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## **FINAL SUMMARY OVERVIEW**

### **A Comprehensive Longitudinal Study of School Violence and the School-to-Prison Pipeline: Root Causes and Consequences of and Implications for Restorative Justice Approaches**

**GRANT NUMBER: 2016-CK-BX-0014**

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## **Abstract**

Since the Columbine High School massacre in 1999, active shooter incidents and school safety issues continue to be a national concern that legislators, educators, parents, and communities are working to address. The current study employed a multi-systems approach to understanding the root causes of school violence by utilizing ten years/15 cohorts of longitudinal data from the state of Oregon Department of Education (ODE), Oregon Juvenile Justice (JJIS)), Health Authority (OHA), and Department of Human Services (DHS). Our research questions were: (1) What are the potential root causes and related factors that contribute to school violence? (2) What are the disciplinary responses to school violence, and are rates of suspensions and expulsions equivalent across demographic subgroups of students? (3) What is the sequence of events that lead from a school-related disciplinary incident to an arrest and to juvenile or adult court involvement and disposition, and which individual, family, school, and neighborhood factors influence this trajectory? and (4) What are the responses to and consequences of shootings in K–12 public school settings? Our results highlight the deleterious effects of transitions to 6 to 8 middle schools, early school disciplinary actions such as suspensions, and toxic disproportionalities placing minority students at heightened risk.

**A Comprehensive Longitudinal Study of School Violence and the School-to-Prison Pipeline: Root Causes and Consequences of and Implications for Restorative Justice Approaches**

Since the Columbine High School massacre in 1999, active shooter incidents and school safety issues continue to be a national concern that legislators, educators, parents, and communities are working to address. Federal and state legislation, such as zero tolerance policies, threat assessments, use of school safety officers, emergency drills, mental health service changes, and others have been put into effect as an attempt to reduce the incidence of school violence, including active shooter incidents. Each school violence incident prompts people to speculate about what could have been done to intervene earlier. The identification of early warning signs has helped educators identify students at risk for violent behavior. Research has shown youth at greatest risk for violence exhibit multiple warning signs repeatedly and with progressively greater intensity (Dwyer, Osher, & Warger, 1998). To date, researchers have identified a broad range of influences on school violence, including risk factors within the individual, family, school, neighborhood, juvenile justice system, child protective services, and social services systems (e.g., Johnson, Burke, & Gielen, 2011). However, these risk factors are typically examined in separate studies, focusing on one or two social domains of influence at a time. It has been over 20 years since Laub & Lauritsen (1998) pointed out the interdependence of school, neighborhood, family, and juvenile justice factors in their roles predicting school violence. Critically, they warned that investigating a predictor in one domain while ignoring other predictors may lead to incorrect conclusions about the factors that contribute to school violence. Yet, we continue to experience a critical need for studies that approach the root causes of school violence from a multi-systems approach.

Gellman and Delucia-Waack (2006) describe school violence as a “public health and safety condition that often results from one’s individual, social, economic, political, and institutional disregard for basic human needs.” Although it is clear that childhood adversity (e.g., trauma, exposure to violence, poverty), school climate, and school disciplinary practices contribute to school violence, less is known about the ways these multiple factors (and the individual variables within each domain) work together in predicting school violence. Studies that consider one or few root causes of school violence may lead to incorrect conclusions for two reasons – (1) the risk factors within the school, family, and poverty domains are interrelated (e.g., suspension rates are higher in schools that serve impoverished neighborhoods; Lleras , 2008) and studies that exclude critical systems may incorrectly attribute causality to spurious variables; (2) risk factors may function differently in different contexts (e.g., effects of school discipline on school violence may depend on neighborhood composition and social disorganization [Gottfredson & Gottfredson, 1985] and on the parents’ own views on and involvement in violent behavior [Soller, Jackson, & Browning, 2014]). To provide more accurate conclusions about the root causes of school violence, studies require comprehensive, multi-systemic analyses that can help identify key variables that can serve as leverage in preventing school violence, while including analyses that test the interactive effects.

