

## Diverted Lives: How adversity compromises the postsecondary opportunities of Washington youth

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## Executive Summary

The purpose of this report is to examine community level characteristics that may explain variations in postsecondary educational enrollment across Washington State communities. Previous reports in this series addressed Kindergarten school readiness and overall K-12 success and the impact of community characteristics.

We re-confirmed a key finding from the previous reports: the level of poverty and the degree to which early life adversity is common within a community are highly predictive of variations in academic success and youth wellbeing. Indeed, we previously documented that poverty and adversity as summary community characteristics subsume a wide range of economic, social, and health differences. In this report, we continued a focus on the interplay of poverty and adversity on school outcomes and youth wellbeing.

A significant percent of students across all schools report persisting struggles with exposure to adverse experiences and adjustment. Adversity in this report refers to students' reports of emotional, physical, and sexual abuse before the age of 18 years. Adjustment struggles include not being safe at school, bullying victimization, binge drinking, and poor social emotional self-management skills. ***Sixty-six percent of students reported one or more areas of adjustment struggles identified in this study.*** While adjustment problems are not exclusively associated with adversity exposure, adjustment struggles are highly related to adversity. This combination of adversity exposure and concurrent adjustment struggles argues for the use of complex trauma as a new framework for response, extending natural supports for all students and providing a central focus for mental health strategies in schools for those most vulnerable.

- 35% of high school students report exposure to one or more adversity. Thirteen percent (13%) report two or more adversity exposures.
- Schools vary widely in terms of the degree of youth adversity and adjustment concerns, but adversity and distress are common even in schools with lower levels of youth adversity and adjustment struggles.
- Adjustment concerns increase with poverty, but the increased adjustment risk appears to principally involve a subset of low-income students who have multiple needs, rather than a generalized effect of increased adjustment concern.
- As adversity exposure and adjustment struggles increase, students report a broader pattern of multiple risk behaviors, including early sexual initiation, substance misuse, and suicide risk.

Poverty and the level of student adjustment challenges in a school had influence on postsecondary enrollment through an interaction effect. Overall, students in more affluent schools enter postsecondary education at greater levels. But, as schools report higher levels of adjustment struggles in their students, postsecondary enrollment drops dramatically irrespective of poverty level.

- Poverty and adversity co-occur to a significant degree and are best considered as overlapping but discrete challenges to be addressed in schools.
- Among more affluent schools, postsecondary enrollment drops from nearly 70% of students in schools with the lowest average percent of students reporting adjustment concerns to 45% in schools with the highest average adjustment concerns.

- Among less affluent schools, while we found a general suppressive effect for poverty on postsecondary enrollment, the same pattern of results occurs with a change in postsecondary enrollment from 42% in schools with lower adjustment concerns to 32% percent in schools with the highest levels of student concerns. Unaddressed, the adjustment challenges facing Washington students will act as a principal barrier to greater postsecondary enrollment.

The growing diversity of Washington communities requires we address ethnicity as involving complex influences on education and youth outcomes. Specifically, Hispanic ethnicity appears to involve increases both in risk and protective factors in a complex fashion, requiring greater understanding. In addition, racial group differences in risk are important considerations that the nature of our data did not permit us to address. Consequently, addressing racial and ethnic group differences is a continuing area needing development to understand school success in Washington.

Efforts to disrupt continuing adversity exposure and identify students with significant adjustment concerns have the best opportunity to increase academic success and the quality of youth development. Specific strategies supported in the research include:

- Interrupt continuing traumatic experiences
- Assure consistent, supportive relationships for the child
- Prioritize maintenance of high-quality continuing relationships as the foundation for change
- Build the child's skills to interpret their own emotions accurately and address self-regulation capacity
- Build the capacity for anticipation and effective self-management in the face of new developmental challenges and crises.

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## Introduction

This report examines transitions to college among recent high school graduates. Supported by a U.S. Department of Education grant to the state of Washington, this report uses the state's educational data warehouse, state reports of a range of health and social community conditions, and large population surveys to describe the impact of community differences on educational success and youth wellbeing in Washington.

Three previous reports (Blodgett, 2015; Blodgett & Houghten, 2018a-b) documented that the collective experiences of community residents have powerful associations with youth academic success and wellbeing. Specifically, the level of poverty in the community and the degree to which early life adversity is common among adults in the community are together meaningful predictors of the degree of youth success. Poverty is well known as an influence on individual and community success. But early life adversity, while a more recent focus of study, is now established as a principal social determinant of health across the lifespan with a degree of impact that overlaps with but is not fully explained by the powerful effects of poverty.

In the previous reports, we documented how a wide range of specific risk and protective factors are associated with poverty and adversity as overarching concepts. We reconfirmed these relationships with the present data<sup>1</sup>. Indeed, individual risk and protective factors provided little additional predictive power in explaining youth outcomes across communities. As a result, we continue to employ school poverty and community adversity measures as the two overarching variables that capture a range of specific risks and protective factors. We also established that Hispanic ethnicity and designation as an English Language Learner (ELL) have significant moderating effects on both academic success and youth wellbeing. Consequently, the analyses in this report continue the practice of assessing the impact of poverty and adversity in the community as the principal predictors of youth success with attention to the moderating effects of ethnicity and ELL status.

Recognition that both individual differences and shared community characteristics contribute to our success has a long history in public policy. Poverty is arguably the most extensively supported example of this dual influence. Poverty influences through both individual effects (e.g., familial resources for enrichment of children's learning, exposure to teratogens like lead) and shared influences on residential groups (deteriorated and unhealthy housing, poor quality of schools, access to healthy foods, limited access to cultural resources and recreation). But, in addition, over more than 40 years, a deepening scientific consensus confirms that the level of stress and quality of caregiving early in life have profound effects at the individual level. More recent research demonstrates adversity also operates as a shared community factor in a manner comparable to poverty. As family adjustment problems pile up in the lives of individuals, families, and communities, the prospect for healthy outcomes is increasingly compromised. The association between early adversity and persisting life risks is further supported by an extensive neurodevelopment research literature demonstrating that as adversity exposure increases, the developing brains of children are at increasing risk (Shonkoff, 2016).

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<sup>1</sup> The confirming analyses are not reported here given the extensive coverage in the previous reports.

This report expands on the previous studies by using youth reports to provide measures of adversity exposure and their quality of life adjustment. We have used these individual reports drawn from the Healthy Youth Survey, a large anonymous student survey completed every two years in Washington, to test the predictive power of school community differences in youth adversity and youth adjustment as predictors of academic success and wellbeing.

*Completion of high school and transition to postsecondary education*<sup>2</sup>.

Educational attainment is a principal indicator of likely life success in terms of economic self-sufficiency, health, and longevity. Earning power is estimated to increase over a lifetime by as much as 10% for each year of education completed (Cutler & Lleras-Muney, 2006), and as a result education remains a principal strategy for addressing poverty and income inequality. Using Washington State data, the Washington Educational Research Data Center (ERDC) estimates that 12 years after graduating, residents with a BA or higher degree have a median income more than \$21,000/year higher than a resident with only a high school diploma (<https://erdc.wa.gov/data-dashboards/high-school-graduate-outcomes>). With respect to mortality risk, Hummer and Hernandez (2013) report that educational attainment is predictive of longer life. Using life expectancy at age 25, they report that individuals with at least a bachelor's degree live nearly 10 years longer than individuals who did not complete high school.

Based on U.S. Census 2018 data<sup>3</sup>:

- 11% of U.S. adults did not complete high school
- 29% completed high school
- 28% completed an Associate degree, technical degree, or some college, and
- 32% completed college or advanced degrees.

College enrollment has increased since 2000 from 35% of high school graduates to 40% (McFarland et al., 2019). This increase in educational demand in part reflects demands for greater educational preparation to compete in an increasingly technical and knowledge-driven workforce.

Postsecondary education is principally delivered through public institutions with 13.1 million students in public institutions compared to 2.8 million students in private programs. In 2017<sup>4</sup>, 67% of high school graduates entered a postsecondary program in the following fall with 44% entering a 4-year institution and 23% entering a 2-year institution. These rates of enrollment have been effectively unchanged since 2000. There are significant gender differences in immediate college enrollment with 72% of females enrolling compared to 61% of males. This gender difference is not apparent in 2-year schools but reflects a sharp difference in 4-year enrollment with 50% of females and 37% of males enrolled.

Rates of enrollment across ethnic and racial groups continue to demonstrate large group differences with 65% of Asian students entering college compared to 41% of White students and 36% for both African American and Hispanic graduates (McFarland et al., 2019). However, other recent research indicates that Hispanic students now have initial enrollment rates in college

<sup>2</sup> Unless otherwise indicated, we use postsecondary, higher education, and college as equivalent summary terms.

<sup>3</sup> <https://www.census.gov/data/tables/2018/demo/education-attainment/cps-detailed-tables.html>

<sup>4</sup> The summary statistics in this section are drawn from McFarland et al. (2019) *The Condition of Education*, which is the official data report of the U.S. Department of Education.



