

ADVERSE CHILDHOOD EXPERIENCES AMONG SEDGWICK COUNTY, KANSAS ADULTS

2014 Kansas Behavioral Risk
Factor Surveillance System

Adverse Childhood Experiences Among Sedgwick County, Kansas Adults

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Executive Summary

Researchers have demonstrated a link between adverse childhood experiences (ACE) of abuse, neglect and family dysfunction and health status later in life. This may be explained in part by a toxic physiological stress response, such as elevated stress hormone levels, to multiple stressors, which may have damaging effects on a child's developing brain. The Behavioral Risk Factor Surveillance System (BRFSS) introduced an optional module in 2008 to assess the relationship between ACE and health status at the population-level. The ACE optional module was included for the first time in the Kansas BRFSS in 2014.

The ACE module is comprised of 11 questions that assess the following eight categories of ACE:

Childhood Abuse

1. physical abuse
2. sexual abuse
3. emotional abuse

Household Dysfunction

4. presence of a mentally ill household member
5. alcohol or drug abuse in the household
6. incarcerated household member
7. violence between adults in the household
8. parental divorce or separation

Self-reported exposure to any single adverse childhood experience category is counted as one point toward the final ACE score (range: 0 to 8). SAS complex survey procedures were used to calculate overall and subpopulation prevalence estimates of each adverse childhood experience category and ACE score. Prevalence estimates of various health risk factors, perceived poor health indicators and chronic conditions were also examined by ACE score. In addition, logistic regression was used to examine the association between ACE score category and various health risk factors and conditions, while controlling for selected demographic characteristics.

This report summarizes findings from analysis of Kansas BRFSS data for Sedgwick County, Kansas adults aged 18 years and older.

Key Findings:

- ACE are prevalent: more than half of Sedgwick County adults have experienced at least one adverse childhood experience.
- In Sedgwick County, high ACE scores (3+) are more common among adults aged 25 to 64 years, those with lower levels of education and those with lower annual household incomes.
- The prevalence of current smoking, obesity, poor/fair general health, 14 or more days of poor physical health, 14 or more days of poor mental health, arthritis, asthma, chronic

obstructive pulmonary disease and depression were higher among Sedgwick County adults with high (3+) ACE scores compared with those with no ACE.

- After controlling for selected demographic variables, positive associations remained significant between high ACE score category and current smoking, obesity, poor/fair general health, 14 or more days of poor physical health, 14 or more days of poor mental health, arthritis, asthma, chronic obstructive pulmonary disease and depression.

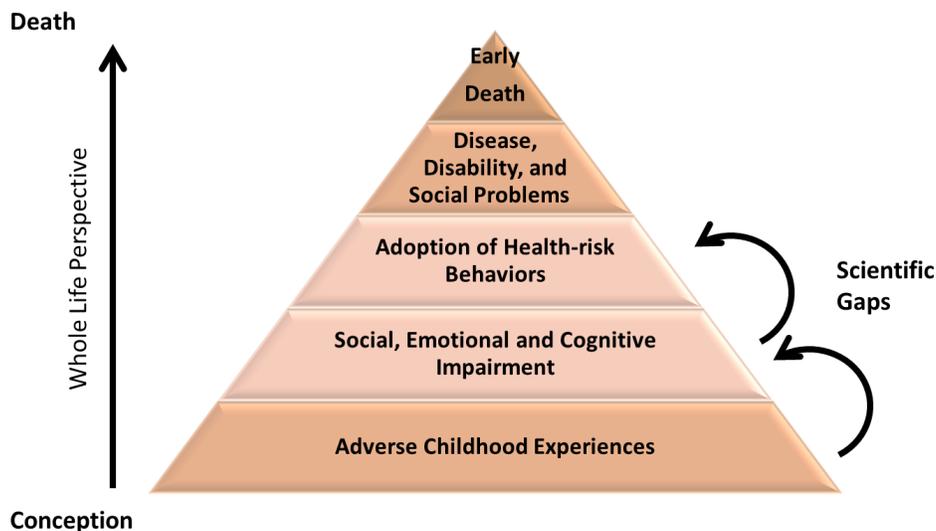
Sedgwick County data highlight the need to increase awareness of ACE as a public health issue. Preventing ACE may have beneficial effects on the long-term health of Sedgwick County residents.

Introduction

The ACE Study

Researchers have demonstrated a link between adverse childhood experiences (ACEs) of abuse, neglect and family dysfunction, and health status later in life.ⁱ This may be explained in part by a toxic physiological stress response, such as elevated stress hormone levels, to multiple stressors, which may have damaging effects on a child's developing brain.^{ii,iii} The ACE study, a collaboration between the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente's Health Appraisal Clinic in San Diego, CA, is one of the largest investigations ever conducted to assess associations between childhood maltreatment and health and well-being later in life.^{iv} The initial phase of the ACE study was conducted from 1995 to 1997. At the time the study was conceptualized, the relationship between single types of abuse, primarily sexual abuse, and poor outcomes across the lifespan were well known, but the impacts of a broad range of childhood abuse and household dysfunction had not yet been assessed (Figure 1).^v Based on this knowledge, the study sought to examine multiple types of abuse and trauma and their cumulative effects on health outcomes in adulthood. ACE study findings suggest that certain experiences are major risk factors for the leading causes of illness and death as well as poor quality of life in the U.S.

Figure 1. Conceptual Framework for the ACE Study



Associations between ACE and health outcomes have since been examined using population-based surveys, including the Behavioral Risk Factor Surveillance System (BRFSS).

The Kansas Behavioral Risk Factor Surveillance System

The BRFSS is an ongoing, population-based, random-digit-dialed telephone survey of non-institutionalized civilian adults 18 years and older. The survey is coordinated by the Centers for Disease Control and Prevention (CDC) and is conducted annually by all 50 states, the District of Columbia and several U.S. territories. The Behavioral Risk Factor Surveillance System (BRFSS) introduced an optional module in 2008 to assess the relationship between ACE and health status at the population-level. The ACE optional module was included for the first time in the Kansas BRFSS in 2014.

