ACE RESEARCH BRIEF: 6

Adverse Childhood Experiences in South Carolina:

Access to Healthcare

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Children's Trust of South Carolina has produced a series of research briefs on adverse childhood experiences (ACEs). The 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 (S.C. 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 and to highlight important findings from the data collected. Sixth in the series, this brief utilizes 2014-2016 ACE survey results for South Carolina to examine the association between ACEs and access to healthcare (healthcare coverage, medical costs as a barrier to care, personal care provider, recent check up). First, an overview of ACEs and access to healthcare survey items is provided. Then, results by access to healthcare variables are reported for ACE prevalence *(yes/no)*, ACE type (abuse: physical, emotional, sexual; household dysfunction: household mental illness, substance abuse, domestic violence, incarceration, parental separation/divorce), and cumulative ACE (e.g., 0, 1, 2, 3, or 4+ ACEs reported). Finally, prevalence of access to healthcare for South Carolinians reporting ACE is compared to the South Carolina state prevalence for access to healthcare.

ACE Survey Items

In 2014-2016, ACE Survey items were collected via the BRFSS in South Carolina and modeled the original ACE Study survey questions (see Morse & Strompolis, 2016a, 2016b for additional information). Eight ACE types were assessed (abuse: physical, sexual, emotional; household dysfunction: mental illness, substance abuse, incarceration, divorce, domestic violence). Table 1 outlines the 11 survey items administered to South Carolina adults (18 or older). Two items assessed household substance use (alcohol, drugs), and three items assessed contact sexual abuse (inappropriate touch, involuntary sexual intercourse). Items in these categories 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 had experienced a particular ACE. 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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Healthcare Access Survey Items

Prior research has examined the association of health coverage and ACE prevalence, but less is known about other aspects of access to healthcare (e.g., having a medical home; cost as a barrier to healthcare) and how ACE type is associated with healthcare access (Monnat & Chandler, 2015). Thus, we examined the prevalence of ACE type (household dysfunction: household mental illness, substance abuse, domestic violence, incarceration, parental separation/divorce; abuse: physical, emotional, sexual) by healthcare access. In 2014, the South Carolina BRFSS collected data on four aspects to healthcare access (see Table 2). Survey items assessed if an individual had any health coverage *(yes/no)* at the time of interview; if cost was a barrier to receiving needed medical care *(yes/no)*; if an individual had one or more people that s/he considered a personal doctor *(yes, one; yes, more than one; no)*; and how long it had been since her/his last check up *(within the past year; within the past 2 years; within the past 5 years; 5 or more years ago; never)*. For analytic purposes, personal care provider response categories were dichotomized *(yes/no)* and recent check up response categories were collapsed *(two years ago or less; more than two years ago; never)*.

ACEs and other BRFSS data are weighted by the CDC so that the data is representative of the adult population of South Carolinians who have land line and cellular telephones. Weighting ensures that groups who are under-represented in the data can be accounted for during data analysis. BRFSS data is weighted to ensure unbiased population estimates by accounting for complex sampling, nonresponse, and non-coverage (e.g., landline versus cell phone data collection; CDC, 2014a). 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.

Prevalence of ACE Types

Sixty percent of South Carolinians reported experiencing at least one ACE (*yes/no;* Morse, Strompolis, Priester, Wooten, 2016). Table 3 presents the prevalence for ACE types. Parental separation/divorce was the most frequently reported, while incarceration was the least frequently reported.

Table 2

Chronic Disease Survey Items	
HEALTHCARE ACCESS	**SURVEY ITEM(S)**
Health Coverage	Do you have any kind of healthcare coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?
Medical Cost	Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?
Personal Care Provider	Do you have one person you think of as your personal doctor or healthcare provider?
Recent Check Up	About how long has it been since you last visited a doctor for a routine check up?

Table 3

Prevalence of ACE Types	
ACE	**PREVALENCE**
Any ACE	60%
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%

Prevalence of Healthcare Access

Table 4 presents the prevalence of healthcare access in South Carolina. Fifteen percent of South Carolinians reported that they did not have any type of healthcare coverage and 17% reported that cost had been a barrier to receiving medical care in the previous 12 months. Similarly, 18% reported that it had been more than two years since they visited the doctor for a routine check up; 22% reported they did not have a personal care provider.

