Texas BRFSS Topical Brief

Adverse Childhood Experiences

Background

There is a growing body of research that shows adverse childhood experiences (ACEs), those causing toxic levels of stress or trauma before age 18, are specifically linked to poor physical and mental health, chronic disease, lower educational attainment, lower economic success, and impaired social success in adulthood.[1]

The original ACE study by Drs. Robert Anda (CDC) and Vincent Felitti (Kaiser Permanente) gathered information on childhood exposures to abuse, neglect, and family dysfunction from more than 17,000 Kaiser Permanente HMO members.[2] This data, combined with physical exams and ongoing health tracking, showed a strong relationship between harmful experiences in childhood and poor health outcomes decades later. The CDC/Kaiser Permanente ACE study helped shift the focus from individual immediate causes of health outcomes to a broader evaluation of life-long experiences that lead to negative health outcomes.

ACEs and the BRFSS

The Behavioral Risk Factor Surveillance System (BRFSS) introduced an optional module in 2008 to examine the relationship between ACEs and health status at the population level.[3] The ACE module includes 11 questions that assess eight categories of ACEs: emotional abuse, physical abuse, sexual abuse, presence of a mentally ill household member, alcohol and drug abuse in the household, violence between adults in the household, parental divorce or separation, and incarceration of a household member. The Texas BRFSS included the ACE module in 2015.

The 2015 Texas BRFSS ACEs data were analyzed using the SURVEY procedures in SAS 9.4 to account for the complex sampling design. The ACE score was calculated by totaling the number of ACE categories a respondent experienced (0 to 8). Respondents who did not answer all 11 module questions were excluded from the analysis.

Texas ACEs

Adverse childhood experiences are common among Texas adults with an estimated 55 percent experiencing at least one of the eight categories of abuse and household dysfunction growing up (Figure 1). Parental divorce or separation is the most prevalent ACE category in Texas (28.4%), followed by emotional abuse (23.5%), household substance abuse (23.4%), and physical abuse (17.5%) (Figure 2). Nearly 10% of Texas adults experienced sexual abuse during their childhood.

Having four or more ACEs indicates a significant level of childhood trauma and can greatly increase an individual's risk of poor outcomes.[2] An estimated 13.2 percent of Texas adults experienced four or more ACEs (Table 1). The prevalence of high ACEs is significantly lower among those with a college degree compared

How are ACEs defined?

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]

Physical abuse
How often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way? Do not include spanking. [Once/More than once]

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/more than once to any question]

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

Household 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 to either question]

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

Parental divorce/separation
Were your parents separated or divorced? [Yes]