For the purpose of the current report, separate analyses were conducted to compare Sedgwick County estimates with statewide estimates. County of residence was defined via participant self-report. The complex survey methodology and analytical procedures for BRFSS are designed to produce prevalence estimates that can be generalized to Kansas adults statewide. Prevalence estimates are estimates of a true value (population parameter) and are thus subject to random variation. Ninety-five percent confidence intervals are used to characterize this variability and can be thought of as a range of values that will contain the true value 95 percent of the time.

Several considerations should be taken into account when interpreting BRFSS estimates:

- BRFSS estimates do not apply to individuals without telephone service (approximately 2.9% of the population),^{vi} those who reside on military bases or within institutions or those who are unable to complete a telephone survey.
- BRFSS prevalence estimates are self-reported and are subject to bias due to respondents' inability or unwillingness to provide accurate information about their own behaviors or characteristics.
- Prevalence estimates are only reported when they are based on at least 50 denominator respondents and 5 numerator respondents and the relative standard error (RSE) is greater than 30 percent.

A more detailed explanation of the survey methodology used for the Kansas BRFSS is available at <http://www.kdheks.gov/brfss/technotes.html>.

ACE Categories and ACE Scores

The BRFSS ACE module is comprised of 11 questions that assess the following eight categories of ACE:

Childhood Abuse

1. physical abuse
2. sexual abuse
3. emotional abuse

Household Dysfunction

4. presence of a mentally ill household member
5. alcohol or drug abuse in the household
6. incarcerated household member
7. violence between adults in the household
8. parental divorce or separation

All questions refer to the time period before respondents were 18 years old.

Self-reported exposure to any single ACE category is counted as one point toward the final ACE score (range: 0 to 8) (Table 1). ACE scores were only calculated for respondents who answered all 11 questions in the BRFSS ACE module (n=11,353 for Kansas and n=1,742 for Sedgwick County). Responses of “don't know” or “refused” were coded as missing for all questions.

Table 1. ACE categories and scoring: KS BRFSS ACE module survey questions and response options

ACE Category	Survey Question*	Response Options	Scoring
Childhood abuse			
Physical abuse	“How often did your parent or an adult in your home ever hit, beat, kick, or physically hurt you in any way? Do not include spanking.”	Never/Once/More than once	1= Once or More than once 0=Never
Sexual abuse	“How often did anyone at least 5 years older than you or an adult...” “...ever touch you sexually?” “...try to make you touch them sexually?” “...force you to have sex?”	Never/Once/More than once	1= Once or More than once to one or more of the three questions included in this category 0=Never to all three questions in this category
Emotional abuse	“How often did a parent or adult in your home ever swear at you, insult you, or put you down?”	Never/Once/More than once	1= More than once 0= Once or never
Household dysfunction			
Mentally ill household member	“Did you live with anyone who was depressed, mentally ill or suicidal?”	Yes/No	1=Yes 0=No
Substance abuse in household	“Did you live with anyone who...” “...was a problem drinker or alcoholic?” “...used illegal street drugs or who abused prescription medications?”	Yes/No	1= Yes to one or more of the two questions included in this category 0=No to both questions in this category
Incarcerated household member	“Did you live with anyone who served time or was sentenced to serve time in a prison, jail or other correctional facility?”	Yes/No	1=Yes 0=No
Violence between adults in household	“How often did your parents or adults in your home ever slap, hit, kick, punch or beat each other up?”	Never/Once/More than once	1= Once or More than once 0=Never
Parental separation/divorce	“Were your parents separated or divorced?”	Yes/No	1=Yes 0=No

*All questions refer to the time period before respondents were 18 years old.

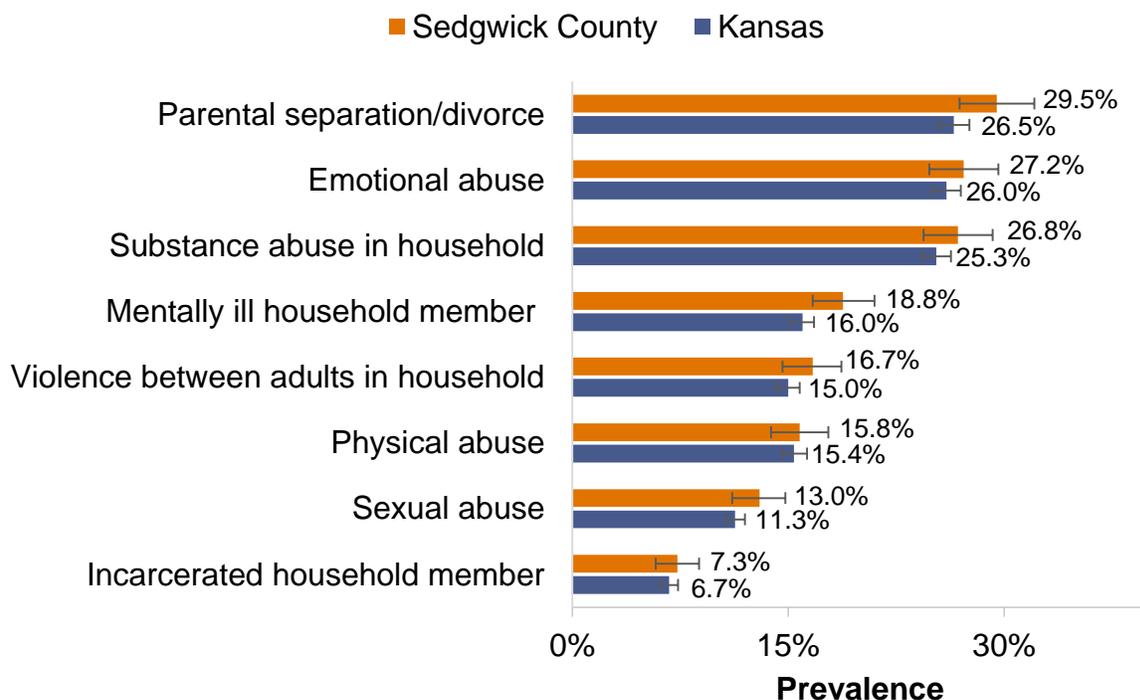
Note: Results disseminated prior to the current publication may differ slightly due to differences in categorizing emotional abuse. Some researchers have defined exposure to emotional abuse as a response of “Once” or “More than once” to the emotional abuse question indicated in the above table.^{vii} Here, we define exposure to emotional abuse as a response of “More than once” to the indicated question.^{viii}