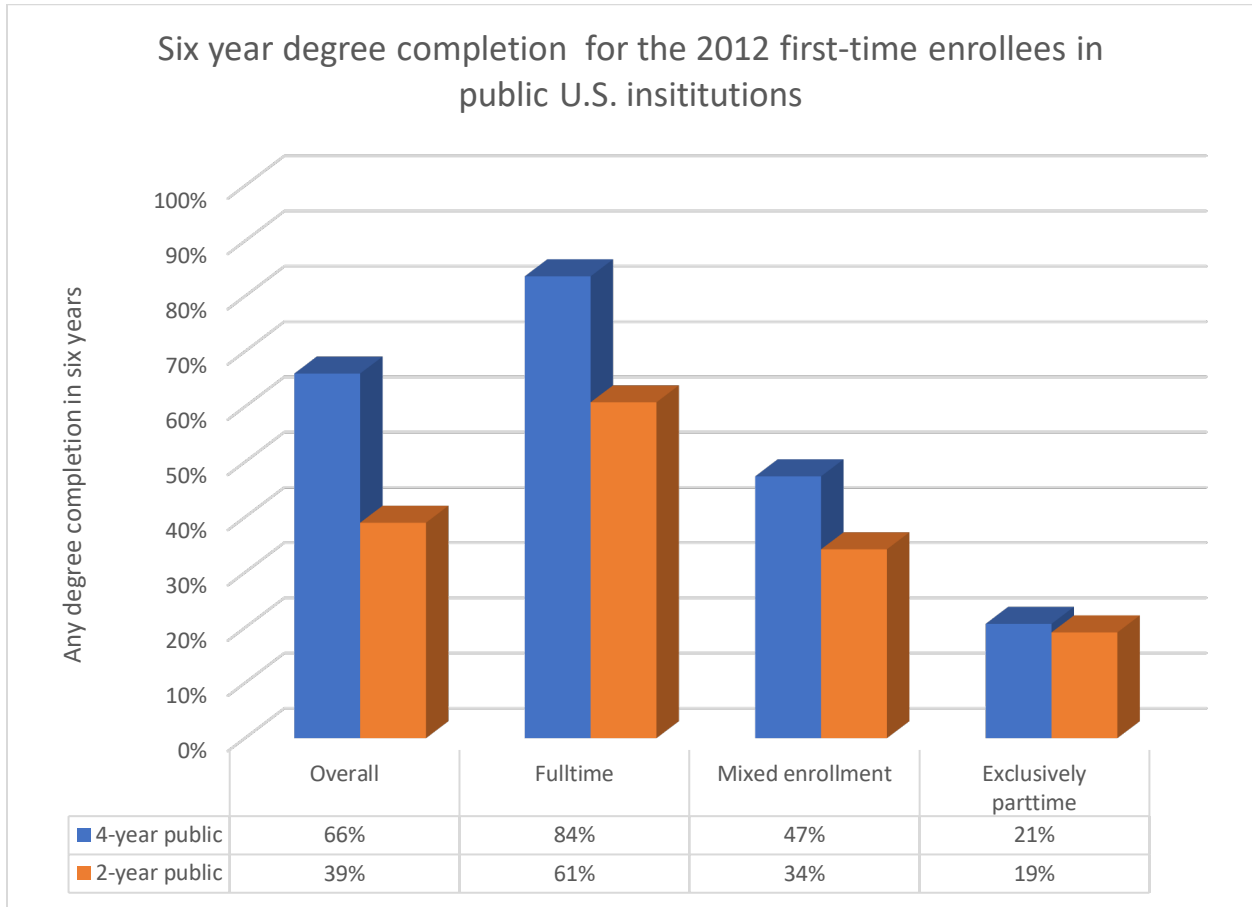
that are comparable to White students (Fry & Taylor, 2013). Because poverty and adversity are higher in some racial groups than others, these significant demographic differences in college enrollment may point to population differences that reflect the impact of poverty and adversity.

Two relevant measures of success are commonly reported in postsecondary analyses. The first, retention in school, is defined as continued enrollment in the fall of their second year in higher education. The second, degree completion, is typically defined by completion of a degree in the six years following initial enrollment. McFarland et al. report that retention was 81% in 4-year schools and 63% in 2-year schools. Degree completion also demonstrates sharp differences based on level of higher education and the students' status as full or part-time students. While the majority (approximately 75%) of students in 4-year schools are full time students, only about a third of students enrolled in 2-year schools are full time. Part-time attendance and the higher rate of part-time enrollment in 2-year schools is of note because six-year graduation cohort data (Shapiro et al., 2018) shows that in public institutions<sup>5</sup> part-time students and students using a mixed part-time/full-time attendance strategy are particularly vulnerable to not completing a degree. Irrespective of type of institution, students who attend less than full time are highly vulnerable to being unsuccessful in earning their degrees.

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<sup>5</sup> Higher education enrollment is primarily through public institutions in the U.S. and as a result we have opted to report either overall 2-year and 4-year results or to report information for publicly funded institutions.

Figure 1 Percent of students completing a degree by type of public higher education institution



Data summarized from Shapiro et al., 2018

Retention and degree completion rates for different racial and ethnic groups show gaps favoring White and Asian students but since 2000 there have been significant gains for other students of color. Male students also are less likely to return after their first year of college and have lower rates of degree completion.

*An analysis of survivors.* When considering the role of education in increasing life success, it is important to recall that by the time we are discussing higher education, we already have seen a significant number of children withdraw from the process. Washington State is ranked 16<sup>th</sup> on graduation rates and had a dropout rate of 11.2% for the class of 2018<sup>6</sup>. While high school dropout rates nationally have improved in the last two decades, leaving school before degree completion remains a persistent drag on the overall success of schools. Consequently, this report is principally on students who successfully navigated at least minimally the demands of their high school education, irrespective of their decision to go to college. Later in this report, we address school dropout by using publicly available data in order to determine if the principal

<sup>6</sup> <https://washingtonstatereportcard.ospi.k12.wa.us/ReportCard/ViewSchoolOrDistrict/103300>

variables associated with college transition also contributed to loss of students through dropout during high school.

In summary, an initial attempt at postsecondary education is the common experience of more than 60% of graduating seniors, with increased college enrollment largely reflecting the demands of a more technical and competitive workplace. While increasing education is highly predictive of health, income, and social wellbeing, access to and completion of education continues to reflect differences across income and racial groups as an expression of the continuing equity challenges in American society. These challenges are complicated by sharp differences in retention and completion success across what are primarily publicly funded institutions. Consequently, there may be great value for public policy and investment to describe the conditions in communities that can support success or signal the need for greater investment.

## 1. Community factors known to impact high school success and transition to postsecondary education.

As briefly noted above, gender, poverty, and race/ethnicity are established individual differences that impact high school success and postsecondary enrollment. Other factors such as maternal education level, IQ, school attendance, maintaining a higher GPA, passing standardized tests, and taking more academically challenging courses in high school are all predictors of high school graduation and postsecondary success (Augustine et al., 2009; Hein et al., 2013). Hein and colleagues also note that social emotional competence- the capacity to regulate emotions and express emotions effectively- emerge as significant predictors of postsecondary success during middle and high school. The role of social emotional competence is of significance for this report because disruption of the biological regulation of emotion is a principal risk associated with early life adversity.

While we report individual student differences, our principal focus is on community characteristics and their potential value in understanding educational success and youth adjustment. Many of the individual differences noted above are highly inter-correlated and are further highly correlated with poverty and adversity measures. In this review, we emphasize the evidence for the role of economic deprivation in communities and the emerging evidence that adversity can be usefully considered as a community characteristic.

Despite the persistence of poverty in childhood, reduction of poverty over the last sixty years is a story of progress. In 1960, 27% of children in the U.S. lived below the federal poverty line<sup>7</sup>. In 2017, 14.7% of school age children in Washington State lived in poverty<sup>8</sup> and the overall child poverty percent was 18%, an improvement from 2010 when child poverty was 22% (2019 Kids Count Databook<sup>9</sup>). While this reflects a slight improvement from 2009 and the impact of the

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<sup>7</sup> <https://www.childtrends.org/indicators/children-in-poverty>

<sup>8</sup> <https://ofm.wa.gov/washington-data-research/statewide-data/washington-trends/social-economic-conditions/population-poverty>

<sup>9</sup> [https://www.aecf.org/resources/2019-kids-count-data-book/?msclkid=8377283d59f41dca031d75053517b0c4&utm\\_source=bing&utm\\_medium=cpc&utm\\_campaign=2019%20Data%20Book&utm\\_term=united%20states%20poverty%20statistics&utm\\_content=2019%20Data%20Book%20-%20non%20Kids%20Count](https://www.aecf.org/resources/2019-kids-count-data-book/?msclkid=8377283d59f41dca031d75053517b0c4&utm_source=bing&utm_medium=cpc&utm_campaign=2019%20Data%20Book&utm_term=united%20states%20poverty%20statistics&utm_content=2019%20Data%20Book%20-%20non%20Kids%20Count)

Great Recession, reduction of overall poverty among children has been stubbornly resistant and vulnerable to shifts in the economy and effects of public policy.

