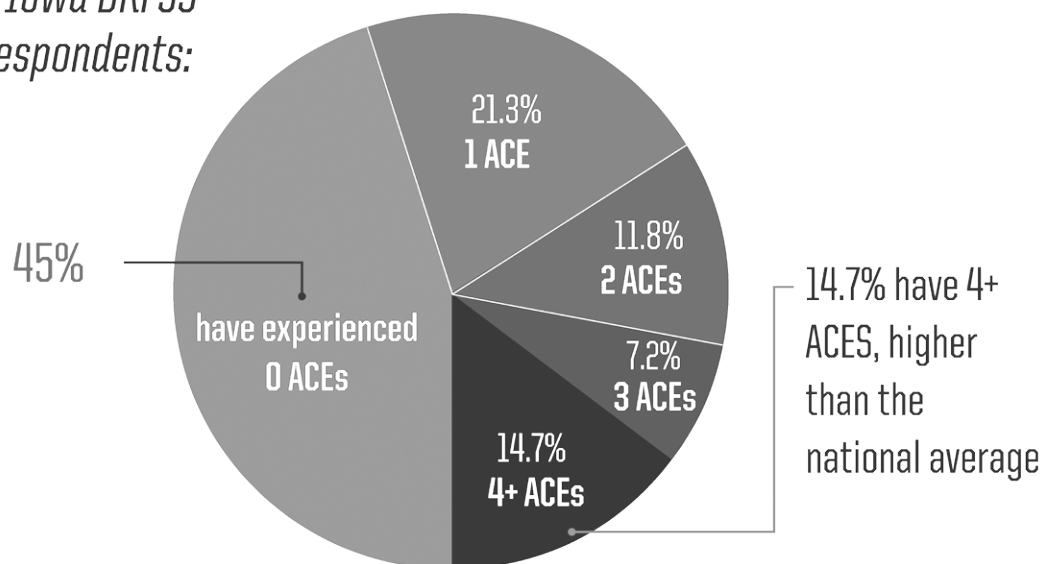
HOW PREVALENT ARE ACEs?

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*Of 17,000 ACE
study participants:*



*Of 6,361 Iowa BRFSS
survey respondents:*



rwjf.org/vulnerablepopulations

Robert Wood Johnson Foundation

¹Source: <http://www.cdc.gov/ace/prevalence.htm> ²Source: Behavioral Risk Factor Surveillance System Survey Data. Iowa Department of Public Health in collaboration with the Centers for Disease Control and Prevention, 2012.

M-CHAT-Revised/Follow-up Interview

Royann Mraz, MD, The University of Iowa Children's Hospital

The Modified Checklist for Autism in Toddlers (M-CHAT), the most widely used screening tool for autism spectrum disorder, has recently been revised. Robins et al.⁽¹⁾ reported on the new version, M-CHAT-Revised with Follow-up Interview (M-CHAT-R/F), in the January 2014 issue of *Pediatrics*. The updated version has simplified scoring and language and decreases the rate of initial false positive screens, which would require follow-up questions.

The M-CHAT-R/F is intended for children from 16-30 months of age. As with the M-CHAT, several of the questions address joint attention, which helps to discriminate between autism spectrum disorder (ASD) and developmental delay or typical development in this age range. Examples of joint attention include pointing to ask or show, following a point or eye gaze, and bringing an object to show. Since many caregivers are often not familiar with these milestones, it is helpful that the M-CHAT-R/F provides clearer language and examples. The M-CHAT-R/F has 20 questions, which can be completed by the caregiver in five minutes.

The M-CHAT-R/F is a two-part screener, however, Robins found that just six percent of toddlers would require the structured follow-up interview

and then only those questions failed are reviewed. This can be done by a nurse or other professional and should take five to 10 minutes.

Scoring has been simplified. All questions are now rated equally. Final scoring places children in three at-risk categories – low (total score less than 3), medium (total score 3-7), and high (total score 8 or greater). The guidelines recommend routine follow-up for children at low risk (93%). Children at high risk (1%) should be referred for immediate services and evaluation. Children at medium risk (6%) should be administered the follow-up questions for any failed item. If the child's score is two or greater after the follow-up, the child should be referred for diagnostic evaluation and services.

Robins et al.⁽¹⁾ found that 47.5 percent of children who scored positive initially or after follow-up questioning were diagnosed with ASD, and 94.6 percent had ASD or a developmental delay or concern. Since most children with positive scores on the M-CHAT-R/F have some delays, healthcare providers should feel comfortable referring these children immediately for services through Early Access, the school system, and/or other community services, as well as for a diagnostic evaluation.

The M-CHAT-R/F identifies more toddlers with ASD than physician impression. Physician impression in this study identified only 24 percent of children with ASD. The M-CHAT-R/F also appears to identify more children with ASD than the original M-CHAT. As with any quick screener, there will be false positive screens. Healthcare provider suspicions helped to identify children with false negative screens and almost all of these children had ASD or other delay. All children should continue to receive surveillance and it is recommended that children under 24 months should be screened again at 24 months.

Use of the M-CHAT-R/F helped identify children with ASD by two years of age rather than the national average of four years. Early identification and provision of services has been shown to improve outcome for children with ASD. The M-CHAT-R/F is copyrighted but available free for practice or research at www.m-chat.org.

1) Robins, D.L., Casagrande, K., Barton, M., Chen, C.A., Dumont-Mathieu, T., Fein, D. Validation of the Modified Checklist for Autism in Toddlers Revised with Follow-up (M-CHAT-R/F). *Pediatrics* 2014; 133:37-45.



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