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

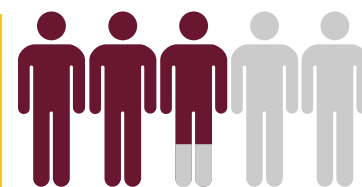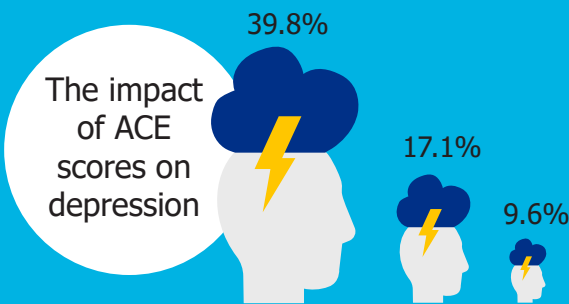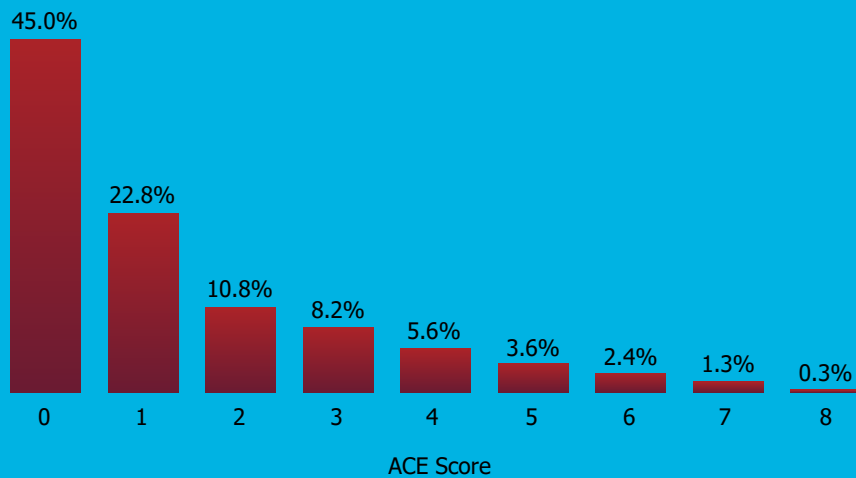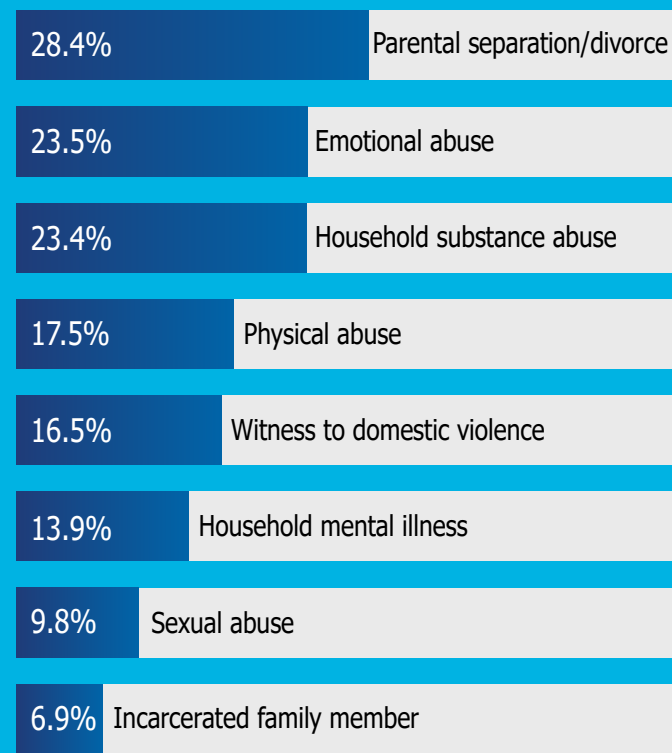**55%** of Texas adults have at least 1 ACE

Figure 1. Distribution of ACE scores among Texas adults, BRFSS 2015

ACE Score

ACE Score	Percentage
0	45.0%
1	22.8%
2	10.8%
3	8.2%
4	5.6%
5	3.6%
6	2.4%
7	1.3%
8	0.3%

The impact of ACE scores on depression

39.8%

17.1%

9.6%

Depression rates are **4x higher** among high ACEs & **2x higher** among low ACEs compared to those with no ACEs.

Figure 2. Prevalence of ACEs by type, BRFSS 2015

%	Type
28.4%	Parental separation/divorce
23.5%	Emotional abuse
23.4%	Household substance abuse
17.5%	Physical abuse
16.5%	Witness to domestic violence
13.9%	Household mental illness
9.8%	Sexual abuse
6.9%	Incarcerated family member

to those with less education (high school graduate or some college: 15.3%; less than high school: 12.2%). Lower income Texans have significantly higher rates of high ACEs (17.1%) compared to those whose household income exceeds $50,000 (10.4%). There is also a significant disparity of any ACEs between non-Hispanic black adults (66.9%) when compared to non-Hispanic whites (55.0%). There are no significant differences between males and females.