**The current study employed a multi-systems approach to understanding the root causes of school violence by utilizing ten years/15 cohorts of longitudinal data from the state of Oregon Department of Education (ODE), Oregon Juvenile Justice (JJIS)), Health Authority (OHA), and Department of Human Services (DHS). Our research questions were:** (1) What are the potential root causes and related factors that contribute to school violence? (2) What are the disciplinary responses to school violence, and are rates of suspensions and

expulsions equivalent across demographic subgroups of students? (3) What is the sequence of events that lead from a school-related disciplinary incident to an arrest and to juvenile or adult court involvement and disposition, and which individual, family, school, and neighborhood factors influence this trajectory? and (4) What are the responses to and consequences of shootings in K–12 public school settings? This report describes an overview of findings related to each research question that were developed with support from funding through the Comprehensive School Safety Initiative (CSSI NIJ Award 2016-CK-BX-0014).

### **Research Methods**

**Sample and Data Sources.** This study utilized a robust multiagency longitudinal dataset developed using a resource provided through Oregon state agencies that allows for linking masked identifiers across agency datasets called the *feeder system*. Integrated Client Services created a masked identification code for each student in Oregon to support matching of records that includes more than 10 years of records (2004-2015); RMC Research created a single comprehensive dataset to support analyses of Research Questions 1-3. A full list of agencies and the subset of variables included in the dataset appears in Appendix A. The full merged dataset contains 5,129,815 student-level records from the Oregon Department of Education from the 2004/05 through 2012/13 academic year for all K-12 students and comprises student characteristics; masked school information; attendance records; student performance; behavior and discipline information; and graduation outcomes. For each student, these data are matched to data from DHS (child welfare, foster care, self-sufficiency); OHA (medical assistance, mental health treatment services, alcohol and drug treatment services); and JJIS (juvenile referral and disposition records, risk level). JJIS data were provided through 2014/15 to model longer-term

outcomes for students in Oregon. Research question 4 was addressed through qualitative interviews and literature reviews.

**Analyses.** We investigated root causes of school violence within the individual, family, school, juvenile justice, child protective services, and social services systems. Analyses to address research questions utilized SPSS, Mplus (Muthén & Muthén, 2014), and HLM to estimate models for count and binary outcomes related to the probability that students would be cited for problem behavior, receive exclusionary discipline, or be adjudicated, calculate random intercepts and slopes for cross classified models, estimate a variety of mixture models, and provide opportunities for Full Information Maximum Likelihood estimation to address missing data.

Table 1 provides yearly student enrollment numbers. Analyses utilized 15 cohorts that provided at least 4 data points (highlighted in gray and black) for a total of about 855,580 unique youth (accounting for movement into and out of ODE records) and 5,129,815 observations of youth across time points.

**Table 1. Student Enrollment**

Grade	School Year									Total
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	
K	37,709	38,350	39,896	40,740	41,410	41,469	41,826	42,407	44,361	368,168
1	42,826	43,272	43,442	43,235	42,817	43,148	43,403	42,976	44,851	389,970
2	41,896	43,329	43,358	43,759	43,426	42,779	43,350	43,123	43,617	388,637
3	42,429	42,587	43,499	43,675	43,763	43,558	42,998	43,000	43,622	389,131
4	42,290	43,279	42,987	43,760	44,093	43,945	43,880	42,615	43,440	390,289
5	42,363	42,964	43,520	43,249	44,092	44,065	44,152	43,462	43,210	391,077
6	43,262	43,374	43,876	44,070	43,732	44,576	44,482	43,722	44,181	395,275
7	44,765	43,949	43,510	43,886	43,933	43,644	44,485	43,991	44,296	396,459
8	46,049	45,469	44,334	43,790	44,177	44,189	43,830	44,249	44,599	400,686
9	47,698	48,201	46,949	45,781	44,901	45,215	45,243	44,228	45,559	413,775
10	46,472	47,869	47,889	46,757	45,441	44,803	45,160	44,828	44,811	414,030
11	43,643	45,519	46,512	46,172	45,473	44,595	44,213	43,804	44,446	404,377
12	40,354	42,156	42,817	43,596	43,788	43,307	43,155	42,257	46,511	387,941
Total	561,756	570,318	572,589	572,470	571,046	569,293	570,177	564,662	577,504	5,129,815

*Note.* Highlighted cohorts contain at least four time points of records.

