

Research Brief

Adverse Childhood Experience and Developmental Risk in Elementary Schoolchildren¹

Questions: How common are significant adverse events in elementary schoolchildren?
Do adverse events correlate with academic problems and health status in children?

Participants: Elementary school staff reporting on students enrolled in public elementary schools (Grades K-6) in Spokane WA. One hundred and seventy-nine teachers with a second review by building level administrators reported the status of 2,101 children in ten schools.

Method: Using a ‘sentinel’ reporting method with data reflecting information in school records or factual professional knowledge, teachers and building administrators completed reports of known concerns regarding academic, health, and adverse event exposure. In participating buildings, fifty percent of the enrolled students were randomly selected for staff review. Using a common reporting form and variable definitions, the research team trained school staff to report what was known and not to report opinion or suspicions. Reports were made as Yes/No responses. No identifying information regarding students was collected. Student descriptive information included grade, gender, race, Free and Reduced Meal eligibility (a poverty indicator), and Special Education enrollment

Academic problems included: (1) currently not meeting grade level expectations in one or more core subject areas, (2) current attendance problems that interfere with academic progress, and (3) current school behavior concerns that interfere with academic progress.

Health concerns included: seizure disorders, speech/language disorders, autism spectrum disorders, asthma, diabetes, obesity, food allergies, serious dental problems, other chronic health conditions identified by the school staff, and a pattern of student-reported poor health.

An adverse event score was calculated based on lifetime exposure to ten concerns. Adverse events included lifetime and past 12 month occurrence of: CPS referral or placement, homeless or highly mobile (McKinney-Vento Act eligible), parents’ divorce or separation, death of a primary caregiver, family member incarceration, family member physical disability, family member mental illness, family member substance abuse, child witness of domestic violence, and child exposed to community violence. Severe basic need concerns (clothing, food, hygiene) were reported but not included in the calculation of adverse event exposure for predicting child adjustment.

Results: Students were 78% White. Fifty-five percent of students were Free and Reduced Meal eligible. Thirteen percent of students were in Special Education. Staff identified 35% of students with academic problems, 13% with attendance problems, and 27% of students with school behavior problems. Staff identified 21% of children as having chronic health concerns. Specific chronic health conditions occurred infrequently (<3% of sample) with the exception of speech/language problems (8%) and frequent reports of poor health (9%).

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Staff identified 45% of the students who experienced one or more adverse events in their lives. Twelve percent of students experienced three or more adverse events. The following tables present rates of exposure to specific adverse events in the child’s lifetime and in the past 12 months.

Percent of Students by Adverse Event Exposure Types Lifetime and Past 12 Months

	Lifetime	Past 12 months
Parents Divorced/Separated	36%	6%
Residential Instability	9%	6%
Domestic Violence Witness	9%	5%
CPS Involved	9%	4%
Jailed Family Member	9%	4%
Substance Abuse in Family Member	7%	3%
Basic Needs	7%	4%
Mental Health Disorder in Family Member	5%	3%
Physical Disability in Family Member	3%	1%
Community Violence Exposure	3%	1%
Parent/Caregiver Death	2%	1%

Twenty-one percent of the students reviewed experienced two or more lifetime ACEs.

Percent of Students by Number of Adverse Event Exposure Types Lifetime and Past 12 Months

	Lifetime ACE Exposure	Past 12 Month ACE Exposure
None	54%	81%
One	23%	12%
Two	11%	4%
Three	5%	2%
Four	3%	1%
Five	2%	0%
More than Five	1%	0%

The number of adverse events correlates significantly with Free and Reduced Meal eligibility ($r=.35$ lifetime ACEs, $r=.24$ past 12 months ACEs) but is not related to gender, race (White or Students of Color), grade level, or Special Education status.

We grouped adverse events as none, one, two, and three or more adverse events. We used Special Education status, students’ grade level, race, Free and Reduced Meals, teachers, school building, and gender as control variables in generalized estimating equation analyses. Adverse event exposure significantly predicts academic risks and chronic health problems after controlling for these other factors.

