



Adverse Childhood Experiences in South Carolina:

Depression and Health-Related Quality of Life

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Children's Trust of South Carolina has produced a series of research briefs on adverse childhood experiences (ACEs). Research brief topics include the data collection process, an overview of ACEs, the prevalence of ACEs in various populations, and the relationship between ACEs and health and social outcomes.

In 2014, Children's Trust of South Carolina (herein Children's Trust) partnered with South Carolina's Department of Health and Environmental Control (SC DHEC) to collect data from South Carolina adults on exposure to adverse childhood experiences (ACEs). This partnership developed because, as the state leader in prevention of child abuse and neglect, Children's Trust values data-driven decision-making to improve the environments of vulnerable children and families. Currently, ACE data is being collected annually via the Behavioral Risk Factor Surveillance System (BRFSS; Centers for Disease Control and Prevention [CDC], 2014a).

Children's Trust has developed a series of research briefs to outline the ACE data collection process (see Morse & Strompolis, 2016a) and to highlight important findings. Eighth in the series, this brief uses survey results to better understand the relation among ACEs, depression, and health-related quality of life (HRQoL). First, an overview of ACE, depression, and HRQoL items is provided. Then, results by depression and HRQoL are reported for ACE prevalence (yes or no to any ACE), individual ACE (e.g., emotional abuse; household substance use), and cumulative ACE (0, 1, 2, 3, 4+ ACEs reported) data.

ACE Survey Items

In 2014-2016, the ACE Survey items were collected in South Carolina via the Behavioral Risk Factor Surveillance System (BRFSS) and modeled the original ACE Study survey questions (see CDC, 2014a and Morse & Strompolis, 2016a, 2016b for additional information). Eight ACE types were assessed (abuse: physical sexual, emotional; household dysfunction: mental illness, substance use, incarceration,

divorce, domestic violence). Table 1 outlines each of the 11 survey items administered to South Carolina adults (age 18 years and older). Two items assessed household substance use (alcohol, drugs), and three items assessed contact sexual abuse (inappropriate touch, involuntary sexual intercourse). Items for these types were collapsed for analytic purposes and are consistent with previous ACE research (e.g., Anda et al., 2006; Felitti et al., 1998). Item responses only indicated whether a participant experienced a particular ACE. Thus, the survey does not capture intensity or frequency of ACE exposure—but does measure cumulative exposure to ACEs.

Table 1

ACE Types and Survey Items	
ACE TYPE	SURVEY ITEM(S)
Household Mental Illness	Did you live with anyone who was depressed, mentally ill, or suicidal?
Household Substance Use	Did you live with anyone who was a problem drinker or alcoholic? or Did you live with anyone who used illegal street drugs or abused prescription medications?
Household Incarceration	Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?
Parental Separation/Divorce	Were your parents separated or divorced?
Household Domestic Violence	How often did your parents or adults in your home ever slap, hit, kick, punch, or beat each other up?
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.
Emotional Abuse	How often did a parent or adult in your home ever swear at you, insult you, or put you down?
Sexual Abuse	How often did anyone at least 5 years older than you or an adult ever touch you sexually? or try to make you touch them sexually? or force you to have sex?

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Depression and Health-Related Quality of Life (HRQoL) Indicators

Depressive disorders are among the most commonly diagnosed mental health disorders in the United States and have been linked to both chronic physical health conditions and early mortality (Center for Behavioral Health Statistics and Quality, 2015). Patients with depressive symptoms or disorders have lower perceived health, more severe physical pain, worse physical, social, and role functioning, and decreased quality of life compared to patients without depressive disorders (Wells et al., 1989). Thus, preventing or decreasing depressive symptoms has the potential to improve overall health and health-related quality of life.

ACEs have been linked to an array of health outcomes, including increased risk for depressive disorders (Felitti et al., 1998). Chapman et al. (2004) found a dose-response relation between the number of ACEs experienced and the probability of depressive disorders and suggest that risk for depressive disorders may extend for decades post-exposure. Additionally, deteriorating mental health has the potential to create a generational cycle of ACE exposures, with research suggesting that living in alcoholic households as a child confers increased risk of alcoholism and depression in adulthood (Anda et al., 2002). The majority of research related to cumulative ACE exposure has focused on physical health outcomes (e.g., Dong et al., 2004). Findings from Chapman and colleagues (2004) highlighted the association between cumulative ACE and mental health outcomes.