Findings

Prevalence of Adverse Childhood Experience

In 2014, parental separation/divorce, emotional abuse and substance abuse by a household member were the most common adverse childhood experiences reported by Sedgwick County adults, as well as Kansas adults overall (Figure 2). Nearly 1 in 3 Sedgwick County adults reported that their parents were separated or divorced (29.5%). Similar percentages of Sedgwick County adults reported experiencing emotional abuse (27.2%) and substance abuse by a household member (26.8%). There were no significant differences in prevalence estimates for ACE categories between Sedgwick County and Kansas adults.

Figure 2. Prevalence of Adverse Childhood Experiences (ACE) among Kansas and Sedgwick County adults aged 18 years and older by ACE category, KS BRFSS 2014

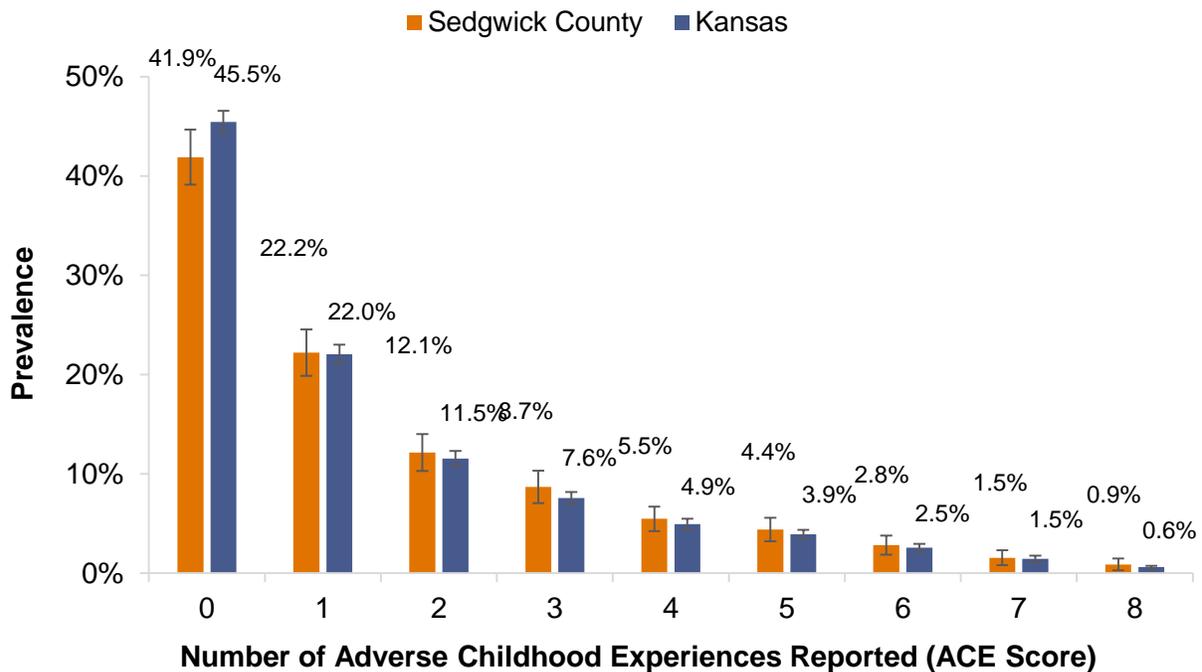


Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

For additional information on the prevalence of Sedgwick County adults who experienced specific ACE categories by demographic characteristics, see Appendix A.

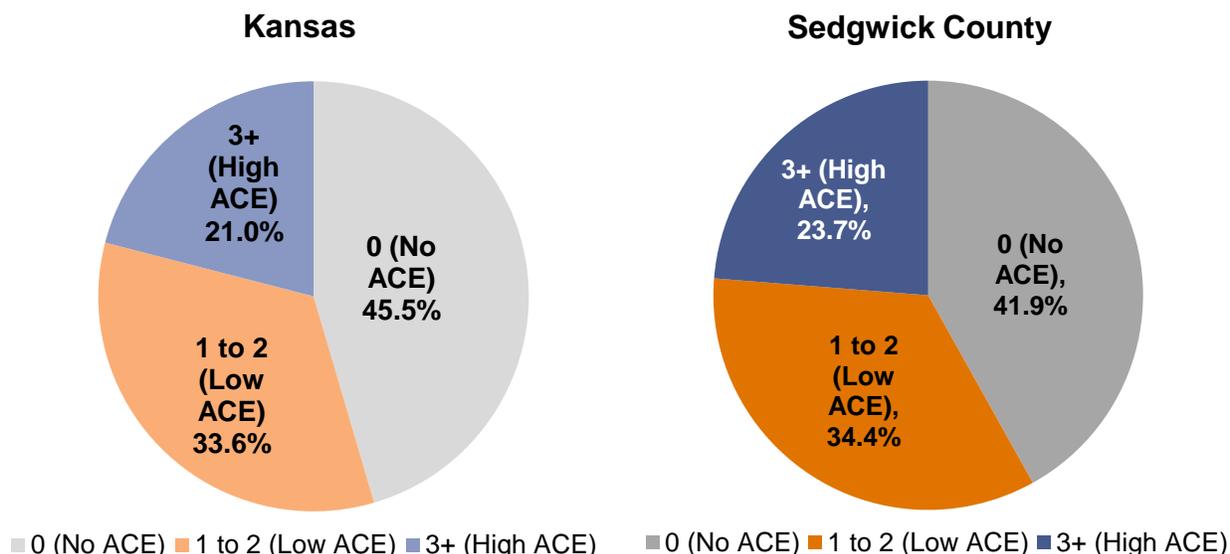
Most Sedgwick County adults (58.1%) reported having experienced at least one ACE (Figure 3). There were no significant differences in the prevalence of individual ACE scores between Sedgwick County and Kansas adults. More than 1 in 3 (34.4%) Sedgwick County adults had one or two ACE, and nearly 1 in 4 (23.7%) had three or more ACE (Figure 4). The distribution of ACE scores among Sedgwick County adults is similar to the statewide prevalence, which mirrors findings from other states.^{vi,vii}