Across research questions 1 to 3, the key analyses focused on the trajectories of school violent and aggressive behavior in grades K-12 grade. Cross-classified multilevel models

(Raudenbush & Bryk, 2002; Snijders & Bosker, 1999) were used to estimate the trajectories of outcome variables – school incidents of *total* problem behavior, *violent* behavior, *nonviolent* problem behavior; school exclusionary practices, including expulsions, out-of-school suspensions, and in-school suspensions; and official records of adjudications for *any* offense, *non-person* offenses, and *person* offenses. The models utilized a Poisson function to model count outcomes and Binomial function to model binary outcomes. Piecewise, quadratic, and cubic models were compared to estimate the best-fitting trajectories. All models controlled for youth gender, student race/ethnicity, poverty, special education status, and English language proficiency. All analyses tested the proposed hypotheses for each outcome variable in a separate model, as well as in a combined model of total school violent behavior. Furthermore, all models explored whether the key observed effects are moderated by grade (i.e., whether our models gain predictive ability for older vs. younger children).

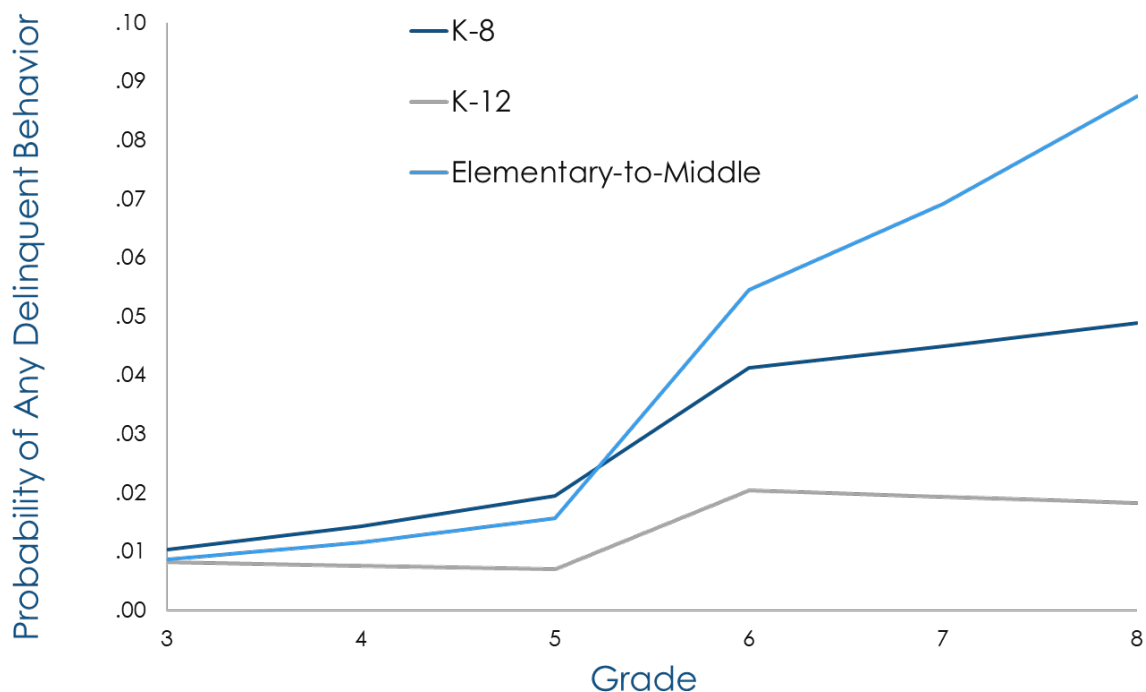
## Results

We identified contextual and individual characteristics that contribute to school violence through the middle school years, a peak time of transition and risk for increasing problem behavior patterns of school transitions (Dmitrieva, Espel, & Smokowski, under review); reported on patterns of exclusionary disciplinary practices that contribute to youth involvement in the juvenile justice system (i.e., the school-to-prison pipeline; Dmitrieva, Espel, & Smokowski, 2019; Espel, Dmitrieva, & Smokowski, 2019); identified rates of suspensions, expulsions, and adjudication across subgroups of students throughout policy changes in Oregon (Espel, Dmitrieva, & Smokowski, 2019); examined adverse childhood experiences characterized by placement within the foster care system and the relationship to problem behavior and juvenile justice involvement (Espel, Dmitrieva, & Smokowski, 2020); and reviewed school safety



strategies that have been used to address some of these root causes (Smokowski, Espel, & Dmitrieva, under review). A summary of these findings organized by research question is presented next.

