

Adverse childhood experiences: Understanding association with child health outcomes and access to health care using a life course perspective

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Background

As the call for the transformation of the US health care system grows, health care leaders, providers and community systems of care are challenged to catalyze and foster a model of health care focused on addressing the early life and childhood origins of health and adult disease. Against this backdrop, a critical mass of research evidence is supporting the importance of addressing childhood adversity, toxic stress and to promote resilience and family well-being as critical components of health care reform. Advances in knowledge and effective prevention and intervention models in this area are emerging and are expected to have wide reaching impacts; from reducing negative effects associated with maternal stress during pregnancy as well as on healthy parent-infant attachment to reducing youth risk behaviors. Evolving epigenetic and life course research also reveal the potential to not only ameliorate the negative psychological, social and biologic impacts of toxic stress, adverse childhood events and trauma but also to proactively promote strengths, resilience, self-regulation, school and work readiness and positive lifelong health behaviors among all children. Finally, the potential to reduce burden of illness and improve health outcomes for the nation's 20% of children who experience chronic conditions and special health care needs (CSHCN) and the many more who are at risk looms as a priority as we strive to create an effective and sustainable health care system.

Up until now, missing from the dialogue on the design of systems of care to optimize child well-being and address childhood adversity and toxic stress has been population-based data on the prevalence of adversity and resilience and evaluation of associations between these factors and child and family well-being and health care system characteristics and performance.

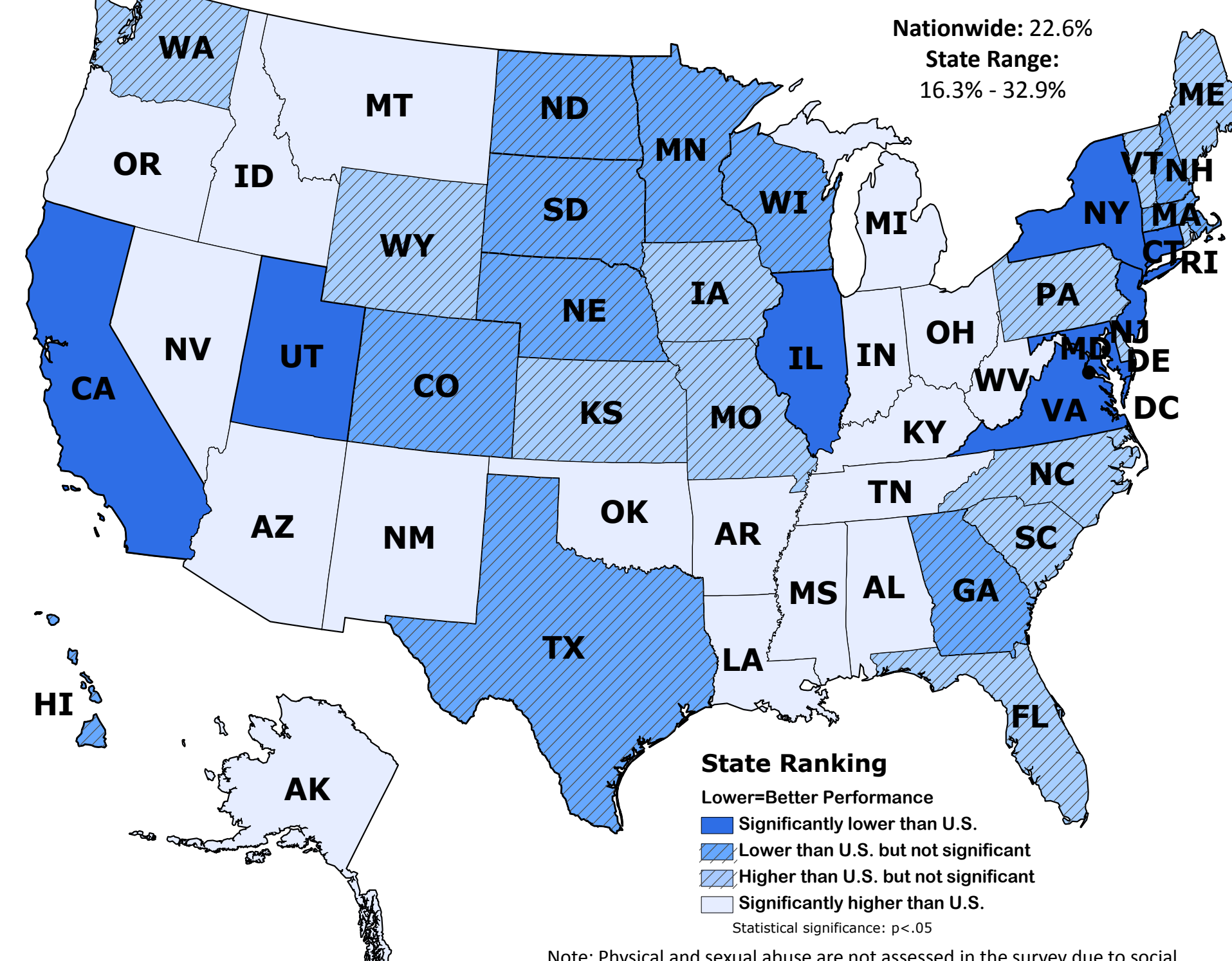
Adverse Childhood Experiences (ACEs) Demographics