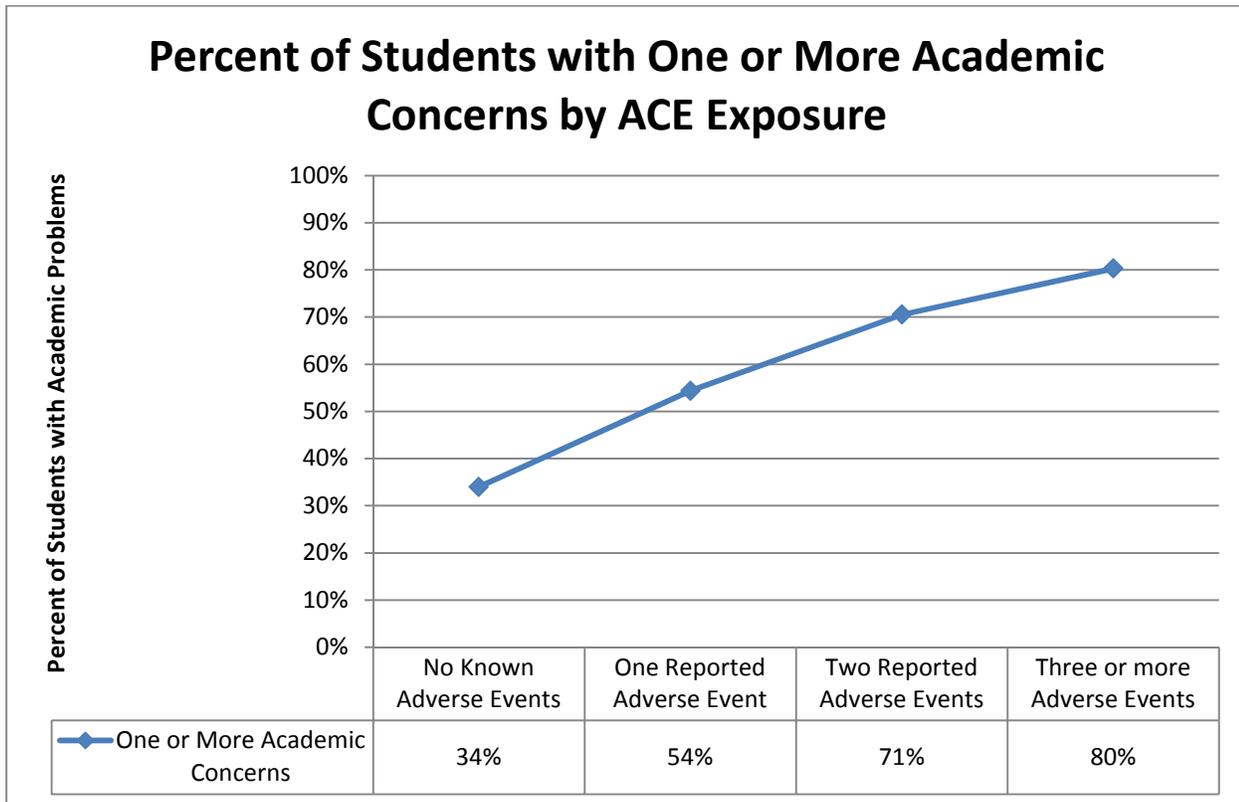
This study supports two conclusions. First, exposure to even one of the ACEs identified in this study increases risk of poor child outcomes. Second, there is a dose effect for ACEs where on all four dimensions of development, development risk increases with increasing numbers of ACEs.

Odds Ratios for Child Development Problems Compared to No Known Lifetime ACEs

	Academic Failure	Severe Attendance Problems	Severe School Behavior Concerns	Frequent Reported Poor Health
2.6	2.9	4.9	6.0	3.9
1.6	2.5	2.9	4.2	2.4
1.7	1.5	2.1	2.2	2.3

*ACE level of exposure in the past 12 months provided comparable risk predictions

For academic and health risk, the level of ACE exposure was the principal predictor of attendance and behavior problems. For academic failure, ACE exposure was the second most powerful predictor of child adjustment following knowing if the child was in Special Education classes. The relationship between ACE exposure and health was restricted to frequently reported poor health. For this health indicator, ACE dose was the sole predictor of risk. The following chart demonstrates the linear relationship between school problems (academic, attendance, and behavior) and the dose of ACE identified for the students.



Conclusion: These results confirm adult studies that adverse event exposure is a common experience in life. The results also support adult research linking adverse events with social and health risks. Significant exposure to adverse events is commonplace with one-in-five young children exposed to two or more significant stressors. We believe this study used a very conservative ACE reporting strategy. Developmental risks resulting from ACEs in the general population are measurable early in childhood and are associated with health status and with academic success as a principal developmental task of childhood.

The results support the relevance of adverse events as a focus for school-based risk reduction efforts. Indeed, these results suggest that attending to ACE exposure in children may be the most powerful predictor of risk for schools to attend compared to other common school risk indicators.

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