**Research Question 1 - Root Causes:** RMC Research conducted analyses related to the first research question that explores the individual- and school-level influences on the trajectory of student disciplinary incidents during the transition to middle school. We explored how the presence or absence of school transition from grades 5 to 6 influenced trajectories of school problem behavior using multilevel cross-classified logistic regressions for grades 3-8 in four cohorts of students from schools in Oregon between 2004/05 and 2011/12. We found consistent and significant escalations in youth problem behavior overall, as well as violent and nonviolent problem behavior, in the transition from 5th to 6th grades when students were changing schools. Figure 1 demonstrates the effect of school transition among boys.



**Figure 1. The Impact of School Transition Between the 5<sup>th</sup> and 6<sup>th</sup> Grades for Boys**

Importantly, this escalation in problem behavior was most pronounced for students who transitioned into 6-8 middle schools, relative to K-12 (most protected) and K-8 grade spans. Similar pattern of findings was observed for girls, albeit at a lower rate of overall problem behavior.

These findings confirm a period of risk for problem behavior including violence (i.e., the 5-6 grade transition) and suggests the rise in problem behavior that accompanies school changes (i.e., 6-8 middle schools) versus low risk (i.e., K-12 schools) may be accounted for partially by new social norms and expectations by peers and adults. As expected during adolescence, all students increased overall problem behavior, violent behavior, and nonviolent problem behavior over grades. While individual characteristics such as race/ethnicity, economic disadvantage, English proficiency, and special education services explain some of the variance in outcomes, they do not fully explain why students who experience a school transition also exhibit higher levels of problem behavior. Beyond individual characteristics, school characteristics explain this difference, with higher student enrollment, greater school-level rates of antisocial behavior among peers, and greater reliance on exclusionary disciplining being associated with greater elevations in problem behavior during the 5<sup>th</sup>-through-6<sup>th</sup> grade transition. These findings suggest that it is the loss of smaller, less antisocially-prone, and less punitive environment that helps account for the escalation of student problem behavior during school transition. Findings have implications for supporting student adjustments to middle school and curbing the rise in violence and problem behaviors. The research team shared findings through the American Society for Criminology Conference (Dmitrieva & Espel, 2018), local dissemination meetings including a webinar (Dmitrieva, Smokowski, & Espel, 2020), and within a manuscript for professional publication (Dmitrieva, Espel, & Smokowski, under review).

RMC Research conducted analyses to identify the relationship between early adverse childhood experiences and problem behavior. In particular, the analyses described the relationship between students' placement in foster care, related school transitions, and school-based problem behavior for 132,470 Oregon students in grades K-8 across 9 years. Descriptive and correlational analyses suggest students who were involved in foster care were more likely to display problem behavior, receive exclusionary discipline, and experience more school transitions over time than their peers who were not in foster care. School transitions, independent of foster care involvement, were related to student problem behavior and exclusionary discipline. A presentation was accepted to the Society for the Psychological Study of Social Issues scheduled for June 2020; however, the meeting was cancelled due to COVID-19.

**Research Question 2: Disproportionalities.** RMC Research conducted additional analyses related to the first research question that identified how race/ethnicity, socio-economic status, and the context of middle school problem behavior were related to disciplinary actions and subsequent involvement in the justice system. We examined longitudinal school and juvenile justice records of 86,776 Oregon public school students. Multilevel models examined individual- and school-level predictors of the elementary school trajectories of disciplinary actions and multilevel structural equation models tested elementary school disciplinary actions as predictors of later (6th-to-9th grade) trajectories of youth involvement in the juvenile justice system. Both racial/ethnic and economic characteristics predicted elevated risk for disciplinary actions. After controlling for in-school offending, African-American students continued to have a disproportionately elevated risk for disciplinary actions (higher risk for both low- and high-offending youth). For Hispanic-American students, the disproportionality of disciplinary actions emerged among students with higher rates of offending. The research team presented the

findings from this analysis at the American Society of Criminology Annual Meeting, San Francisco, CA (Dmitrieva, Espel, & Smokowski, 2019).