A high ACE score significantly increases the prevalence of several risk factors and chronic diseases. Depression prevalence quadruples among those with high ACEs (39.8%) and nearly doubles for those with low ACEs (17.1%) when compared to those with no ACEs (9.6%) (Table 2). Texas adults with high ACEs have smoking rates three times higher and heavy or binge drinking rates almost twice as high as those with no ACES. Those with high ACEs also report a significantly higher prevalence of poor to fair health (28.8%) compared to those without ACEs (16.6%), and are unable to perform their usual activities because of poor mental or physical health significantly more

Table 1. Prevalence of ACE scores among Texas adults by selected demographics, Texas BRFSS 2015

Demographic	Sample Size	No ACEs %	No ACEs 95% CI	Low ACEs %	Low ACEs 95% CI	High ACEs %	High ACEs 95% CI
Total	10,398	**45.0**	43.2-46.9	**41.8**	39.9-43.6	**13.2**	11.9-14.6
Sex							
Male	4,058	**45.1**	42.4-47.9	**43.3**	40.6-46.1	**11.6**	9.7-13.8
Female	6,340	**45.0**	42.5-47.5	**40.3**	37.9-42.8	**14.7**	13.0-16.5
Age Group							
18-24	437	**31.4**	25.2-38.4	**49.4**	42.4-56.5	**19.2**	14.2-25.3
25-34	862	**35.3**	30.7-40.1	**47.7**	42.7-52.8	**17.0**	13.1-21.8
35-44	1,132	**42.5**	37.8-47.3	**41.5**	36.9-46.2	**16.0**	12.9-19.8
45-54	1,534	**43.9**	39.3-48.7	**42.0**	37.5-46.7	**14.0**	11.2-17.5
55-64	2,141	**47.9**	44.0-51.8	**40.7**	36.9-44.6	**11.4**	9.3-13.9
65+	4,197	**60.5**	57.6-63.3	**34.1**	31.4-36.9	**5.4**	4.3-6.9
Race/Ethnicity							
White, non-Hispanic	6,514	**45.0**	42.8-47.3	**41.6**	39.4-43.9	**13.3**	11.7-15.2
Black, non-Hispanic	677	**33.1**	26.9-40.0	**51.1**	43.9-58.3	**15.8**	10.9-22.2
Hispanic	2,645	**46.7**	43.3-50.1	**40.9**	37.6-44.2	**12.4**	10.3-15.0
Other	353	**58.2**	48.0-67.7	**31.6**	22.9-41.9	**10.2**	6.3-16.1
Education							
< High School	1,384	**47.9**	43.0-52.8	**40.0**	35.3-44.8	**12.2**	9.5-15.5
High School/Some College	5,118	**41.6**	39.2-44.1	**43.1**	40.6-45.6	**15.3**	13.4-17.4
College Graduate	3,866	**50.9**	48.0-53.8	**40.2**	37.4-43.1	**8.9**	7.4-10.6
Household Income							
<$25,000	2,669	**40.9**	37.3-44.6	**42.0**	38.4-45.7	**17.1**	14.4-20.2
$25,000 to <$50,000	2,186	**44.6**	40.6-48.7	**39.7**	35.8-43.8	**15.7**	12.5-19.4
$50,000+	4,031	**46.7**	43.9-49.6	**42.8**	40.0-45.7	**10.4**	8.8-12.3

Table 2. Prevalence of health indicators within ACE groups among Texas adults, Texas BRFSS 2015