Figure 3. Prevalence of Adverse Childhood Experiences (ACE) among Kansas and Sedgwick County adults aged 18 years and older by ACE score, KS BRFSS 2014



Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Figure 4. Prevalence of no, low and high ACE among Kansas and Sedgwick County adults aged 18 years and older, KS BRFSS 2014



Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

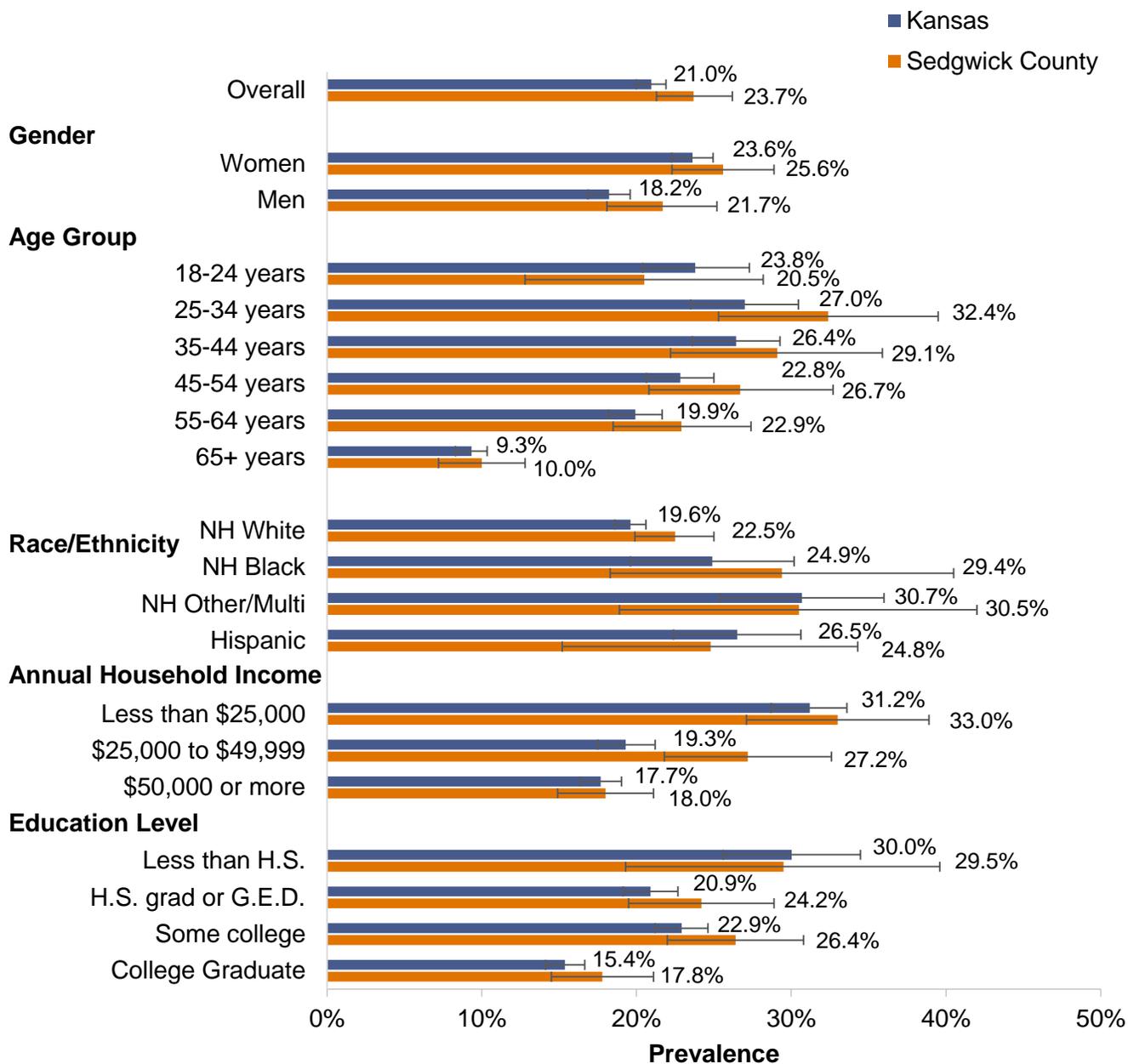
In 2014, the percentage of Sedgwick County adults who experienced three or more ACE was significantly **higher** among adults aged 25 to 64 years compared with adults aged 65 years and older; adults with an annual household income less than \$25,000 compared with adults with an annual household income of \$50,000 or more; and adults with some college education compared with their college graduate counterparts (Figure 5).

The percentage of adults who experienced three or more ACE was significantly higher among Sedgwick County adults with an annual household income between \$25,000 and \$49,999 (27.2%), compared with Kansas adults with the same household income (19.3%).

Subpopulation prevalence estimates of high ACE among Sedgwick County adults did not differ significantly from subpopulation prevalence estimates of high ACE among Kansas adults for the remaining demographic characteristics.

For additional information on the prevalence of Sedgwick County adults who experienced zero, one to two and three or more ACE by demographic characteristics, see Appendix B.