RMC Research incorporated consideration of the school response to problem behaviors and possible disproportionality subgroups into most analyses. Specifically, the analyses that identified the relationship between individual and school risk factors, disciplinary actions, and subsequent involvement in the justice system mentioned above (Dmitrieva, Espel, & Smokowski, 2019) included discrete examination of demographic risk factors for school discipline as well as the disproportionality of school disciplinary actions. After controlling for in-school offending, African-American students continued to have a disproportionately-elevated risk for disciplinary actions (higher risk for both low- and high-offending youth). For Hispanic-American students, the disproportionality of disciplinary actions emerged among students with higher rates of offending. These disproportionalities emerged as early as elementary school. Although African American students only represented 3% of the analysis sample, they had an in-school suspension rate double the rate for White students (12% African American versus 6% White) and 4 times the rate of out of school suspensions (24% African American versus 6% White students). The probability of any disciplinary action was higher for African American students as they progressed to higher grade levels, relative to other racial/ethnic groups. Native American and Latinx students had rates similar to rates for White students.

**Research Question 3: Juvenile Justice Involvement.** Children who exhibit early behavioral problems at school are also more likely be suspended or expelled, putting them at risk of entering the school-to-prison pipeline (Christle, Jolivette, & Nelson, 2005). These consequences are particularly accelerated for students who are Black, male, or qualify for free or reduced-price lunch (Texas Appleseed, 2007). Using the sample described in Research Question

2, multilevel models examined individual- and school-level predictors of the elementary school trajectories of disciplinary actions and multilevel structural equation models tested elementary school disciplinary actions as predictors of later (6th-to-9th grade) trajectories of youth involvement in the juvenile justice system. Both racial/ethnic and economic variables predicted elevated risk for disciplinary actions as stated above. Analyses showed that early school disciplinary actions elevated the risk for subsequent involvement with the juvenile justice system (controlling for rates of offending). Disproportionality of school disciplinary actions exacerbates this risk, and these patterns of elevated risk are especially relevant for economically disadvantaged and minority youth.

Descriptive analyses of rates of adjudication data suggest that overall rates of adjudication of youth for all types of crimes decreased following legislation passed to reduce suspensions and expulsions and thereby interrupt the school to prison pipeline. Despite these trends, minority youth, especially African-American and Hispanic youth, are overrepresented within adjudicated youth relative to their representation in the population of students in the education system, suggesting some discipline disparities may yet exist. These findings were presented at the American Society of Criminology Annual Meeting, San Francisco (Espel, Dmitrieva, & Smokowski, 2019) and via a webinar requested by stakeholders from each agency who provided data and local education agencies.

Each of these analyses examine the impact of important potential root causes and related factors that contribute to school violence, including individual characteristics, school characteristics, and community characteristics involving foster care. Our results highlight the deleterious effects of transitions to 6 to 8 middle schools, early school disciplinary actions such as suspensions, and toxic disproportionalities placing minority students at heightened risk.

**Research Question 4: Responses to shootings in K–12 public school settings?** We interviewed school principals who had experienced active shooter incidents in their schools. Although principals illuminated their perspectives, we were not permitted to talk to staff, teachers, students, or other administrators. The active shooter incidents created longstanding emotional coping challenges and trauma that the school leaders did not want us to stir up with our interviews. Consequently, we conducted an extensive review of research on school safety strategies.

Our extensive review of school safety data, programs, and practices leads to clear conclusions and recommendations. All extant data, including nationally representative longitudinal student surveys and school administrative data on discipline, show American schools to be safe spaces. Indeed, almost all indicators of violence and victimization have trended downward over the past three decades. Despite this clear and significant progress, pervasive media coverage of mass shootings has prompted high levels of anxiety and “hardening” of U.S. schools with increasing security measures, lockdown drills to prepare for active shooter incidents, and zero tolerance discipline policies that strengthen the classroom to courthouse link. Although students have a 1 in 2005 chance of being exposed to gunfire at school and a 1 in 1.5 million chance of being killed in school, nearly all American students have participated in lockdown drills. Research indicates these drills do not enhance safety, but rather increase fear and anxiety for most students and trigger victimization memories for students who have been abused outside of school. Similarly, threat assessments are backed with little evidence and raise concerns about profiling high-risk youth who already are marginalized.

Evidenced-based decision-making would lead school administrators and policymakers to refocus school safety resources on reducing bullying/cyberbullying and addressing Adverse

Childhood Experiences. Bullying victimization has been the most prevalent school discipline concern for decades with little change in rates. More recently, cyberbullying has added 24/7 access and unlimited repetition to victims' suffering. Research clearly shows bullying and cyberbullying perpetration and victimization to be root causes of school violence, longitudinally associated with aggression, violence, criminality, depression, and self-harm. In addition, Adverse Childhood Experiences such as divorce, socioeconomic disadvantage, and exposure to family or community violence, impact more than half of American youth, necessitating schools to deal with the consequences of juvenile traumatic stress.