Indicator	Total %	Total 95% CI	No ACEs %	No ACEs 95% CI	Low ACEs %	Low ACEs 95% CI	High ACEs %	High ACEs 95% CI
Health-related quality of life								
Fair or poor health	19.4	18.2-20.6	16.6	14.7-18.7	20.3	18.1-22.6	28.8	24.0-34.1
Frequent physical distress	11.0	10.2-12.0	9.3	8.0-10.7	10.5	8.9-12.3	18.3	14.9-22.3
Frequent mental distress	10.0	9.1-11.0	4.7	3.7-5.8	9.5	7.9-11.3	24.9	20.2-30.3
Frequent activity limitation	6.9	6.3-7.7	5.1	4.1-6.2	7.1	5.9-8.5	12.0	9.5-15.1
Health risk behaviors and conditions								
Current smoking	15.2	14.1-16.4	9.3	7.9-10.9	15.4	13.4-17.6	27.9	23.3-33.1
Heavy drinking	5.8	5.1-6.5	4.8	3.9-5.9	6.3	5.0-7.9	7.4	5.4-9.9
Binge drinking	15.9	14.7-17.1	11.0	9.4-12.9	16.7	14.6-19.1	21.3	17.1-26.3
Obesity	32.4	30.9-33.9	31.8	29.3-34.5	37.2	34.4-40.2	38.0	32.6-43.7
Chronic conditions								
Depression	16.1	14.9-17.2	9.6	7.9-11.6	17.1	15.0-19.3	39.8	34.5-45.3
Disability	27.8	26.0-29.6	22.7	20.2-25.3	27.8	24.8-31.1	43.3	36.3-50.5
Arthritis	20.0	19.0-21.1	22.5	20.5-24.5	23.0	20.9-25.2	25.9	21.9-30.3
Current asthma	7.6	6.8-8.4	4.9	4.0-6.0	7.8	6.5-9.4	14.8	10.8-19.8
Chronic obstructive pulmonary disease	5.1	4.6-5.7	4.8	3.9-5.8	5.5	4.5-6.7	8.9	6.7-11.8
Cardiovascular disease	8.0	7.3-8.8	8.7	7.3-10.3	8.5	7.2-10.1	9.4	7.3-12.1
Diabetes	11.4	10.5-12.4	14.4	12.5-16.5	12.5	10.7-14.5	13.5	10.7-16.9
Kidney disease	2.7	2.3-3.2	2.1	1.6-2.8	3.5	2.7-4.7	3.1	2.0-4.8
Cancer	8.9	8.2-9.6	11.6	10.3-13.1	10.5	9.0-12.2	9.5	7.3-12.4

frequently than those with low or no ACEs. Among those with high ACEs, 43.3 percent have have at least one disability, which is almost double the prevalence of disability among those without ACEs (22.7%).

Discussion

Texas's 2015 BRFSS results are consistent with the findings from the initial ACE study and other states' ACE studies. ACEs are not rare, with over half of the Texas adult population reporting at least one ACE. However, certain groups do have higher rates of high ACEs, including non-Hispanic black adults, lower income adults, and those with less education, which put them at increased risk for negative health outcomes. There is a striking difference in reported depression rates, as well as the prevalence of poor health behaviors, including smoking and excessive alcohol consumption, when comparing no or low ACEs to high ACEs. While ACEs can be detrimental to an individual's health, resilience and social support can be protective forces. Recent research suggests that building caring connections can promote positive experiences for children from the start and can help heal those with a history of trauma.

References
[1]Sacks V & Murphey D. *The prevalence of adverse childhood experiences, nationally, by state, and by race/ethnicity.* Bethesda, MD: Child Trends; 2018. Publication 2018-03.
[2]Felitti V, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *Am J Prev Med.* 1998; 14(4):245-258.
[3]About Behavioral Risk Factor Surveillance System ACE Data. CDC.gov. https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/ace-brfss.html. Updated April 1, 2016.

What is the Texas Behavioral Risk Factor Surveillance System (BRFSS)?
BRFSS is an annual telephone survey conducted by Texas in coordination with the Centers for Disease Control and Prevention (CDC) that collects health-related data on topics like chronic health conditions, risk behaviors, and use of preventive services from the non-institutionalized adult population, aged 18 years and older. BRFSS data are used to identify emerging health problems, establish health objectives and track their progress, and develop and evaluate public health policies and programs to address identified problems. Limitations of BRFSS can include measurement and response errors, selection bias, non-response bias, and social desirability bias. Visit www.dshs.texas.gov/chs/brfss for more information.

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