ACE Prevalence and Healthcare Access

Examining ACE prevalence by healthcare access revealed that of those who experienced at least one ACE, 72% reported not having health coverage, 69% disclosed no personal care provider, and 78% indicated that medical costs were a barrier to receiving care (see Table 5). The majority (70%) of South Carolina adults that they have not had a recent check up also reported an ACE. Among South Carolinians reporting any ACE exposure, those who reported that they did not have healthcare coverage (22% vs. 18%), did not have a personal care provider (27% vs. 23%), and that medical cost was a barrier to care (24% vs. 18%) at a higher prevalence than the state prevalence.

Healthcare Access by ACE Type

Table 6 presents healthcare access by ACE type (abuse: physical, sexual, emotional; household dysfunction: mental illness, substance abuse, incarceration, divorce, domestic violence). Healthcare access varies by ACE type; in general, South Carolinians with low access to care (no healthcare coverage, no personal care provider, > two years since most recent check up, and medical cost as a barrier to care) reported higher prevalence of ACE type(s) than the state prevalence.

Table 4

Prevalence of Healthcare Access	
HEALTHCARE ACCESS	**PREVALENCE**
Health Coverage *(no)*	15%
Medical Cost *(yes)*	17%
Personal Care Provider *(no)*	22%
Recent Check Up	
≤ Two years ago	82%
≥ Two years ago	18%

Table 5

Healthcare Access by ACE Prevalence		
HEALTHCARE ACCESS	**ACE**	**NO ACE**
Health Coverage *(no)*	72%	28%
Medical Cost *(yes)*	78%	22%
Personal Care Provider *(no)*	69%	31%
Recent Check Up		
≤ Two years ago	58%	42%
≥ Two years ago	70%	30%

Table 6

Healthcare Access by ACE Type								
HEALTHCARE ACCESS	**HOUSEHOLD MENTAL ILLNESS** *(YES)*	**HOUSEHOLD SUBSTANCE USE** *(YES)*	**HOUSEHOLD INCARCERATION** *(YES)*	**HOUSEHOLD DOMESTIC VIOLENCE** *(YES)*	**PARENTAL SEPARATION/ DIVORCE** *(YES)*	**PHYSICAL ABUSE** *(YES)*	**EMOTIONAL ABUSE** *(YES)*	**SEXUAL ABUSE** *(YES)*
Health Coverage *(no)*	20%	37%	17%	29%	44%	22%	37%	16%
Medical Cost *(yes)*	31%	45%	18%	34%	45%	27%	46%	24%
Personal Care Provider *(no)*	20%	34%	15%	24%	43%	18%	35%	14%
Recent Check Up								
≤ Two years ago	15%	27%	8%	18%	29%	13%	29%	12%
≥ Two years ago	23%	36%	14%	23%	40%	18%	38%	15%

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

Household dysfunction. Thirty-one percent of South Carolinians who reported cost as a barrier to medical care; 23% of those who reported that they had not had a routine check up during the previous two years; and 20% of those who said they did not have a personal care provider endorsed household mental illness. These rates are higher than the overall rate of household mental illness in South Carolina (16%). Almost 50% of South Carolinians who reported that medical cost was a barrier to healthcare; 37% of those reporting no healthcare coverage and/or never having a routine check up; and 34% of those who reported not having a personal care provider reported household substance use. These rates are well above the overall rate of household substance use in South Carolina (29%). South Carolina adults who reported no health coverage (17%) and medical cost as a barrier to care (18%) reported household incarceration at over twice the state prevalence (9%). South Carolinians who reported no health coverage (29%) and that medical cost was a barrier to care (34%) reported the highest prevalence of household domestic violence — almost twice the state prevalence of 20%. Finally, South Carolinians with decreased access to care as indicated by no health coverage (43%), no primary care provider (44%), and medical cost as a barrier to care (45%) reported parental separation/divorce at rates higher than the state prevalence (31%).