Almost half of US children (48%) experienced at least one adverse child/family event in 2011-12. Nearly 25% of US children age 0-17 experienced two or more such Adverse Childhood Events (ACEs), ranging from 16.3% to 32.9% across US states. Children with ACEs are more likely to be older, publically insured, and have lower income than children without ACEs. Children with ACEs are systematically less likely to experience protective home, school and community factors or live in homes with parents who are healthy.

Demographic Characteristics of US Children and Youth Experiencing ACEs for all children and children with special health care needs	All Children			Children with Special Health Care Needs (CSHCN)		
	All children	1 ACE	2+ ACEs	All CSHCN	CSHCN with 1 ACE	CSHCN with 2+ ACEs
Age						
	0-5 years	32.7%	31.2%	18.1%	18.8%	19.9%
	6-11 years	33.2%	33.7%	35.8%	38.0%	37.4%
	12-17 years	34.1%	35.1%	46.1%	43.2%	42.8%
Sex						
	Male	51.2%	52.0%	51.0%	58.1%	55.5%
	Female	48.8%	48.0%	49.0%	41.9%	44.5%
Race/Ethnicity						
	Hispanic	23.7%	27.1%	22.7%	17.4%	20.1%
	White, NH	52.5%	48.2%	48.7%	56.8%	52.0%
	Black, NH	13.5%	15.6%	18.5%	16.4%	18.8%
	Other, NH	10.3%	9.0%	10.1%	9.3%	8.5%
Household Income Level						
	0-99% FPL	22.4%	28.2%	34.6%	23.6%	24.4%
	100-199% FPL	21.5%	25.9%	27.3%	21.6%	24.5%
	200-399% FPL	28.2%	26.9%	26.3%	27.9%	23.5%
	400% or more	27.8%	19.0%	11.8%	26.9%	23.2%
Insurance Status						
	Public Insurance	37.1%	43.4%	55.6%	43.4%	44.2%
	Private Insurance	57.4%	50.0%	37.2%	53.3%	52.0%

National and State Variation

Adverse Child and Family Experiences – Child experienced two or more adverse child/family experiences out of nine items included in the survey.
Data: 2011-12 National Survey of Child Health (NSCH)



Note: Physical and sexual abuse are not assessed in the survey due to social acceptance bias. As these are known to be co-occurring with other ACEs measured, we do not expect the prevalence estimates to change significantly. For more information, visit www.childhealthdata.org