The use of any poverty percentage as a point-in-time description insufficiently captures the actual scope of poverty during childhood. Approximately 40% of American children will live in poverty at some point during childhood with children from diverse communities at greater risk (Ratcliffe, 2015). For example, Ratcliffe reports that 75% of African American children will live in poverty at some point in contrast to 30% of White children.

The impact of poverty is a powerful influence on individuals' choices, but it is the *concentration of poverty* in neighborhoods and communities that effectively limits the opportunities of classes of people because of where they live. For instance, access to a range of food options, health and social services, and employment opportunities often is defined by where we live. Research on the impact of poverty as a community characteristic shared by residents is referred to as the study of *area or neighborhood deprivation*.

Poverty is not solely an economic concept but defines struggles with the social assets needed to prosper. The term 'deprivation' indicates inadequate access to resources needed for health, safety, and the capacity to fully participate in educational, social, and cultural opportunities children need for optimal development. Thus, deprivation is both defined at the individual level (food insecurity, social isolation) and as a shared quality in a neighborhood or other geographically defined community. Pickett & Pearl (2001) note that while individual differences are the most powerful predictors of wellbeing, the risk shared across members of a community adds meaningful additional explanatory power. As deprivation in social and cultural resources increase, there are demonstrated increases in communities' rates of child mental health disorders (Solmi et al., 2017), child welfare involvement (Fong, 2017), and known child developmental risk such as family violence and maternal depression (Walker et al., 2011).

The impact of increasing deprivation in communities results in increasing risk of persisting social and health consequences over the lifespan. It is, however, important to emphasize that risk is not destiny—educational, social, and cultural assets are all buffers with the potential to mitigate risk both in individuals and across communities with similar levels of deprivation. Unaddressed, the persisting costs to communities is high with reduced life expectancy (Robbins & Webb, 2004), increased health disorders such as heart disease (Diez et al., 2001) and breast cancer (Yost et al., 2001), teen pregnancy (Carlson et al., 2014), and behavioral health disorders (Kubzansky et al., 2005; Ramanathan et al., 2013).

Until recently, area deprivation definitions like the U.S. Health Resources and Services Administration's 'area deprivation index'<sup>10</sup> have utilized income, education, employment, and housing quality as the factors defining deprivation. Increasingly, indicators of social disorder and specifically early life adversity have started to be described as community characteristics under the area deprivation framework. While well-established as a predictor of a wide array of risks at the population level, there is presently a variety of definitions in use to describe early adversity.

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<sup>10</sup> <https://www.neighborhoodatlas.medicine.wisc.edu/> A downloadable data resource, this important resource is based on census block information and was not well-aligned with the school district geographic strategy employed in this report.

The variable definitions can result in some confusion about what is being included. In this report, we adopt the concept of adverse childhood experiences (ACEs) as our primary definitional approach.

ACEs (Anda et al., 2006) are a set of 10 experiences occurring before a child turns 18 years old that reflect family violence (sexual abuse, emotional abuse, physical abuse, emotional neglect, and physical neglect) and threats to the quality of the caregiving relationship (divorce or separation, death of a caregiver, caregiver substance abuse, caregiver mental health problems, and incarceration of a family member). An individual's ACE score is the number of these experiences they were exposed to in childhood with scores ranging from 0-10. Notably, ACEs describe processes unfolding over time rather than discrete acute crises. It is the persistent and for children often inescapable nature of these stressors that create the conditions for children's biology to be increasingly shaped by high levels of stress.

Four broad consensus themes arise from the ACEs literature. First, the experience of adversity in childhood is very common. Only about one-in-three adults report they experienced no ACEs, while roughly one-in-four report experiencing three or more ACEs. Second, ACEs are a universal human condition and have been confirmed in multiple cultures. Significantly, while risk of ACEs may be higher in some populations, ACEs occur across all income and education levels as well as in all racial groups. Third, it is the accumulation of ACEs, the ACE dose, that is more significant than exposure to any specific adversity. As the count of ACEs increases, health and social problems increase in a dose-dependent manner. Fourth, because of the powerful effects of persisting stress on development and biological functioning, ACEs are well-established as predictive of a range of health and social problems across the lifespan with substantial documentation of the biological mechanisms underlying risk.

ACEs describe a discrete, family-centered set of risks which often co-occur with other challenges such as community violence, poverty, and bigotry. A source of current confusion in discussing adversity is that some authors include a wide range of adversities under the umbrella of ACEs. Particularly, poverty for some is considered an ACE (e.g., Finkelhor et al., 2009). This elastic definition of ACEs is more consistent with an independent, older, and still active research tradition referred to as the Cumulative Risk Model (Evans et al., 2013) which uses a similar argument about the effects of accumulating stressors in a person's life but without a specific set of challenges defining what to include. Research using the Cumulative Risk Model shows a pattern of results consistent with the dose-dependent increase in risk found with ACEs. In this report, we use the narrower definition of ACEs with its focus on family dysfunction. This approach provides a consistent definition of adversity and allows us to assess the potential for both the independent influences of poverty and adversity as well as their potential interaction effects. In addition, the use of an ACEs definition allows us to focus on key challenges to development during childhood.

Initially based on retrospective adult report of childhood ACEs, new information describes the level of ACEs exposure as current demands in childhood. In a large random sample of elementary school students, Blodgett and Lanigan (2018) found that one-in-five students were known to have two or more ACEs based on educator report. In this study, as known ACEs increased, academic failure, chronic attendance concerns, and school behavior problems

demonstrated a dose-dependent increase in school concerns. Similar results have been reported by Bethell et al. (2014), Blodgett (2014), and Burke et al., (2011).

When children are exposed to multiple ACEs, the most common result are persisting disruptions to caregiver intimate relationships and threats to basic emotional and physical safety. Brain development is placed at risk because of disruption in key developmental resources particularly due to disrupted caregiving and hyper-sensitization to potential threats. The underlying biological threat arises from the physiological effects of sustained stress responses on the developing brain. Trauma resulting from ACEs is expressed through a variety of biological, affective, behavioral, and cognitive adaptations referred to in mental health disciplines as *complex trauma* (Spinazzola, et al., 2005). We return to the role of complex trauma in our discussion of adjustment challenges and as a framework for policy recommendations. ACEs can disrupt typical neurodevelopment specifically related to threat-safety perception, self-regulation of emotions, and the smooth integration of limbic system and prefrontal cortical functions critical for learning (Danese & McEwen, 2012).

While ACEs predict risk, exposure does not inevitably lead to the array of problems associated with ACEs. Indeed, a meaningful percent of people with multiple ACEs do not demonstrate pervasive adjustment concerns. *Resilience* is the complementary process describing growth despite adversity (Luthar et al., 2000). We observe variability in the level of disruption resulting from ACEs because children often have compensatory experiences of being loved and supported in their positive efforts to grow. Rutter (1987) proposed that whether through natural supports or intentional interventions, resilience is built when the adults in the children's lives support (1) a reality-based and earned sense of self-esteem and self-efficacy and (2) intentionally create the opportunities for restorative experiences through work and relationships that promote personal mastery. While schools are uniquely suited to be among the most powerful resilience-building systems outside of the family, the level of emphasis on such goals varies widely across schools. We note that a limitation in this report is that while we have effective tools to address adversity and its consequences, we do not in our data have an effective way to describe resilience.

ACEs and similar concepts have begun to be used in describing area deprivation similar to the use of more economically focused measures. After accounting for area economic deprivation, Flouri et al. (2010) reported that adversity in preschool children was a significant predictor of behavior concerns. Giovanelli et al. (2016) found that children's adversity exposure in a large cohort of low-income students predicted health, mental health, and criminal justice problems after controlling for demographic differences and level of support services. Morales and Guerra (2006) used a cumulative risk strategy to document that as the number of challenges increased, adjustment challenges and academic failure were more common in a large sample of urban youth.

In summary, this report builds on an extensive literature addressing area deprivation as economic threats and is intended to build upon the emerging area deprivation studies which address adversity as a community characteristic.

## Method

### 1. Organization of the outcome findings.

We conducted three levels of analysis to look at the impact of adversity and adjustment struggles as school characteristics. The first level of analysis is a replication of the adult community ACEs groups by school poverty tests as conducted in the two previous reports. The second level is to use the schools' average level of reported youth adversity in combination with poverty. The third analysis level is to use the degree of reported adjustment concerns in a school as a school characteristic in combination with poverty. A constraint in the previous reports was that we were not able to describe individual student's exposure to adversity as a way to describe school differences<sup>11</sup>. The HYS individual level responses provide us with strategies to assess the power of adversity and its consequences as predictors of student success.

Working through the presentation of three levels of analysis for each educational outcome would be overwhelming for even the most committed readers. What we found as an overarching result in these analyses is that after accounting for poverty's effects, the schools' level of adjustment challenges in students is the most powerful explanatory tool followed by the schools' average level of reported youth adversity. In the original *No School Alone* report and in the 2018 update, we found that community adult ACEs were most effective as predictors of outcomes in the primary grades and that in high school grades we saw a loss of predictive power. In that report, community adult ACEs in combination with poverty proved to be of very limited utility with the high school outcomes. However, because adult ACEs were meaningfully associated with both increased risk of youth adversities and increased risk of reported adjustment concerns in schools, we continue here to report the community adult ACEs tests. Adult community ACEs are associated with youth risk but are an indirect measure of risk compared to youth report of personal experiences which provides a more powerful and immediate description of barriers to academic success.