Abuse. South Carolina adults who reported medical cost as a barrier to care (27%) reported the highest prevalence of physical abuse, followed by those who did not have healthcare coverage (22%), those without a primary care provider (18%), and those who had not had a routine check up during the previous two years (18%). All of these rates were above the state prevalence for physical abuse (15%). South Carolinians who reported medical cost as a barrier to care (46%), not having health coverage (37%), and not having a personal care provider (35%) reported emotional abuse at a higher prevalence than the state prevalence (30%). Finally, of those who reported medical cost as a barrier to care, 24% reported sexual abuse, which is over twice the state prevalence of sexual abuse (13%).

Cumulative ACEs and Healthcare Access

Research has shown that there is a dose-response relationship between ACEs and health and social outcomes, such that as the number of ACEs increases, the number of negative outcomes experienced also increases (Felitti et al., 1998). Given this dose-response relationship, we examined cumulative ACE exposure in relation to healthcare access variables.

South Carolina adults reporting medical cost as a barrier to care had the highest prevalence of 4 or more (4+) ACEs (28%). For access to healthcare, there is a higher prevalence of no healthcare coverage or personal care provider and a higher prevalence of South Carolinians who reported medical cost as a barrier to care for those reporting 4+ ACEs compared to those reporting one ACE. Table 7 presents healthcare access by cumulative ACEs.

Table 7

Healthcare Access by Cumulative ACEs					
HEALTHCARE ACCESS	**0 ACE**	**1 ACE**	**2 ACEs**	**3 ACEs**	**4+ ACEs**
Health Coverage *(no)*	28%	25%	16%	12%	19%
Medical Cost *(yes)*	22%	21%	16%	14%	28%
Personal Care Provider *(no)*	31%	25%	16%	11%	17%
Recent Check Up					
≤ Two years ago	42%	26%	14%	8%	11%
≥ Two years ago	30%	25%	16%	11%	18%

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

Conclusions

Overall, South Carolinians who experienced ACEs had low rates of healthcare coverage; frequently reported medical cost as a barrier to care; had low rates of having a medical home as illustrated by a lack of a personal healthcare provider; and had low rates of preventative care as indicated by high prevalence of not having a routine check up during the previous two years or ever. Together, these findings suggest decreased access to healthcare among South Carolina adults who experienced ACEs. This is cause for concern, given increased prevalence of preventable chronic diseases among South Carolinians reporting ACEs (Priester, Wooten, Morse, & Strompolis, 2016). Additional research is needed to examine the association between ACEs, access to healthcare, and health outcomes.

The association between ACEs and negative health outcomes later in life has been well-documented (e.g., Anda, Tietjen, Schulman, Felitti, & Croft, 2010; Brown et al., 2009; Dube, Fairweather, Pearson, Felitti, Anda, & Croft, 2009). Improving access to healthcare among persons who have experienced ACEs may be an effective preventative intervention to minimize the impact of ACEs on access to healthcare and health outcomes (Shonkoff, Thomas, & McEwen, 2009). Currently, there is a national movement to incorporate ACE-informed programs into schools, mental health, correctional facilities, and other settings (www.aceresponse.org). However, key researchers have argued that the most advantageous approach to addressing ACEs is to simultaneously target ACEs across multiple domains and settings (e.g., Larkin, Shields, & Anda, 2012). The findings presented here suggest that healthcare settings that are frequented by those with limited access to care (emergency departments, community health centers, indigent care providers, federally-qualified health clinics) may be potential venues for staff training and as intervention points for screening and education about ACE health effects and ACE prevention. Consequently, Children's Trust will continue to work with community partners across the state to identify strategies and opportunities to prevent ACEs and mitigate the negative health effects among South Carolinians. The next research brief in the series will highlight the prevalence of ACEs and behavioral risk factors, as well as further explore potential solutions to ACEs in South Carolina.

References

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D.,…Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience, 256*(3), 174-186.

Anda, R. F., Dong, M., Brown, D. W., Felitti, V. J., Giles, W. H., Perry, G. S., ... & Dube, S. R. (2009). The relationship of adverse childhood experiences to a history of premature death of family members. *BMC Public Health, 9*(1), 1-10.