Self-reported health-related quality of life, a measure of level of impairment, has been a better predictor of mortality and morbidity than objective measures of health (DeSalvo, Bloser, Reynolds, He, & Muntner, 2006; Dominick, Ahern, Gold, & Heller, 2002). Thus, it is important to assess levels of both physical and mental health impairment and their associations with ACE. Previous briefs have outlined the association between ACEs and objective health measures such as chronic disease or behavioral risk, but investigating levels of impairment provides a more nuanced understanding of these relations. Given the prevalence of ACEs in South Carolina, understanding the association of HRQoL and ACEs is critical to the development targeted prevention programs and services. In 2014, the South Carolina BRFSS collected data on five mental health and health-related quality of life indicators (see Table 2).

All three health-related quality of life variables were recoded into three categories: 0 days, 1-2 days, 3+ days. Long-term workplace absenteeism, a common measure of impairment, is defined as missing 10% of workdays during a given period (Balfanz & Byrnes, 2012). Thus, individuals with a MHQoL of 3+ days would be considered to have a low quality of life (or high impairment).

ACEs and other BRFSS data are weighted by the CDC to be representative of South Carolina adults who have landline and cellular telephones. Weighting ensures that groups who are under-represented in the data can be accounted for during data analysis. BRFSS data is also weighted to ensure unbiased population estimates by accounting for complex sampling, nonresponse, and noncoverage (e.g., landline versus cell phone data collection; CDC, 2014b). Thus, a “weight” is assigned to every survey respondent. Under-represented respondents have a higher weight, whereas over-sampled or represented respondents have a lower weight (Kish, 1990). Modified Rao-Scott chi-square estimates (Rao & Scott, 1984) were used to interpret ACE findings. See Weighting of BRFSS Data (CDC, 2014b) for more information.

Table 2

Mental Health and Health-Related Quality of Life Indicators	
MENTAL HEALTH AND QUALITY OF LIFE	SURVEY ITEM(S)
Depressive Disorder	(Ever told) that you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?
General Health	In general, would you say your health is [excellent; very good; good; fair; poor]?
Days Physical Health Was Not Good	Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?
Days Mental Health Was Not Good	Now thinking about your mental health, which includes mental stress, depression, and problems with emotions, for how many days during the past 30 was your mental health not good?
Days Either Physical or Mental Health Was Not Good	During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?



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Table 3

Prevalence of ACE Types	
ACE	PREVALENCE
Any ACE	63%
Parental Separation/Divorce	31%
Emotional Abuse	30%
Household Substance Use	28%
Household Domestic Violence	19%
Household Mental Illness	16%
Physical Abuse	14%
Sexual Abuse	12%
Household Incarceration	9%

Table 4

Prevalence of Depression and Health-Related Quality of Life Indicators	
DEPRESSION AND HEALTH-RELATED QUALITY OF LIFE	PREVALENCE
Depressive Disorder (yes)	20%
General Health	
Excellent	18%
Very Good	32%
Good	30%
Fair	13%
Poor	6%
Days Physical Health Was Not Good (past 30 days)	
0 days	65%
1-2 days	9%
3+ days	26%
Days Mental Health Was Not Good (past 30 days)	
0 days	65%
1-2 days	8%
3+ days	27%
Days Mental or Physical Health Was Not Good (past 30 days)	
0 days	58%
1-2 days	11%
3+ days	31%



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Depression and Health-Related Quality of Life (HRQoL) Prevalence

Table 4 lists the prevalence of depression and HRQoL indicators. One in five South Carolina adults reported being told they had a depressive disorder. Eighteen percent of adults self-reported excellent health; 6% self-reported poor health. Almost one-third of South Carolina residents reported poor physical and/or mental health for 3+ days per month.