Evidence-based archives such as the What Works Clearinghouse and CrimeSolutions.gov provide little direction for choosing effective programs to enhance school safety. Most extant programs target elementary school students and have modest effects. The only available programs for addressing childhood trauma are Cognitive Behavioral Intervention for Trauma in Schools (CBITS) for middle school students and Safe Dates relationship violence prevention for ninth graders. Fortunately, CrimeSolutions.gov classifies both bullying and cyber-bullying prevention as "effective" practices. However, as a bundle of disparate practices, this provides no guidance on choosing classroom-based curricula, teacher training, all-school initiatives, or direct intervention with victims or bullies.

Overall, it is clear that school safety strategies require more specific and increasingly rigorous research so we do not expose 50 million American students to untested strategies that may only increase fear and anxiety. After decades of program evaluations, evidence-based archives provide little guidance to focus decision-making. With students' mental health and well-being at stake, it is critical to invest our resources, energy, and innovation on high-prevalence, toxic stressors such as bullying/cyberbullying victimization and adverse childhood experiences.

With few effective evidenced-based options, school administrators may wish to explore the simplest alternative – fashioning a positive, personal, and inclusive “small school” climate where students feel valued and secure and training all members of the school community to handle adverse experiences with resilience and interpersonal support.

### **Potential Impact**

Numerous studies have examined risk and protective factors that contribute to violent behavior, and other studies have shown links between school disciplinary actions and student involvement in the juvenile justice system. However, to date no multilevel, statewide, longitudinal study of the root causes of school violence has been published that incorporates individual-level data on hundreds of thousands of students over many years from multiple state agencies. The findings from this study have the potential for significant scientific advancements in the areas of school safety and criminal justice in the U.S. by (a) expanding the evidence base of root causes of school violence to include cross-classified (individual and school) risk and protective factors, (b) identifying disparities that exist on factors such as gender, race/ethnicity, English language learner status, and disability in the disciplinary response to school violence, and (c) tracing the effect of multisystemic root causes of school violence across multiple cohorts of students over 10 years. The advancement of knowledge mapping these multilevel root causes of school violence have direct critical implications for school safety practices and policies (i.e., disciplinary policies, practices in handling ACEs, school transition policies and practices).

### **Implications for Criminal Justice Policy and Practice in the United States**

The findings from this study have significant implications for criminal justice policy and practice in the United States. By illuminating individual, family, and school risk factors and their influence on violent behavior over time, the study has the potential to improve the precision and



timing of the use of early warning indicator systems in educational settings. Such enhancements have the potential to influence how educators, law enforcement officers, and others can best support youth to reduce violence in schools and communities.

## References

- Christle, C. A., Jolivette, K., & Nelson, C. M. (2005). Breaking the school to prison pipeline: Identifying school risk and protective factors for youth delinquency. *Exceptionality, 13*(2), 69-88.
- Dmitrieva, J., Espel, E., & Smokowski, P. (under review). The impact of school transitions on middle school student problem behavior. *Child Psychiatry and Human Development*.
- Dmitrieva, J., Espel, E., & Smokowski, P. (2019). *Understanding Pathways of the School-to-Prison Pipeline: Risk Factors, School Discipline Disproportionality, and Subsequent Involvement with the Juvenile Justice System*. Paper presented at the American Society of Criminology, San Francisco, CA.
- Dwyer, K., Osher, D., & Warger, C. (1998). *Early warning, timely response: A guide to safe schools*. Washington, DC: U.S. Department of Education. Retrieved from [cecp.air.org/guide/guide.pdf](http://cecp.air.org/guide/guide.pdf)
- Espel, E., Dmitrieva, J., & Smokowski, P. (2019). *The Relationship between Oregon School Discipline Code and Juvenile Justice Involvement*. Paper presented at the American Society of Criminology, San Francisco, CA.
- Espel, E., Smokowski, P., & Dmitrieva, J., (2020). *Fostering students: Home, school, and behavioral transitions for students in foster care*. Paper accepted for presentation at the Society for the Psychological Study of Social Issues annual meeting, Denver, CO.
- Gellman, R. A., & Delucia-Waack, J. L. (2006). Predicting school violence: A comparison of violent and nonviolent male students on attitudes toward violence, exposure level to violence, and PTSD symptomatology. *Psychology in the Schools, 43*(5), 591-598.
- Gottfriedson, G. D., & Gottfriedson, D. C. (1985). *Victimization in Schools*. New York: Plenum.