Anda, R., Tietjen, G., Schulman, E., & Felitti, V. (2010). Adverse childhood experiences and frequent headaches in adults. *The Journal of Head and Face Pain, 50*(9), 1473-1481.

Brown, D. W., Anda, R. F., Tiemeir, H., Felitti, V. J., Edwards, V. J., Croft, J. B., & Giles, W. H. (2009). Adverse childhood experiences and the risk of premature mortality. *American Journal of Preventive Medicine, 37*, 389-396.

Centers for Disease Control and Prevention (CDC). (2014a). *About the Behavioral Risk Factor Surveillance System*. Retrieved from http://www.cdc.gov/brfss/about/about_brfss.htm

Centers for Disease Control and Prevention (CDC). (2014b). *Behavioral Risk Factor Surveillance System: Weighting BRFSS data*. Retrieved from http://www.cdc.gov/brfss/annual_data/2014/pdf/weighting-data.pdf

Dube, S. R., Fairweather, D., Pearson, W. S., Felitti, V. J., Anda, R. F., & Croft, J. B. (2009). Cumulative childhood stress and autoimmune diseases in adults. *Psychosomatic Medicine, 71*(2), 243-250.

Dube, S.R., Anda, R.F., Felitti, V.J., Croft, J.B., Edwards, V.J., & Giles, W.H. (2001). Growing up with parental alcohol abuse: exposure to childhood abuse, neglect and household dysfunction. *Child Abuse Neglect, 25*(12), 1627-1640.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V.,…Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245-258.

Kish, L. (1990). Weighting: Why, when, and how? In *JSM Proceedings*, Survey Research Methods Section (pp. 121-130). Alexandria, VA: American Statistical Association. Retrieved from https://www.amstat.org/sections/SRMS/Proceedings/papers/1990_018.pdf

Larkin, H., Shields, J. J., & Anda, R. F. (2012). The health and social consequences of adverse childhood experiences (ACE) across the lifespan: An introduction to prevention and intervention in the community. *Journal of Prevention & Intervention in the Community, 40*(4), 263-270.

Monnat, S. M., & Chandler, R. F. (2015). Long-term physical health consequences of adverse childhood experiences. *The Sociological Quarterly, 56*(4), 723-752.

Morse, M., & Strompolis, M. (2016a). *Adverse childhood experiences data collection: An overview of the Behavioral Risk Factor Surveillance System (BRFSS)* (Research Brief No. 1). Retrieved from http://scchildren.org/prevention_learning_center/adverse_childhood_experiences_aces/research_briefs/

Morse, M., & Strompolis, M. (2016b). *The adverse childhood experiences study: Lessons learned and future directions* (Research Brief No. 2). Retrieved from http://scchildren.org/prevention_learning_center/adverse_childhood_experiences_aces/research_briefs/

Morse, M., Strompolis, M., Priester, M., & Wooten, N.R. (2016). *Adverse childhood experiences in South Carolina: A summary of dichotomous and cumulative ACEs and demographic prevalence* (Research Brief No. 3). Retrieved from http://scchildren.org/prevention_learning_center/adverse_childhood_experiences_aces/research_briefs/

Oliver, J.E. (1993). Intergenerational transmission of child abuse: rates, research, and clinical implication. *American Journal of Psychiatry, 150*(9), 1315-24.

Priester, M., Wooten, N.R., Morse, M., & Strompolis (2016). *Adverse childhood experiences and preventable chronic disease in South Carolina* (Research Brief No. 5). Retrieved from http://scchildren.org/prevention_learning_center/adverse_childhood_experiences_aces/research_briefs/

Rao, J. N., & Scott, A. J. (1984). On chi-squared tests for multiway contingency tables with cell proportions estimated from survey data. *The Annals of Statistics, 12,* 46-60.

Shonkoff, J.P., Thomas, B.W., & McEwen, B.S. (2009). Neuroscience, molecular biology, and the childhood roots of health disparities: Building a new framework for health promotion and disease prevention. *Journal of the American Medical Association, 301*(21), 2252–2259.