ACE Prevalence and Depression and Health-related Quality of Life Indicators

An examination of ACE prevalence and depression and HRQoL revealed stark differences between individuals who have experienced an ACE and those who have not. More than three-quarters of individuals who reported being told they had a depressive disorder experienced at least one ACE (see Table 5). Furthermore, ACE prevalence was higher among individuals who reported having a depressive disorder (78%) than those not reporting a depressive disorder (56%). For general health, the percentage of individuals experiencing ACE increased as health status decreased from excellent (58%) to fair (66%) health; 66% of individuals that experienced ACE reported poor health. A similar pattern emerged with QoL variables; as the number of days physical or mental health was not good increased, ACE prevalence also increased.

Table 6 presents individual ACE types, depression, and HRQoL indicators. As can be seen in the table, there is high prevalence of individual ACE types across depression and all HRQoL indicators. For example, prevalence of each individual ACE type among South Carolina adults who reported poor health are higher than prevalence of individual ACE types among adults reporting excellent health. Similarly, the prevalence of each individual ACE type is higher among individuals who reported 3+ days of poor mental health out of the past 30.

While prevalence of individual ACE types are high across depression and all HRQoL indicators, the impact of each ACE on physical and mental health provides important insight into how ACEs may affect South Carolinian adults’ health. For example, among individuals who experienced emotional abuse, 38% reported their physical health was poor for 3+ of the past 30 days, but 45% reported their mental health was not good for 3+ days in the past 30 days. In contrast, 21% of respondents who experienced physical abuse during childhood indicated that their physical health was poor on 3+ days in the past 30 days. An approximately equal proportion of South Carolina adults who experienced physical abuse (23%) reported that their mental health was poor on 3+ days in the past month.

Table 5

Prevalence of Depression and Health-Related Quality of Life Indicators		
DEPRESSION AND HEALTH-RELATED QUALITY OF LIFE	ACE	NO ACE
Depressive Disorder (yes)	78%	22%
General Health		
Excellent	56%	44%
Very Good	58%	38%
Good	62%	38%
Fair	66%	34%
Poor	66%	34%
Days Physical Health Was Not Good (past 30 days)		
0 days	57%	43%
1-2 days	66%	34%
3+ days	68%	32%
Days Mental Health Was Not Good (past 30 days)		
0 days	54%	46%
1-2 days	66%	34%
3+ days	76%	24%
Days Mental or Physical Health Was Not Good (past 30 days)		
0 days	65%	35%
1-2 days	70%	30%
3+ days	73%	27%



Table 6

Prevalence of Depression and Health-Related Quality of Life Indicators								
DEPRESSION AND HEALTH-RELATED QUALITY OF LIFE	PARENTAL SEPARATION / DIVORCE	EMOTIONAL ABUSE	HOUSEHOLD SUBSTANCE USE	HOUSEHOLD DOMESTIC VIOLENCE	MENTAL ILLNESS	PHYSICAL ABUSE	SEXUAL ABUSE	HOUSEHOLD INCARCERATION
Depressive Disorder (yes)	38%	49%	43%	31%	35%	26%	26%	13%
General Health								
Excellent	29%	26%	24%	15%	15%	10%	9%	7%
Very Good	30%	29%	26%	16%	15%	11%	11%	8%
Good	32%	32%	30%	21%	16%	15%	13%	10%
Fair	33%	34%	35%	26%	19%	19%	17%	11%
Poor	32%	36%	35%	28%	21%	24%	21%	13%
Days Physical Health Was Not Good (past 30 days)								
0 days	30%	27%	26%	17%	13%	12%	10%	8%
1-2 days	34%	33%	29%	19%	21%	14%	12%	9%
3+ days	33%	38%	36%	27%	22%	21%	20%	12%
Days Mental Health Was Not Good (past 30 days)								
0 days	28%	23%	23%	15%	10%	10%	8%	7%
1-2 days	32%	47%	30%	21%	18%	16%	14%	10%
3+ days	40%	45%	40%	29%	31%	23%	23%	14%
Days Mental or Physical Health Was Not Good (past 30 days)								
0 days	34%	34%	32%	21%	20%	15%	13%	10%
1-2 days	34%	39%	32%	23%	26%	17%	16%	10%
3+ days	36%	44%	39%	30%	27%	25%	24%	13%

Note. All percentages may not total 100% due to rounding.