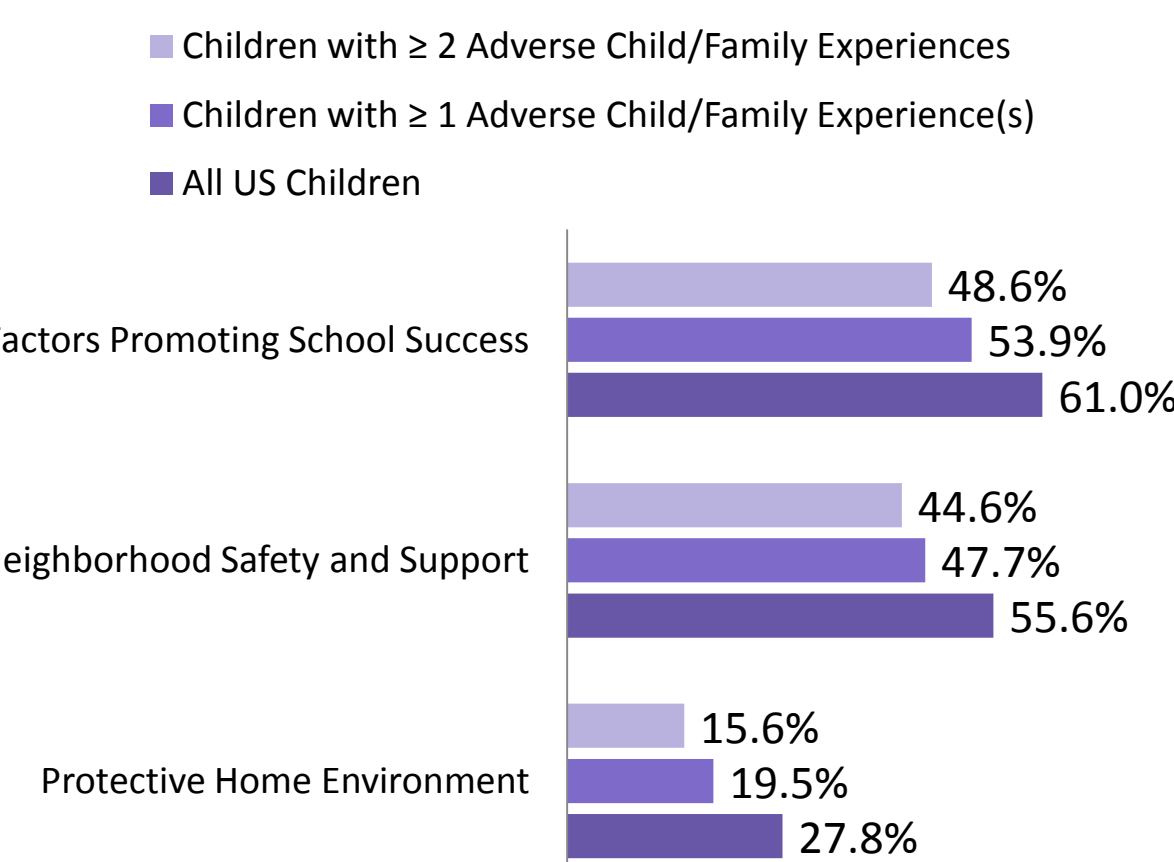
Adverse Child or Family Experiences	National Prevalence	State Range
Child had ≥ 1 Adverse Child/Family Experiences	47.9%	40.6% (CT) – 57.5% (AZ)
Child had ≥ 2 Adverse Child/Family Experiences	22.6%	16.3% (NJ) – 32.9% (OK)
Socioeconomic hardship	25.7%	20.1% (MD) – 34.3% (AZ)
Divorce/parental separation	20.1%	15.2% (DC) – 29.5% (OK)
Lived with someone who had an alcohol or drug problem	10.7%	6.4% (NY) – 18.5% (MT)
Victim or witness of neighborhood violence	8.6%	5.2% (NJ) – 16.6% (DC)
Lived with someone who was mentally ill or suicidal	8.6%	5.4% (CA) – 14.1% (MT)
Domestic violence witness	7.3%	5.0% (CT) – 11.1% (OK)
Parent served time in jail	6.9%	3.2% (NJ) – 13.2% (KY)
Treated or judged unfairly due to race/ethnicity	4.1%	1.8% (VT) – 6.5% (AZ)
Death of parent	3.1%	1.4% (CT) – 7.1% (DC)

Associations of Adverse Childhood Experiences with Home, School and Community Risk and Protective Factors

Interplay between Contextual Factors and ACEs

Where children live, play and learn may be associated with their likelihood of experiencing adverse child and family experiences. Children may be less likely to experience protective home environment factors (e.g. no exposure to household smoking, family shares meals together), neighborhood safety and support (e.g. neighborhood usually/always safe, neighborhood contains three or more amenities) as well as factors promoting school success (e.g. usually/always feels safe at school, participation in extracurricular activities) when they experience adverse child and family experiences.