In order to organize these findings for the reader, we focus on the level of student adjustment concerns in a school. Consistently, using student adjustment produced more sensitive results and so closely mirrored the effects of adversity exposure that presentation of both results would be redundant. If we have significant findings for the level of school youth adversity or the associated adult community ACEs, we briefly describe the finding but present the detailed analysis summary in an appendix to this report.

In past reports, we have used the convention of analyzing three levels of school poverty. However, in examining school outcomes in this report, when we use school poverty levels and level of students' struggles to adjust, we found that the distribution of schools won't support analysis using three levels of poverty. Specifically, less than 10 high schools fell in the low poverty/high adjustment concerns group. This reflects the overall conclusion that adversity risk increases at least slightly with increasing levels of poverty. As a result, we simplified the poverty measure to schools being either above or below 50% FRM. When presenting descriptive information for school poverty, we report three levels of poverty to demonstrate the very common dose effect of increasing poverty on risk.

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<sup>11</sup> In the *No School Alone* report, we provided some summary information on HYS youth report of adversity but the data sharing agreements at that time did not permit a full analysis.

We include percent Hispanic enrollment and percent English Language Learner (ELL) school enrollment as important moderators of academic success and adversity risk. As discussed earlier, the complex relationship between ethnicity and ELL status on the one hand and youth risk and academic success on the other requires we manage these important ethnicity effects. When these covariates are significant, we briefly describe the influence the covariate has on the outcome we are testing.

There are 294 school districts with enrollment across districts ranging from fewer than 100 students to Seattle Public Schools with nearly 53,000 students. Washington state has addressed this wide enrollment range by developing a ‘locale’ strategy <https://www.dshs.wa.gov/sesa/research-and-data-analysis/community-risk-profiles>. Locales organize Washington school districts into 118 groups, including large school districts as unique locales and grouping smaller districts based on similarities in student and community characteristics and the area of the state. Fifty-nine of the locales are single districts while the remaining 59 locales include 2-12 districts in a single locale. In the balance of this report, we discuss results for locales, not districts.

In our past reports, we found that there are systematic differences in risk and academic progress based on the type of community- urban, suburban, small town, and rural. Community type, designated by school, was drawn from National Center for Education Statistics (NCES) data <http://nces.ed.gov/>.

Because of the number of small districts, small numbers of students can lead to unstable estimates of performance or the risk of inadvertent redisclosure of individual student results. Washington state employs ‘suppression rules’ for most data reports typically with results for less than 15 students being suppressed. We adopted this rule whenever we encountered low student counts such as high school graduation classes of less than 15 students.

*Testing for stability of findings.* This report presents the results for the 2016 graduating class. We conducted equivalent comparisons for the 2014 and 2015 graduating classes to confirm consistency of results. We confirmed consistent findings across all three years. As a result, this report focuses on the 2016 graduating cohort.

## 2. Statistical analysis and reporting of findings.

Unless otherwise described, we employed Generalized Estimating Equations (GEE) to test for poverty-by-adversity effects on the outcomes. GEE permits for the control of differences across schools when many of our proposed influences and our outcomes are highly correlated with each other. The nature of the community as well as the policies and practices of the district all potentially could influence school response, community risk, and academic progress over time. We used GEE to control for the effects of locale and the type of school community (urban, suburban, town, rural). In addition, we included percent Hispanic and English Language Learner (ELL) enrollment as covariates in all analyses. The importance of accounting for Hispanic and ELL enrollment is explained below. Other analyses that are intended to explain a difference in individual student characteristics or to explain the influence of a covariate such as Hispanic



percent enrollment across schools are tested either through Chi-Square analyses or one-way analysis of variance.

Because we are dealing with very large data sets, it is relatively easy to find statistically significant results that in practice do not signify meaningful or useful associations. To address this concern, we do not interpret findings with a significance level greater than  $p < .001$  (i.e., the finding has less than one chance in 1,000 of being a difference resulting from random effects). We also examined the scope of reported differences to confirm the pattern identified suggested meaningful differences across groups. For example, we would not interpret most results as meaningful if there is a less than three percent mean difference in the results across groups such as poverty levels. There are a few exceptions where the result did not meet this threshold but the rationale for the exception is presented in the text.

### 3. Using student report to define adversity as a school characteristic.

The current study provides us with expanded ways to describe individual differences in high school outcomes and an expanded strategy to describe risks and assets students have both as individual differences and as aggregated results to describe school differences. In contrast to the *No School Alone* report, where we employed school level summary data, in this analysis we had three consecutive years of de-identified information on all Washington State high school graduates. In addition, we had de-identified Healthy Youth Survey (HYS) results for 2016 and 2014 which permitted us for the first time to use student voice to more fully describe school differences<sup>12</sup>. This individual level data permits us in this report to look at several individual student differences with greater sensitivity in the analyses.

In the previous reports, we used the Centers for Disease Control's Behavioral Risk Factor Surveillance System (BRFSS) to estimate the ACEs histories of adults in the school communities. The obvious limitation for this measure of adversity is that it describes an important part of the social context in which children grow up but does not measure (1) the scope of adversity exposure in the youth population, or (2) the degree to which youth adversity contributes to cumulative struggles with academic success across communities.

In the present report, we used HYS de-identified responses from 2014 and 2016 to address how individual students' exposure to adversity impacts wellbeing and academic success. Three HYS questions describing violence exposure are completed by a significant percent of students. The three questions are emotional abuse by an adult, sexual abuse or coercion by anyone, and physical abuse by an adult.

- Has an adult ever physically hurt you on purpose (like pushed, slapped, hit, kicked or punched you), leaving a mark, bruise or injury?
- Have you ever been in a situation where someone made you engage in kissing, sexual touch or intercourse when you did not want to?

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<sup>12</sup> In the previous reports, we used HYS results to describe school characteristics as summary descriptions of the schools on risk and protective factors as we tested the overarching explanatory power of school poverty and adult community ACEs.

- How often does a parent or adult in your home swear at you, insult you, put you down or humiliate you?<sup>13</sup>

In this report, we focus on findings from the 2016 HYS. We used the 2014 HYS to confirm the consistency of these results. We found no significant variations in prevalence of youth adversity or adjustment concerns as a function of the HYS year of administration.

Schools districts have control over inclusion of specific questions in HYS. About 20,000 students answered the emotional and physical abuse questions but not the sexual abuse question. Rather than using a missing data replacement strategy, we chose to only include students when describing adversity for whom all three questions were answered. This conservative approach still allowed us to describe adversity exposure for 50,522 students or 21% of the total HYS 2016 sample. Before proceeding to analysis, we confirmed that there were sufficient counts of schools in each DSHS locale where the adversity measure was completed.

Exposure to adversity based on student self-report is very common. In our sample of 50,522 high school students completing the three HYS questions, we found that 35% of students reported experiencing at least one of three adversities and 13% reported two or more. Thirteen percent of students reported experiencing emotional abuse, 17% coercive sexual contact, and 22% reported physical abuse by an adult. While based on only three questions, these results are consistent with other reports of adversity exposure (Anda et al., 2006).

*Figure 2 Frequency of reported youth adversity in the 2016 Healthy Youth Survey*

Reported Adversities	Count Students	Percent of respondents	Percent of Sample
0	32,574	65	14
1	11,480	22	5
2	4,926	10	2
3	1,542	3	0.6
Sub-total reporting adversities	50,522	100	21
Not answered	187,652		79
HYS 2016 Sample	238,174		100

The phrasing of the three HYS questions are similar to but not the same as the original ACEs questions (Anda et al., 2006). The percent of students reporting at least one adversity (M=35%) closely aligns with the 2016 National Survey of Children’s Health finding that 38% of youth report experiencing at least one ACE (<https://www.childhealthdata.org/>). We refer to the results as ‘youth adversity’ to acknowledge the distinction of our measure from the ACE survey. In the following analyses, we use these youth adversity questions in a manner similar to the full ACE survey to test if the dose of adversity exposure is associated with greater educational and adjustment risks<sup>14</sup>. As we have with other descriptive information, we treat youth adversity both

<sup>13</sup> The emotional abuse responses were recoded to have “often/very often” coded as adversity exposure and “never/sometimes” coded as no adversity.

<sup>14</sup> An earlier report used a similar approach and presented evidence confirmed in this report. Longhi, D. (2010). *Fact Sheet: Preliminary Findings About the Relationship Between Two Kinds of Adverse Experiences (AEs) & Academic, Behavioral & Physical Health Among Youth in Washington State & the Promising Effects of Higher Community Capacity*. Olympia, WA; Family Policy Council.

as an individual quality and as a summary characteristic of schools (e.g., percent of students in a school who report 0-3 adversity exposures). Because the percent of students reporting all three adversities was relatively small at 3% of valid responses, we describe the adversity scale as 0, 1, and 2 or more exposures.