Figure 5. Prevalence of high (3+) ACE among Kansas and Sedgwick County adults aged 18 years and older by selected demographic characteristics, KS BRFSS 2014



Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Prevalence of Health Risk Factors and Health Conditions by ACE Score

Sedgwick County adults with high ACE scores (3+ ACE) had significantly higher prevalence of the following health risk factors (Figure 6), perceived poor health indicators (Figure 7) and chronic conditions (Figure 8):

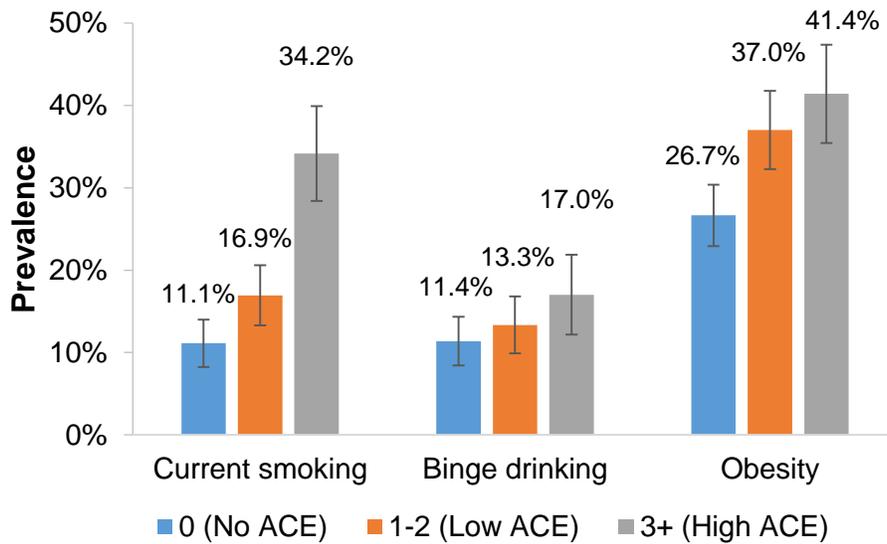
- Current smoking,
- Obesity,
- Poor/fair general health,
- 14 or more days of poor physical health,
- 14 or more days of poor mental health,
- Arthritis,
- Asthma,
- COPD, and
- Depression.

Kansas adults with high ACE scores also had significantly higher prevalence of the above mentioned health risk factors, perceived poor health indicators and chronic conditions, as well as binge drinking, compared with Kansas adults with no ACE.

For both Sedgwick County and Kansas adults no significant differences in prevalence were observed between high ACE score and no ACE subgroups for the following health conditions: cancer, coronary heart disease, diabetes, heart attack, kidney disease and stroke.

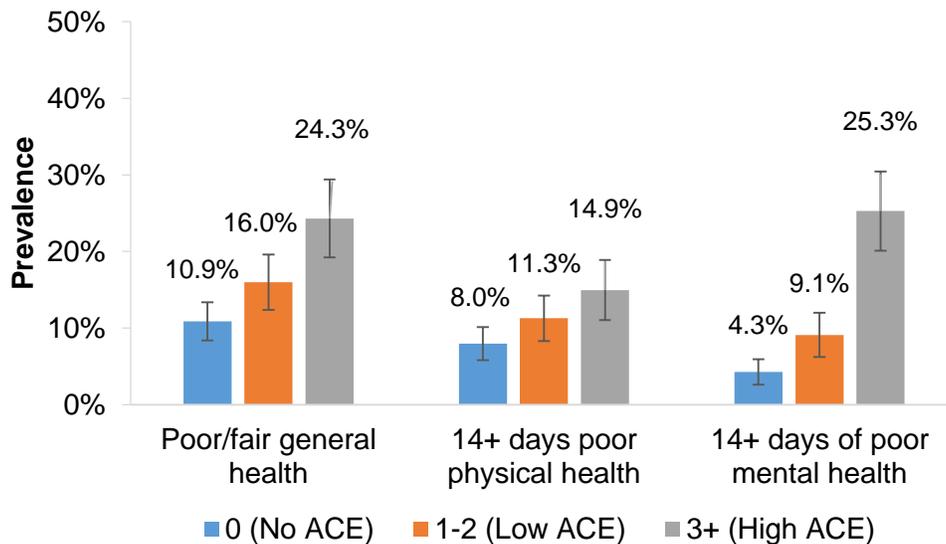
For additional information on the prevalence of selected health risk factors, perceived poor health and chronic conditions among Sedgwick County adults by ACE score category, see Appendix C.

Figure 6. Prevalence of selected health risk factors among Sedgwick County adults aged 18 years and older by ACE score group, KS BRFSS 2014



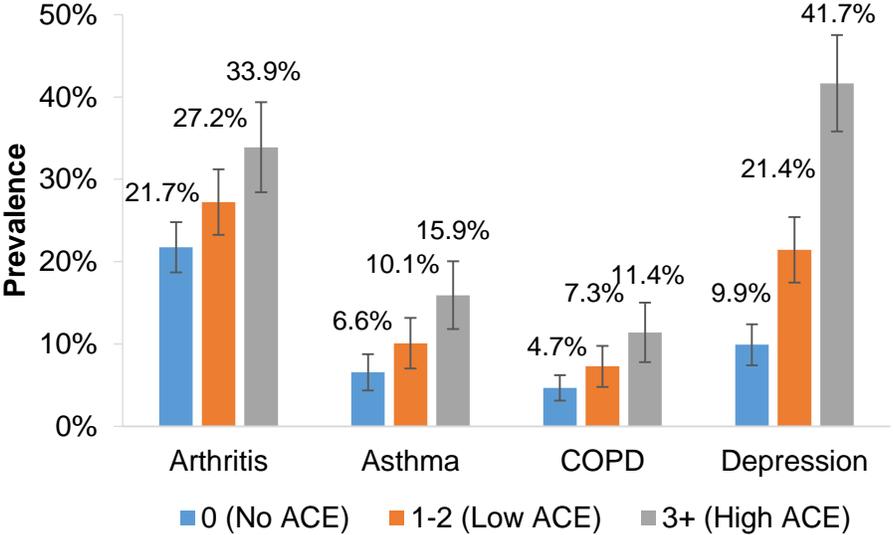
Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Figure 7. Prevalence of perceived poor health indicators among Sedgwick County adults aged 18 years and older by ACE Score Group, KS BRFSS 2014



Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Figure 8. Prevalence of selected chronic conditions among Sedgwick County adults aged 18 years and older by ACE Score Group, KS BRFSS 2014



Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Statistical Associations Between Health Risk Factors and Health Conditions, and ACE Score

Logistic regression modeling is one analytic method that can be used to examine the association between two or more variables while statistically controlling for additional potentially confounding variables. In this report, prevalence odds ratios were calculated using logistic regression models to compare the prevalence odds of selected health risk factors, perceived poor health indicators and chronic conditions between Sedgwick County adults who reported having three or more ACE compared with Sedgwick County adults who reported not having any ACE. Adjusted prevalence odds ratios (POR) and 95 percent confidence intervals were also calculated to examine these associations while controlling for age, gender, race/ethnicity, education and income. A prevalence odds ratio with a 95 percent confidence interval that contains 1 can be interpreted as no significant association between the selected health risk factor or health condition and ACE score.

Compared with those who did not experience any ACE, Sedgwick County adults with three or more ACE had significantly higher prevalence odds of the following health risk factors, perceived poor health indicators and chronic conditions, after controlling for selected demographic characteristics (Table 2):

- Current smoking,
- Obesity,
- Poor/fair general health,
- 14 or more days of poor physical health,
- 14 or more days of poor mental health,
- Arthritis,
- Asthma,
- COPD, and
- Depression.

In other words, there was a statistically significant positive association between each of these health risk factors, perceived poor health indicators and chronic conditions, and ACE score. For example, the adjusted prevalence odds of smoking among Sedgwick County adults with three or more ACE were 2.8 times as high as those with no ACE. The adjusted prevalence odds of depression among Sedgwick County adults with three or more ACE were 5.6 times as high as those with no ACE.

Table 2. Crude and adjusted prevalence odds ratios (POR) of selected health risk factors and conditions among Sedgwick County adults aged 18 years and older with high ACE scores (3+) compared with those with no ACE, KS BRFSS 2014

	Crude POR	95% CI	Adjusted POR*	95% CI
Health risk factors				
Current smoking	4.2	2.8 to 6.1	2.8	1.9 - 4.3
Binge drinking	1.6	1.0 to 2.5	1.3	0.8 - 2.1
Heavy drinking	1.1	0.6 to 2.2	1.1	0.5 - 2.2
Obesity	1.9	1.4 to 2.7	1.8	1.2 - 2.5
Perceived poor health				
Poor/fair general health	2.6	1.8 to 3.8	2.4	1.5 to 3.8
14+ days poor physical health	2.0	1.3 to 3.1	2.0	1.2 to 3.4
14+ days of poor mental health	7.6	4.7 to 12.4	5.2	2.9 to 9.2
Chronic conditions				
Arthritis	1.8	1.4 to 2.5	2.4	1.7 to 3.6
Asthma (current)	2.7	1.7 to 4.3	2.1	1.3 to 3.6
Cancer	1.0	0.6 to 1.6	1.4	0.8 to 2.3
Coronary Heart Disease	1.0	0.5 to 1.7	1.6	0.8 to 3.1
COPD	2.6	1.6 to 4.3	2.8	1.6 to 5.0
Depression	6.5	4.5 to 9.4	5.6	3.7 to 8.5
Diabetes	1.0	0.7 to 1.6	1.3	0.8 to 2.1
Heart attack	1.1	0.6 to 1.9	1.7	0.9 to 3.4
Kidney Disease	1.3	0.6 to 3.0	1.3	0.5 to 3.1
Stroke	0.8	0.4 to 1.7	0.8	0.4 to 1.9

POR: Prevalence odds ratio, 95% CI: 95% Confidence interval, COPD: Chronic obstructive pulmonary disease

*Model adjusts for age, gender, race/ethnicity, education and income.

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Conclusion

ACE are prevalent: most Sedgwick adults have experienced at least one ACE. In Sedgwick County, high ACE scores (3+) are more common among adults aged 25 to 64 years, those with lower levels of education, and those with lower annual household incomes. Sedgwick County data highlight the need to increase awareness of ACE as a public health issue. Preventing ACE may have beneficial effects on the long-term health of Sedgwick County residents.

Appendix A. Prevalence of each ACE category among Sedgwick County adults aged 18 years and older by selected demographic characteristics, KS BRFSS 2014