Cumulative ACE and Depression and Health-Related Quality of Life

Previous research has shown a dose-response relations between ACEs and health and social outcomes such that as the number of ACEs increased, the number of negative outcomes experienced also increased (Felitti et al., 1998). Given this finding, we examined cumulative ACE exposure in relation to depression and HRQoL indicators to determine whether the prevalence of depressive disorders, poor self-reported general health, and days on which health was poor changed as the number of ACEs and individual experiences increased.

In South Carolina, 26% of adults reported experiencing 4+ ACEs, 13% three ACEs, 17% two ACEs, 21% one ACE and 22% percent reported no ACEs (see Morse et al., 2016a). Table 7 reports cumulative ACE by MHQoL indicators.

The percentage of individuals who reported being told they had a depressive disorder is highest among those who reported 4+ ACEs. Similarly, South Carolina adults who self-reported fair-poor health (i.e., 16% and 19%, respectively) included more individuals who reported experiencing 4+ ACEs than individuals who self-reported excellent to good health. Respondents whose physical, mental, or combined physical and mental health was poor for 3+ days out of the past 30 days experienced 4+ ACEs at larger proportions than those who self-reported their health was poor for 3+ of the past 30 days.



Table 7

Cumulative ACE by Depression and Health-Related Quality of Life Indicators					
DEPRESSION AND HEALTH-RELATED QUALITY OF LIFE	0 ACES	1 ACE	2 ACES	3 ACES	4+ ACES
Depressive Disorder (yes)	21%	21%	17%	12%	29%
General Health					
Excellent	44%	27%	12%	8%	9%
Very Good	42%	26%	14%	8%	10%
Good	38%	25%	15%	10%	13%
Fair	34%	25%	15%	10%	16%
Poor	34%	22%	14%	10%	19%
Days Physical Health Was Not Good (past 30 days)					
0 days	43%	26%	14%	9%	9%
1-2 days	34%	27%	16%	9%	14%
3+ days	32%	23%	15%	10%	19%
Days Mental Health Was Not Good (past 30 days)					
0 days	46%	27%	12%	7%	7%
1-2 days	34%	25%	16%	11%	14%
3+ days	24%	22%	17%	12%	24%
Days Mental or Physical Health Was Not Good (past 30 days)					
0 days	35%	25%	15%	10%	15%
1-2 days	30%	27%	17%	10%	15%
3+ days	27%	23%	16%	11%	23%

Note. All percentages may not total 100% due to rounding.

Conclusion

Nearly 20% of South Carolina adults reported being told they had a depressive disorder, and that more than a quarter experienced impairment due to physical or mental health, or a combination of both. Furthermore, nearly 20% of South Carolina's adults rated their health as either fair or poor. Individuals reporting 4+ ACEs also reported HRQoL indicators associated with negative health and well-being (e.g., self-reported poor health) at higher percentages than individuals with less ACEs. Moreover, specific ACEs, such as emotional abuse and mental illness have more of an impact on mental health and health-related quality of life than other ACEs.

It is important to invest in and to implement targeted prevention efforts given the relation among ACEs, health and overall well-being. Preventing ACEs has the potential

to reduce mental health outcomes and health-related quality of life in adulthood. However, successfully reducing ACEs requires a multidisciplinary, multi-setting approach (Larkin, Shields, & Anda, 2012). Children's Trust is home to South Carolina's Prevent Child Abuse America chapter, and works with community partners throughout the state to raise awareness and implement prevention programs. In order to reduce child abuse and other ACEs for South Carolina's children, Children's Trust is committed to promoting and connecting statewide efforts so that every child in the state has the opportunity to have a great childhood. Future research briefs in the series will examine interrelatedness of ACEs, ACEs among SC veterans, and the relation among race, ethnicity, and ACEs. Additionally, forthcoming research briefs will propose solutions to address prevention and treatment of multiple ACEs.



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