Among the students reporting no youth adversities in HYS, some unknown percent experienced other ACEs (divorce, family member incarceration, neglect, behavioral health problems in caregivers) that while unknown to us likely contribute to the reported adjustment concerns in this group. The reader will find it helpful to recall that our ‘no adversity’ group of students includes students who experience ACEs that we were unable to describe.

Across high schools, there is a wide range of reported adversity exposure in students. On the full scale ranging from 0-3<sup>15</sup>, the mean reported adversity score was 0.42. The school with the lowest mean adversity score was 0.17 and the highest adversity mean score was 0.78. Using the mean adversity score for each school, we then grouped schools as lower adversity, intermediate adversity, and higher adversity<sup>16</sup>. To help readers interpret the difference in adversity exposure across the three groups, the percent of students with one or more adversities were:

- Lower adversity schools= 31% of students report one or more exposures.
- Intermediate adversity schools= 38% of students reporting one or more exposures.
- Higher adversity schools=48% of students reporting one or more adversities.

As is the case with ACEs exposure, youth adversity is greater in some groups than others. Unless otherwise defined, our practice is to describe the percent of students reporting one or more exposures.

- FRM enrolled students report higher levels of adversity exposure than their peers. Fifty-eight percent of students enrolled in FRM report no adversity exposure on any of the three questions compared to 68% of non-FRM enrolled students [Chi Square (3) = 569.2,  $p < .001$ ].
- Girls and boys report equivalent adversity exposure with 51% of girls and 49% of boys reporting at least one adversity. Girls, however, more frequently report exposure to two or more adversities (16% v. 10% for boys). Girls report higher exposure on all three questions but particularly so on sexual coercion (21% of girls and 12% of boys for sexual coercion; 23% girls and 20% boys for physical abuse; 15% girls and 11% boys for emotional abuse). All results are statistically significant at the  $p < .001$  level.
- Students who self-identify as LGBTQ students report greater adversity exposure (32% of straight students report at least one adversity compared to 56% of LGBTQ students). This finding is consistent with findings in the general literature (Himmelstein & Bruckner, 2011; Poteat et al., 2016).
- Also consistent with other reports, Asian, White, and Hispanic students report significantly lower youth adversity exposure than other student races. See the next figure for details.

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<sup>15</sup> Schools with less than 15 students in the data set were excluded from the adversity measure.

<sup>16</sup> Based on the rank of the school’s adversity score, schools were grouped into the lower third, middle third, and top third of schools.

- Youth adversity increases with student age. Please see the table below. When we examined the age differences across the three adversity questions, we found that reports of physical abuse and emotional abuse were roughly equivalent across age groups but that the percent of students reporting sexual coercion nearly doubled from students in the 13 year old group reporting 12% exposure compared to 21% exposure in students 18 years of age and older. As a result, we conclude that the increase in adversity with age of the youth is attributable to increased risk of sexual coercion as students mature.
- The reader should note that we have no information about how recently the reported adversities occurred. Our interpretative approach is again comparable to how ACEs are addressed in that our interest is that the adversity occurred before the age of 18 years.

Figure 3 Youth adversity by race and ethnicity of students

	White non-Hispanic	Hispanic	American Indian or Alaskan Native non-Hispanic	Asian or Asian American non-Hispanic	Black or African-American non-Hispanic	Native Hawaiian or other Pacific Islander non-Hispanic	Other non-Hispanic	Multiracial non-Hispanic
No reported adversity	66%	64%	62%	68%	58%	60%	60%	60%
One reported adversity	22%	23%	23%	22%	26%	25%	24%	24%
2-3 reported adversities	12%	13%	15%	10%	16%	15%	16%	16%

Chi Square (14) = 168.7, p<.001

Figure 4 Student age and exposure to adversity

	13 or younger	14	15	16	17	18 and older
One or more adversities reported	30%	33%	37%	39%	39%	41%

Chi Square (10) = 322.7, p<.001

#### 4. An adjustment measure based on student report

Adversity describes a major disruption in opportunities and relationships both because of what is taken from us but also because we may not have all the necessary skills to manage life disruptions effectively. ‘Adjustment concerns’ reflect the process of struggling to adapt to life across settings. Often these struggles are situational and transitory but when associated with persisting adversity, adjustment struggles often are also persistent and impact broad areas of our lives. We can do self-limiting and dangerous things without adversity being the cause, and acute crises in our lives often are associated with adjustment challenges, albeit often limited in duration and scope of impact. However, the significance of the ACEs research is the finding that persisting, frequently self-limiting adjustment struggles in the general population are most often associated with having experienced adversity early in life.

Despite significant adversity, a meaningful percent of youth exposed to adversity do not demonstrate life struggles consequently. In our sample, among the students reporting no adjustment concerns, 83% also report no youth adversity. But, 17% of youth with no reported adjustment concerns also reported one or more adversities. Cumulative adversity is a powerful predictive tool, but exposure defines the risk, not the certainty that adjustment struggles will follow. Social connection, personal intellectual resources, and supportive relationships providing the nurturance that may have been missed earlier in life all contribute to resilience as a buffer from the negative effects of adversity. As a result, knowing adversity is a useful shorthand for risk but it is the presence of struggles resulting from adversity that is our principal focus for understanding how to improve outcomes.

To support development of an ‘adjustment scale’, we reviewed HYS questions and selected items that address overall quality of social emotional adjustment, school adjustment, and other victimization. The six items selected were:

- Binge drinking in past 30 days,
- Bullied in past 30 days,
- Sad and hopeless to a degree routine activities were restricted in the past year,
- Safe at school,
- Enjoys school, and
- A HYS-generated social emotional competence score based on four questions.

The resulting ‘adjustment scale’ consists of questions looking at student coping (binge drinking, social emotional competence, sad and hopeless) and the quality of their schools as resources to the student (safe at school, bullied, enjoyed school). In each instance, a response identifying a concern was scored as one and a ‘no’ response was scored as zero so that there was a range of 0-6 areas of adjustment concerns.

Because we are working with existing data sources, our selection of items to include in this ‘adjustment scale’ was limited to the questions included in HYS. We chose survey items likely to reflect persisting struggles rather than discrete time-limited disruptions, and which are known correlates of increased risk of other forms of victimization, struggles with emotion and behavior, and struggles with social connection and belonging. Unfortunately, because HYS uses three survey forms with differing emphasis in question selection, our three adversity exposure questions and coverage of all the six adjustment impact questions restricted us to schools using only one of the three HYS survey forms. We confirmed the representativeness of the findings from the schools that did include the adversity questions. Among the state’s locales, 108 of the 118 locales are included in the adversity measure, we are including results for 294 schools (52% of high schools completing the survey) and 50,522 students (21% of all students completing the 2016 HYS). As with adversity exposure, students report adjustment struggles as common concerns. As shown in the next figure, these adjustment concerns can impact as many as one-in-three students, underscoring that these are pervasive challenges in schools.

Figure 5 Percent of students reporting items in the adjustment scale

HYS adjustment items (N=234,681 responding to items)	N agreeing with the item	Percent of sample reporting concern
Binge drinking in past 2 weeks	16,762	7%
Bullied in past 30 days	57,225	25%
Sad/Hopeless interfered routine activities in past 12 months	52,685	33%
Not safe at school	33,923	15%
Does not enjoy school	51,927	22%
HYS social emotional competence concern	39,662	31%

Experiencing more than one area of adjustment challenge is common with 38% of responding students reporting two or more adjustment concerns. For individuals, as youth adversity exposure increases, the number of problem areas reflecting adjustment struggles increases as well. While specific problems happen for students who do not report adversity, it is more typical that exposure to at least one adversity is associated with adjustment problems. The correlation between the adjustment index score and exposure to at least one adversity was  $r = 0.70, p < .001$ .

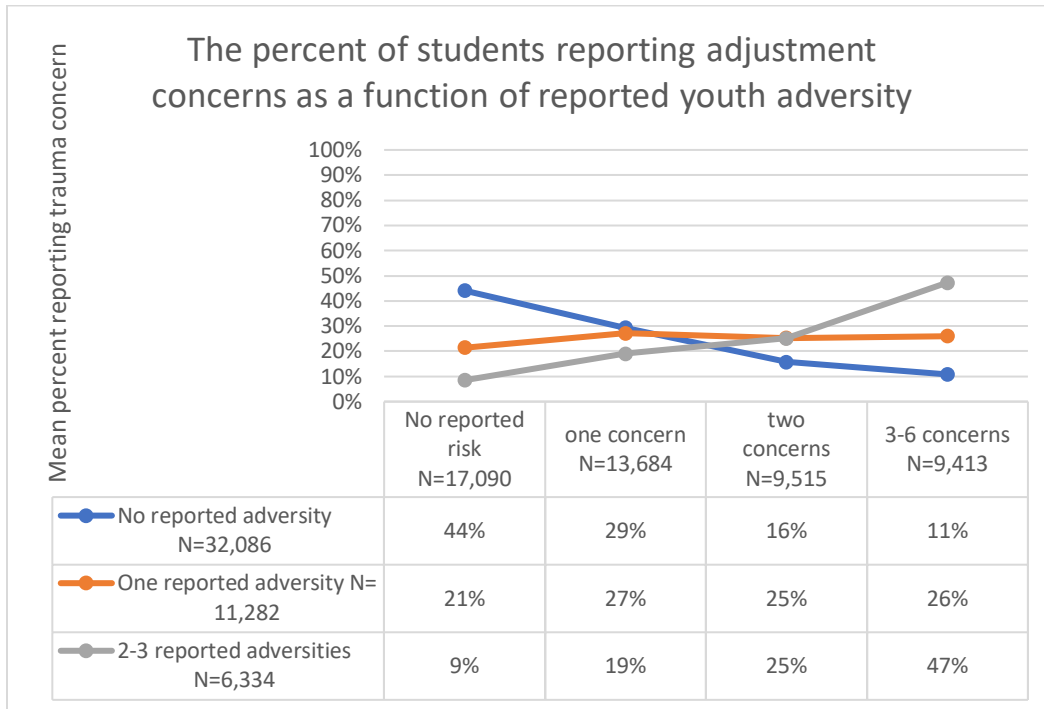
Figure 6 Percent of students by level of adjustment concerns