Characteristic	Emotional abuse % (95% CI)	Physical abuse % (95% CI)	Sexual abuse % (95% CI)	Mentally ill household member % (95% CI)	Incarcerated household member % (95% CI)	Substance abuse in household % (95% CI)	Parental separation/divorce % (95% CI)	Violence between adults in household % (95% CI)
Overall	27.2 (24.8-29.6)	15.8 (13.8-17.8)	13.0 (11.1-14.8)	18.8 (16.7-21.0)	7.3 (5.8-8.8)	26.8 (24.4-29.2)	29.5 (26.9-32.1)	16.7 (14.6-18.7)
Gender								
Women	27.6 (24.3-30.9)	16.4 (13.6-19.1)	19.4 (16.4-22.3)	23.0 (19.9-26.2)	7.3 (5.2-9.3)	27.9 (24.6-31.2)	31.4 (27.8-35.0)	18.1 (15.2-21.0)
Men	26.8 (23.2-30.4)	15.2 (12.3-18.1)	6.0 (4.1-7.9)	14.1 (11.2-16.9)	7.4 (5.1-9.6)	25.5 (22.0-29.0)	27.4 (23.7-31.1)	15.0 (12.1-18.0)
Age Group								
18-24 years	21.8 (14.4-29.2)	13.7 (7.5-19.8)	--	31.9 (23.4-40.5)	13.5 (7.2-19.9)	29.3 (21.1-37.5)	43.4 (34.0-52.8)	16.8 (10.1-23.5)
24-34 years	28.7 (22.2-35.3)	17.3 (11.7-22.9)	12.0 (6.8-17.2)	25.0 (18.7-31.4)	13.8 (8.8-18.8)	27.6 (21.1-34.1)	42.3 (35.1-49.5)	18.8 (12.9-24.7)
35-44 years	34.5 (27.3-41.6)	19.6 (13.8-25.4)	19.5 (13.6-25.4)	17.6 (12.5-22.8)	--	28.1 (21.5-34.6)	32.3 (25.4-39.2)	19.4 (13.6-25.2)
45-54 years	32.3 (26.3-38.4)	16.9 (11.9-21.9)	17.6 (12.6-22.6)	17.7 (12.9-22.5)	6.6 (3.4-9.8)	29.1 (23.2-34.9)	30.1 (24.1-36.1)	18.5 (13.3-23.7)
55-64 years	28.8 (24.0-33.7)	17.0 (13.1-21.0)	14.1 (10.6-17.6)	16.1 (12.3-19.9)	5.1 (2.4-7.8)	28.3 (23.4-33.3)	18.4 (14.1-22.7)	17.1 (13.1-21.2)
65+ years	17.0 (13.6-20.4)	10.5 (7.7-13.3)	9.8 (7.2-12.4)	7.7 (5.4-10.0)	--	19.7 (16.1-23.2)	14.0 (10.6-17.3)	10.1 (7.3-12.9)
Race/Ethnicity								
NH White	26.6 (24.0-29.2)	14.7 (12.5-16.8)	12.9 (10.9-14.9)	20.2 (17.7-22.7)	6.4 (4.8-8.0)	25.8 (23.2-28.3)	27.5 (24.8-30.3)	14.4 (12.3-16.5)
NH Black	30.4 (19.8-41.1)	12.0 (4.9-19.2)	20.7 (11.1-30.4)	12.3 (5.5-19.1)	14.3 (6.2-22.3)	33.4 (22.3-44.4)	47.7 (35.8-59.5)	26.6 (16.6-36.5)
NH Other/Multi	32.0 (21.0-43.0)	--	13.5 (6.6-20.5)	20.9 (11.9-30.0)	--	28.9 (18.6-39.2)	33.4 (21.9-44.9)	20.9 (11.5-30.3)
Hispanic	25.5 (16.6-34.4)	21.7 (13.6-29.7)	--	12.4 (6.0-18.9)	--	27.1 (17.9-36.2)	28.3 (18.8-37.8)	22.1 (13.3-31.0)
Annual Household Income								
Less than \$25,000	32.5 (27.0-38.1)	24.7 (19.6-29.8)	20.4 (15.4-25.4)	26.4 (21.2-31.6)	11.4 (7.4-15.5)	34.2 (28.5-39.9)	42.7 (36.6-48.8)	23.2 (18.1-28.4)
\$25,000 to \$49,999	32.5 (27.0-37.9)	16.9 (12.5-21.2)	12.7 (9.0-16.5)	16.2 (11.9-20.5)	10.1 (6.4-13.8)	26.6 (21.5-31.7)	28.6 (23.3-33.9)	17.7 (13.1-22.4)
\$50,000 or more	22.1 (18.8-25.4)	10.6 (8.1-13.1)	10.0 (7.6-12.4)	15.6 (12.6-18.6)	3.6 (2.0-5.2)	23.7 (20.3-27.1)	23.2 (19.6-26.8)	12.7 (10.1-15.3)
Education Level								
Less than H.S.	27.0 (17.8-36.1)	18.5 (10.3-26.7)	16.5 (8.4-24.6)	15.7 (8.3-23.2)	12.4 (5.7-19.1)	29.6 (20.0-39.1)	42.3 (31.6-53.0)	22.3 (13.7-30.9)
H.S. grad or G.E.D.	25.9 (21.3-30.5)	17.0 (13.1-20.9)	12.8 (9.5-16.1)	18.7 (14.5-22.9)	10.5 (7.0-14.0)	30.2 (25.4-35.1)	35.3 (30.1-40.4)	18.8 (14.5-23.1)
Some college	28.9 (24.5-33.4)	18.1 (14.4-21.8)	15.6 (12.2-19.0)	22.3 (18.2-26.4)	5.3 (3.1-7.6)	27.7 (23.5-32.0)	27.9 (23.4-32.4)	16.8 (13.3-20.4)
College Graduate	26.6 (22.9-30.2)	10.9 (8.3-13.5)	8.4 (6.1-10.6)	16.0 (13.0-19.1)	4.4 (2.7-6.2)	21.3 (17.8-24.7)	20.8 (17.2-24.4)	12.3 (9.5-15.1)

Note: 95% CI: 95% Confidence interval. Two dashes (i.e., --) indicates a suppressed estimate due to relative standard error (RSE) of 30% or greater.