- Johnson, S. L., Burke, J. G., & Gielen, A. C. (2011). Prioritizing the school environment in school violence prevention efforts. *Journal of School Health, 81*(6), 331-340.
- Laub, J. H., & Lauritsen, J. L. (1998). The interdependence of school violence with neighborhood and family conditions. *Violence in American schools: A new perspective, 127*, e155.
- Lleras, C. 2008. Hostile school climates: Explaining differential risk of student exposure to disruptive learning environments in high school. *Journal of School Violence 7* (3): 105–135.
- Muthén, L.K., & Muthén, B.O. (2014). *Mplus: Statistical analysis with latent variables. User's guide* (7th ed.). Los Angeles, CA: Author.
- Raudenbush, S.W., & Bryk, A.S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Second edition. Newbury Park, CA: Sage.
- Smokowski, P., Espel, E., & Dmitrieva, J. (under review). School safety: Context, concerns, and evidenced-based practices. *American Educational Research Journal*.
- Snijders, T. & Bosker, R. (1999). *Multilevel analysis. An introduction to basic and advanced multilevel modeling*. Thousand Oakes, CA: Sage.
- Texas Appleseed. (2007, October). *Texas' school-to-prison pipeline: Dropout to incarceration—the impact of school discipline and zero tolerance*. Austin, TX: Author.

## Appendix A: Participant Sample and Measures

### Sample Description

Students from 15 cohorts (n=855,580 unique youth) contribute to the possible dataset. Each cohort has at least four time points from which to examine trajectories of school violence.

Exhibit 1 displays rates of exposure to adverse childhood experiences across time points.

### Exhibit 1. Sample Characteristics

Characteristic or ACE	N	%
Received Exclusionary Discipline	159,747	19
Arrested for School Violence	550	<1
Special Education	144,929	17
Special Education: Behavioral or Emotional Disability	11,368	1
Foster Care	31,130	4
Child Protective Services Referral	67,628	8
Self Sufficiency: Domestic Violence Services	5,639	1
Mental Health Treatment	101,105	12
Alcohol or Drug Treatment	37,166	4
Poverty: Self-Sufficiency Services	360,411	43
Poverty: Medical Assistance	346,034	40
Poverty: TANF	36,459	4
Poverty: SNAP	282,857	33
Poverty: Eligible for Free or Reduced-Price Lunch	481,115	53

### Measures

Exhibit 2 summarizes data elements and data partners from whom data were provided that are available to operationalize each construct included in the theoretical and analytic models. All datasets were linked using a masked student identification code; some records include masked family identifiers.

### Exhibit 2. Data Elements and Sources

Construct	Sub-Construct	Data Elements	Source
Adverse Childhood Experiences	Child maltreatment	Number of CPS claims overall and for each reason	DHS: CPS

## Multi-Agency Multi-Cohort Study of School Violence, A20

		Reasons for CPS referrals: fatality, mental injury, neglect, physical abuse, sexual abuse, threat of harm, caregiver alcohol/drug problem, domestic violence, inadequate housing	DHS: CPS
		Substantiated maltreatment claims information: type of maltreatment, history of maltreatment claims for individual child, history of maltreatment claims for family	DHS: CPS
		Referral outcomes: indicator of whether or not post-response services were received, foster care	DHS: CPS
		History of domestic violence	DHS: SS
	Foster care	Number of placements	DHS: FC
		Duration	DHS: FC
		Indicator of voluntary placement (no corresponding CPS record)	DHS: FC
		Placement type: Pre-adoptive home, kin, non-kin, group home, institution, supervised independent living, runaway, trial home visit, unknown	
	Claim history	History of caregiver disabilities	DHS: CPS
		History of caregiver alcohol and/or drug problems	DHS: CPS
		History of domestic violence	DHS: CPS
		History of inadequate housing	DHS: CPS
	Poverty	Qualification for school free or reduced-price lunch	ODE
		Supplemental Nutrition Assistance Program (SNAP)	DHS: SS
		Division of Medical Assistance Programs (DMAP)	OHA: MA
		Employment Services	DHS: SS
		Child Care Services	DHS: SS
		Temporary Financial Assistance for Needy Families (TANF)	DHS: SS
		Dates of service enrollment	DHS: SS
		County/region where services were received	DHS: SS
	Other	Refugee services	DHS: SS
School Characteristics and School Experience	Student characteristics/school experience	Age	ODE
		Race/ethnicity	ODE