Reported areas of adjustment struggles	Frequency	Percent of Total Sample	Percent Reporting
0	23,646	9.9	34.1
1	19,211	8.1	27.7
2	13,295	5.6	19.2
3	7,688	3.2	11.1
4	3,781	1.6	5.5
5	1,428	0.6	2.1
6	250	0.1	0.4
Sub-total	69,299	29.1	100
Missing data	168,875	70.9	
Total	238,174	100	

For schools, as the percent of youth adversity increases among students, so does the average level of reported adjustment struggles. This finding for both individuals and systems is consistent with the research that increasing adversity exposure is associated with increasing health and social problems in a dose-dependent manner. The next figure demonstrates increasing risk across the six adjustment questions as adjustment struggles increase<sup>17</sup>. With 2-3 reported adversities, nearly half of students report three or more adjustment concerns compared to 11% with no reported adversities.

<sup>17</sup> Because the percent of students with four or more adjustment concerns was relatively small, we combined students with 3-6 reported adjustment concerns into one group.

Figure 7 Student adjustment concerns as a function of youth adversity exposure



Chi Square (6) = 7,510.2, p<.001

To highlight the dose-dependent relationship between adversity and adjustment concerns, the following table presents the same adversity results with the dose effect of adversity on adjustment concerns presented as the mean number of adjustment concerns. As adversity exposure in a school increases, students report of adjustment struggles increases significantly in a dose-dependent relationship.

Figure 8 Mean adjustment scale score by level of youth adversity

Adversity exposure	N	Mean Adjustment Concern Score (0-6)	S.D.
No reported adversity	32,086	1.0	1.1
One reported adversity	11,282	1.7	1.4
2-3 reported adversities	6,334	2.5	1.5
Total	49,702	1.3	1.3

F (2, 49,701) = 4,668, p<.001

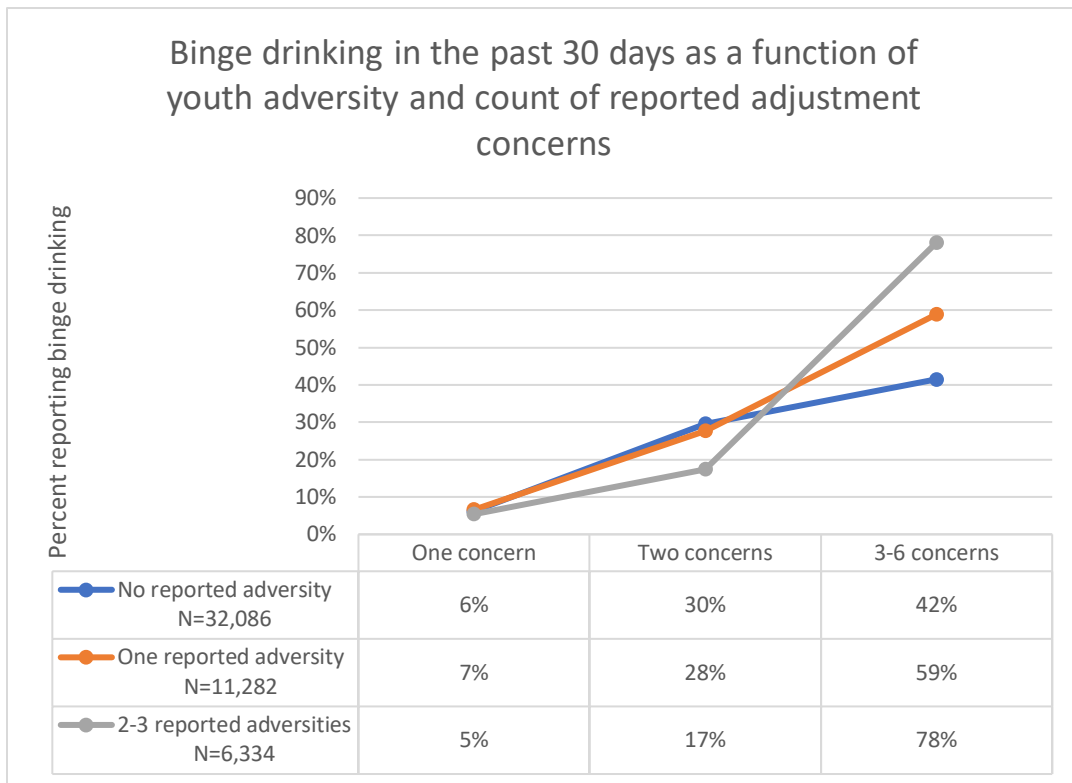
The following six figures show that reports of a number specific risk behaviors increase as a function of the level of adversity reported *and* the degree to which the student struggles with other adjustment concerns. Students reporting adjustment struggles do not always report histories of adversity. Struggles with adjustment can be due to biological influences and changes in quality of life supports that are unrelated to early life adversity. While adjustment problems occur in students with no reported adversity, adjustment struggles disproportionately are among students with at least one adversity. For example, among youth reporting binge drinking in the

past 30 days, 33% of students with no adversity reported binge drinking compared to 60% of students with one or more adversities.

In summary, we found that (1) exposure to multiple adjustment concerns increased as adversity exposure increased and (2) that students reporting struggles in a single adjustment concern are more likely to have struggles on other indicators of adjustment.

Please note in the following figures that regardless of reported adversity history, students who reported no adjustment concerns on our adjustment scale also reported no concerns on the problems reported below. As a result, we document the impact of adjustment concerns for one, two, or more than three adjustment concerns on our scale.

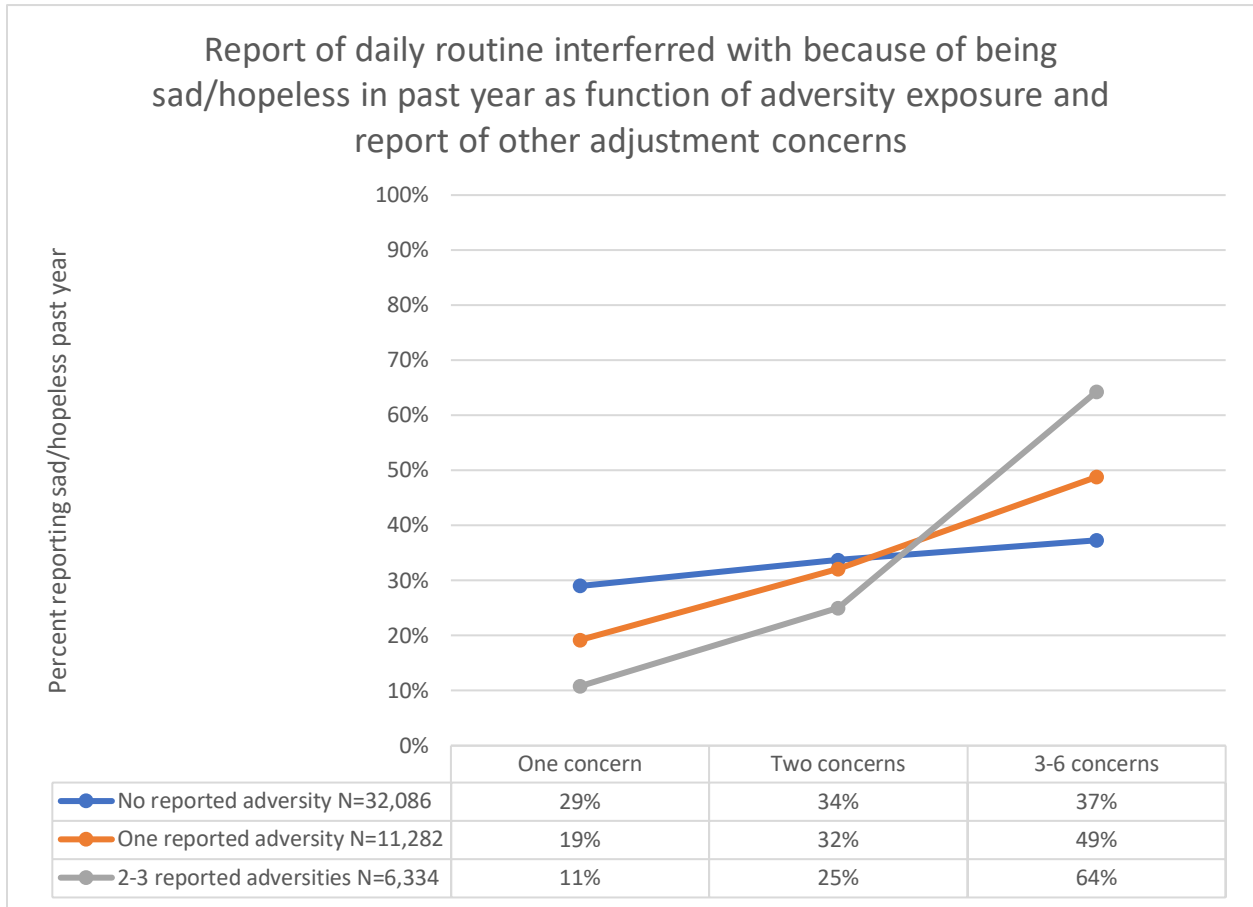
Figure 9 Binge drinking risk and the association of adversity and adjustment struggles