Associations between ACEs and Home, Neighborhood and School Factors among US Children



	All Children	Children with 1 ACE	Children with 2+ ACEs
Positive and Protective Health Indicators			
Protective Home Environment (no smoking; share meals; limit TV...)	27.8%	22.8%	15.6%
Neighborhood Safety & Support	55.6%	50.6%	44.6%
Factors that Promote School Success	61.0%	59.6%	48.6%
Exhibits resilience: Age 10 mo-5 years	78.7%	75.6%	72.9%
Exhibits resilience: Age 6-17 years	64.7%	62.9%	54.6%
Met All Flourishing Components, 6-17	47.7%	46.3%	35.9%
Met All Flourishing Components, 6mo-5 years	73.2%	68.5%	66.8%
Mother's Overall Health is Excellent/Very Good	56.7%	48.6%	35.8%
Father's Overall Health is Excellent/Very Good	62.0%	52.8%	41.9%
Negative Health Outcomes			
11+ Missed School Days (6-17)	6.2%	6.1%	10.8%
High Levels of Parenting Stress/Aggravated with Child	11.3%	13.2%	17.6%

Positive health indicators are inversely associated with ACEs, with a notable dose-response effect in most cases. The more ACEs a child has, the less likely they are to experience positive health outcomes. This is true for negative health outcomes as well: the more ACEs a child has, the greater the likelihood that the child will experience negative health outcomes.

For example, children with no ACEs have 1.6 times greater odds of meeting the school success summary measure than children with 2+ ACEs after adjusting for age, race, sex, insurance type, poverty level, and CSHCN status (AOR 1.59 95%CI: 1.43-1.77). Children with 1 ACE have 1.3 times greater odds of meeting the school success measure compared to children with 2+ ACEs (AOR 1.3 95%CI: 1.13-1.40). Children with no ACEs have lower odds of having a parent who reports usually or always feeling aggravated with their child compared to children with 2+ ACEs after adjusting for covariates listed above (AOR 0.6 95%CI: 0.53-0.71). Children with 1 ACE are also less likely to have a parent who reports frequent aggravation compared to children with 2+ ACEs (AOR 0.87 95%CI: 0.75-0.99).

Effect of Medical Home on ACEs

Children who receive care within a medical home are known to have positive health outcomes. In the NSCH, the presence of a medical home is measured by a composite variable based on five component variables constructed from a total of 19 survey items. More detail is available by visiting, www.childhealthdata.org

Receiving care within a medical home has an ameliorating effect on negative health outcomes for children with ACEs. Among children with 1 or more ACEs, those who have a medical home are significantly less likely to have missed two or more weeks of school or to have parents who report they are aggravated.

Additionally, having a medical home is a predictor of increased odds of positive health outcomes among children with 1 or more ACEs.

See table below for adjusted odds ratios comparing children with a medical home to those without among children with 1 or more ACEs.

Odds of positive and negative health outcomes by presence of a Medical Home among children with 1 or more ACEs

*Adjusted Odds Ratio (odds of outcome with MH vs odds of outcome without MH among children with 1+ ACEs)	95% Confidence Interval	
Positive Health Indicators		
Protective Home Environment Index (no smoking; share meals; limit TV...)	1.28	1.13-1.43
School Success Index (engaged in school, participate in extracurricular activities, feels safe at school)	1.35	1.21-1.50
Mother's health excellent or very good	1.50	1.36-1.65
Family eats 4 or more meals together a week	1.19	1.07-1.33
Negative Health Indicators		
High levels of Parenting Stress/Aggravated by child	0.52	0.45-0.61
11+ Missed School Days	0.61	0.50-0.74

*After adjusting for age, sex, race, poverty level, insurance type, and CSHCN status

Discussion

Children who experience ACEs are at greater risk for negative health outcomes than their peers without ACEs. We have seen that as a child accumulates ACEs, they are at an increased risk of poor health outcomes. Our results are consistent with the existing literature on impact of ACEs on adult health. Our findings suggest that certain factors may mediate the risk of poor health outcomes given ACEs, notably receiving services to build resilience and care within a medical home. Further research of additional mediating factors is warranted even as emphasis should be placed on prevention of childhood adversity.

References

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