## Multi-Agency Multi-Cohort Study of School Violence, A21

		Gender	ODE
		English proficiency (and language of origin)	ODE
		Attendance	ODE
		Grade 3 test scores	ODE
		Special education eligibility date	ODE
		Special education disability	ODE
		Special education services received	ODE
		Indicator of school transitions (typical and atypical)	ODE
		Diploma/diploma expected	ODE
		Gifted and talented	ODE
		Repeated grade(s)	ODE
		County of attendance	ODE
		Number and duration of exclusionary discipline experiences	ODE
		Age at first violent behavior in school	ODE
	School characteristics <sup>1</sup>	Masked school ID	ODE
		Masked district ID	ODE
		Enrollment	ODE
		Grade span	ODE
		Percent of students by race/ethnicity	ODE
		Percent of students in Special Education	ODE
		Percent of students at poverty	ODE
		Percent of students who are gifted and talented	ODE
		Percent of students in foster care	ODE
		Percent of students with history of maltreatment	ODE
		Percent of students proficient on state tests at Gr. 3	ODE
		Exclusionary discipline rates (overall and by subgroup, including discipline risk ratios)	ODE
Student Behavioral Health	Mental health	State service for mental health treatment (counts)	OHA: MH
		Service priority level	OHA: MH
		Serious Mental Illness indicator	OHA: MH
		Serious Emotional Disturbance indicator	OHA: MH

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		Living arrangement during treatment: private residence /w parents or caregiver; private residence w/o parents; foster care; residential treatment facility; institution; homeless; residential group home/other residence; other	OHA: MH
		Treatment referral source: none, health provider, local state agency, school, dev. Disabilities, child welfare, criminal justice agency, personal support system	OHA: MH
		Dates of enrollment	OHA: MH
		Special education: emotional/behavioral disorder indicator	ODE
		Suicidal behavior indicator	ODE
	Alcohol, tobacco, and drug use	State service records	OHA:AD
		Primary drug (state service only)	OHA:AD
		Dates of treatment (state service only)	OHA:AD
		Count of state treatment episodes	OHA:AD
		School tobacco use, possession, or sale	ODE
		School alcohol use, possession, or sale	ODE
		School drug (non-tobacco/non-alcohol) use, possession, or sale	ODE
School Violence	Student behavior problems	Fighting	ODE
		Bullying	ODE
		School threats	ODE
		Weapons at school (including weapon type indicator)	ODE
		Any school violence	ODE
		Other behavior problems	ODE
	Disciplinary actions	In-school suspension	ODE
		Out-of-school suspension	ODE
		Expulsion	ODE
		Weapon type	ODE
		Student arrest	ODE
Juvenile Justice Involvement	Involvement	Referrals (number, type, infraction)	JJIS
		Dispositions	JJIS
		Dates of referral	JJIS
		Disposition type	JJIS
		Age at first referral	JJIS
		Violent vs. nonviolent indicator	JJIS

		Risk assessment	JJIS
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DHS: Department of Human Services (Foster Care [FC]; Child Protective Services [CPS]; Self-Sufficiency [SS])

OHA: Oregon Health Authority (Mental Health Treatment Services [MH]; Alcohol and Drug Treatment Services [AD]; Medical Assistance [MA])

ODE: Oregon Department of Education

JJIS: Juvenile Justice Information System

Exhibit 3 demonstrates the years of data available from each data source.

### Exhibit 3. Data Availability by Agency and Years

	Prior to 04/05	04/05- 05/06	05/06- 06/07	06/07- 07/08	07/08- 09/10	09/10- 10/11	10/11- 11/12	11/12- 12/13	12/13- 13/14	13/14- 14/15
DHS:CPS										
DHS:FC										
DHS:SS										
OHA:MA										
ODE										
OHA:MH										
OHA:AD										
JJIS									*	*

\* Data available for students who were in the dataset prior to 2013