Chi Square (3) = 6,501, p<.001



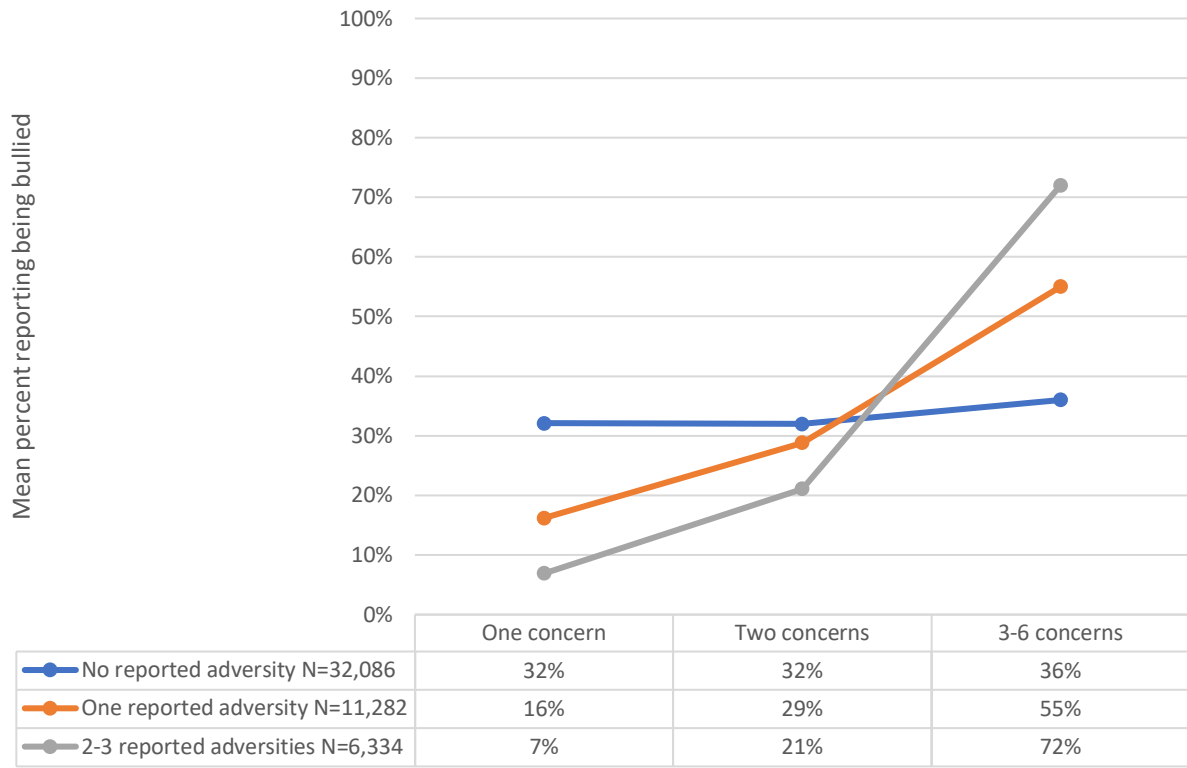
Figure 10 Sad and hopeless risk and the association of adversity and adjustment struggles



Chi Square (3) = 19,625.6, p<.001

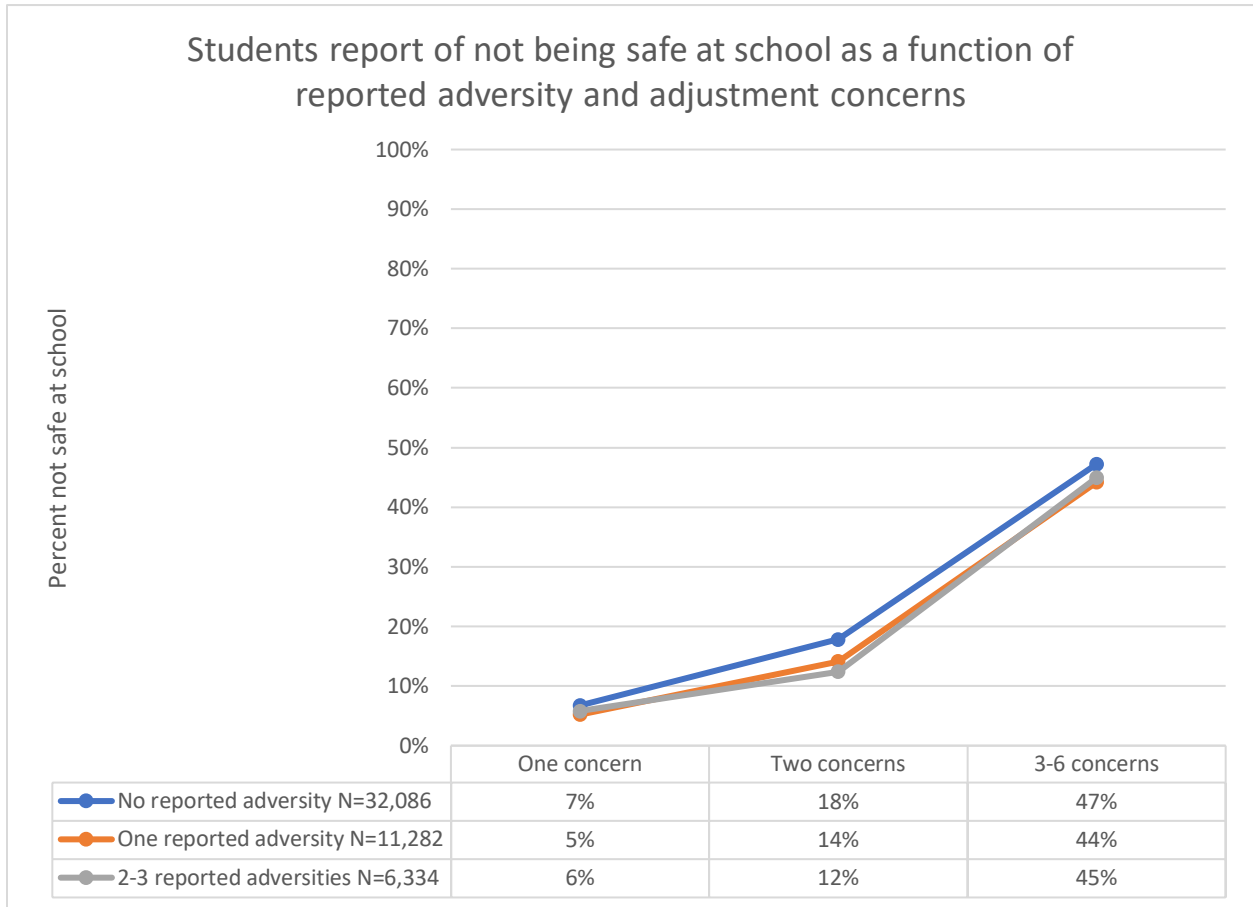
Figure 11 Bullying risk and the association of adversity and adjustment struggles

Report of being bullied past 30 as a function of history of adversity and report of adjustment concerns