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Appendix B. Prevalence of No (0), Low (1-2), and High (3+) ACE among Sedgwick County adults aged 18 years and older by selected demographic characteristics, KS BRFSS 2014

	0 (No ACE)			1-2 (Low ACE)			3+ (High ACE)		
	N	Percent	95% CI	N	Percent	95% CI	N	Percent	95% CI
Overall	791	41.9%	39.1% to 44.7%	585	34.4%	31.7% to 37.0%	366	23.7%	21.3% to 26.2%
Gender									
Women	429	38.9%	35.3% to 42.6%	343	35.5%	31.8% to 39.1%	223	25.6%	22.3% to 28.9%
Men	362	45.2%	41.0% to 49.4%	242	33.1%	29.2% to 37.1%	143	21.7%	18.1% to 25.2%
Age Group									
18-24 years	44	39.0%	29.2% to 48.7%	47	40.6%	31.0% to 50.1%	24	20.5%	12.8% to 28.2%
25-34 years	75	38.5%	31.1% to 46.0%	58	29.1%	22.3% to 35.8%	61	32.4%	25.3% to 39.5%
35-44 years	76	38.2%	30.5% to 45.8%	70	32.8%	25.5% to 40.0%	63	29.1%	22.2% to 35.9%
45-54 years	101	35.2%	29.0% to 41.4%	104	38.0%	31.6% to 44.5%	68	26.7%	20.8% to 32.7%
55-64 years	179	42.4%	37.0% to 47.7%	131	34.7%	29.3% to 40.1%	92	22.9%	18.5% to 27.4%
65+ years	313	57.0%	52.3% to 61.6%	173	33.0%	28.6% to 37.5%	56	10.0%	7.2% to 12.8%
Race/Ethnicity									
NH White	695	43.8%	40.9% to 46.8%	482	33.7%	30.9% to 36.6%	287	22.5%	19.9% to 25.0%
NH Black	23	23.8%	13.7% to 33.8%	31	46.8%	34.2% to 59.4%	26	29.4%	18.3% to 40.5%
NH Other/Multi	30	41.6%	28.3% to 55.0%	27	27.9%	16.8% to 39.1%	27	30.5%	18.9% to 42.0%
Hispanic	36	40.3%	29.1% to 51.4%	39	35.0%	24.7% to 45.3%	24	24.8%	15.2% to 34.3%
Annual Household Income									
\$50,000 or more	360	47.2%	43.0% to 51.4%	257	34.8%	30.8% to 38.8%	127	18.0%	14.9% to 21.1%
\$25,000 to \$49,999	180	39.4%	33.7% to 45.0%	128	33.5%	27.9% to 39.1%	88	27.2%	21.8% to 32.6%
Less than \$25,000	129	31.6%	25.8% to 37.5%	126	35.4%	29.3% to 41.4%	119	33.0%	27.1% to 38.9%
Education Level									
Less than H.S.	34	39.6%	28.1% to 51.0%	31	31.0%	20.8% to 41.2%	29	29.5%	19.3% to 39.6%
H.S. grad or G.E.D.	187	39.0%	33.7% to 44.3%	153	36.8%	31.4% to 42.2%	99	24.2%	19.5% to 28.9%
Some college	226	39.5%	34.7% to 44.2%	171	34.1%	29.4% to 38.8%	124	26.4%	22.0% to 30.8%
College Graduate	344	48.5%	44.2% to 52.8%	229	33.7%	29.6% to 37.7%	113	17.8%	14.5% to 21.1%

95% CI: 95% Confidence interval. Two dashes (i.e., --) indicates a suppressed estimates due to relative standard errors of 30% or greater.
 Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Appendix C. Prevalence of selected health risk factors, perceived poor health and chronic conditions among Sedgwick County adults aged 18 years and older by ACE score category, KS BRFSS 2014

	0 (No ACE)			1-2 (Low ACE)			3+ (High ACE)		
	N	Percent	95% CI	N	Percent	95% CI	N	Percent	95% CI
Health risk factors									
Current smoking	77	11.1%	8.3% to 14.0%	86	16.9%	13.3% to 20.6%	103	34.2%	28.4% to 39.9%
Binge drinking	67	11.4%	8.4 to 14.3%	64	13.3%	9.9% to 16.8%	48	17.0%	12.2% to 21.9%
Heavy drinking	27	4.4%	2.4% to 6.3%	29	4.3%	2.5% to 6.1%	21	4.8%	2.6% to 7.1%
Obesity	214	26.7%	22.9% to 30.4%	205	37.0%	32.3% to 41.8%	144	41.4%	35.5% to 47.4%
Perceived poor health									
Poor/fair general health	99	10.9%	8.4% to 13.4%	87	16.0%	12.4% to 19.6%	91	24.3%	19.2% to 29.4%
14+ days poor physical health	71	8.0%	5.8% to 10.1%	70	11.3%	8.3% to 14.2%	64	14.9%	11.0% to 18.9%
14+ days of poor mental health	34	4.3%	2.6% to 5.9%	50	9.1%	6.2% to 12.0%	88	25.3%	20.1% to 30.4%
Chronic conditions									
Arthritis	234	21.7%	18.7% to 24.8%	200	27.2%	23.3% to 31.2%	139	33.9%	28.4% to 39.4%
Asthma (current)	45	6.6%	4.4% to 8.7%	51	10.1%	7.0% to 13.2%	56	15.9%	11.8% to 20.1%
Cancer	84	7.1%	5.4% to 8.8%	57	6.2%	4.4% to 8.0%	32	6.9%	4.1% to 9.7%
Coronary Heart Disease	55	5.0%	3.5% to 6.6%	31	4.2%	2.5% to 5.8%	25	4.9%	2.7% to 7.0%
COPD	43	4.7%	3.1% to 6.2%	44	7.3%	4.8% to 9.8%	44	11.4%	7.8% to 15.0%
Depression	78	9.9%	7.4% to 12.4%	128	21.4%	17.5% to 25.4%	152	41.7%	35.8% to 47.5%
Diabetes	117	10.9%	8.7% to 13.1%	88	11.9%	9.2% to 14.7%	50	11.3%	7.7% to 14.9%
Heart attack	51	4.8%	3.2% to 6.4%	23	3.4%	1.8% to 4.9%	28	5.2%	3.1% to 7.3%
Kidney Disease	26	2.5%	1.4% to 3.6%	24	3.2%	1.8% to 4.7%	13	3.3%	1.2% to 5.4%
Stroke	30	3.9%	2.0% to 5.8%	30	4.2%	2.4% to 6.0%	17	3.2%	1.5% to 4.9%

95% CI: 95% Confidence interval, COPD: Chronic obstructive pulmonary disease
 Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

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