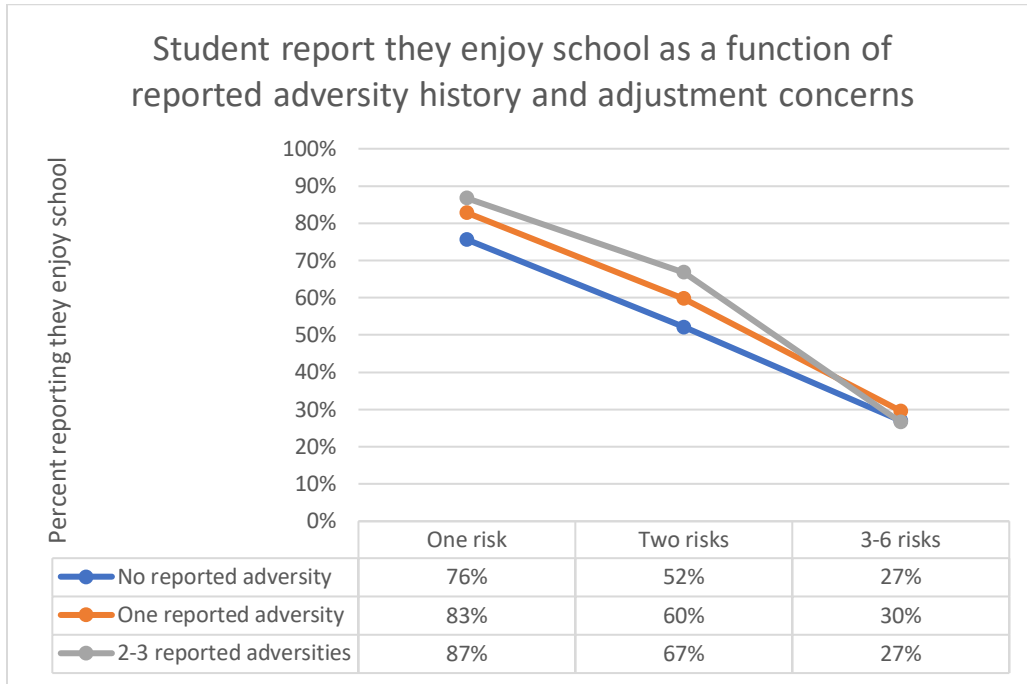
Chi Square (3) = 13,359.6, p<.001

Figure 12 Risk of not being safe at school and the association of adversity and adjustment struggles



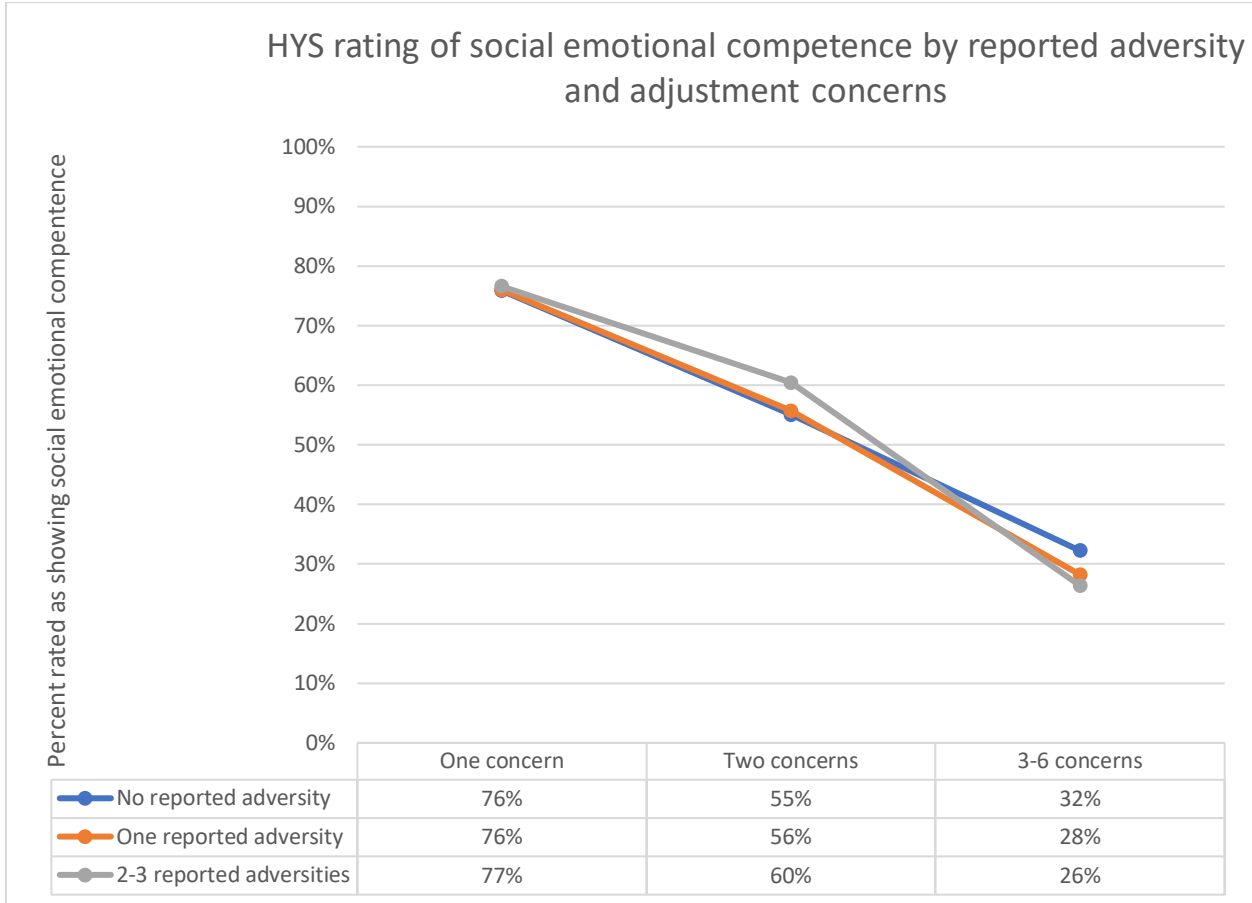
Chi Square (3) = 11,668.6,  $p < .001$

Figure 13 Students' enjoying school and the association of adversity and adjustment struggles



Chi Square (3) = 16,598.6,  $p < .001$

Figure 14 : Social emotional competence and the association of adversity and adjustment struggles



Chi Square (3) = 16,370.4, p<.001

*Interim summary for the adversity and adjustment measures.* Despite the limited ability to describe youth adversity, we confirmed that exposure to significant adversity is a common experience across all schools. In addition, we can demonstrate that it is the interaction of the degree of adversity in combination with broad adjustment struggles that principally defines the level of individual risk. We further demonstrated that schools differ in terms of the degree of student adversity reported. As seen below, the struggles that follow from adversity contribute significantly to the level of risk in the students and the collective academic success of the schools.

## Results

This report builds on findings in two previous reports examining school success and community characteristics (Blodgett & Houghten, 2018a, 2018b). From the previous reports, several findings regarding community differences emerge:

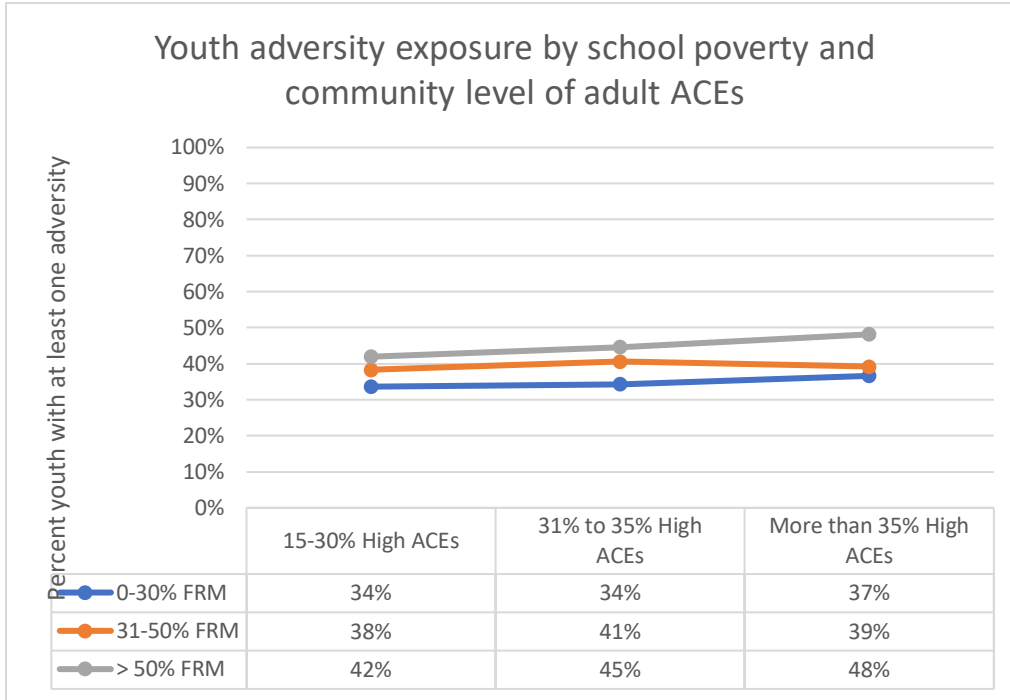
- The level of school poverty (defined by the percent of students enrolled in federal free and reduced cost meals, FRM) has great predictive power on all education outcomes from kindergarten readiness to high school graduation. As poverty increases in schools, outcomes are consistently compromised at greater levels.

- The degree to which adults in a community report experiencing adversity in their own childhoods can be used to describe a characteristic of that community, similar to describing a community based on racial make-up or educational attainment. ***As the percent of adults in a community reporting three or more adverse childhood experiences (ACEs) increases, multiple educational outcomes for students in the community are compromised.*** This relationship between ACEs and educational outcomes was strongest in the K-8 grades and less evident in high school outcomes.
- The type of community (rural, town, suburban, urban) is associated with frequent differences in educational outcomes and youth wellbeing. For example, 5-year graduation cohort percentages are lower in towns (M=66) than in rural communities (M=82), cities (M=72), and suburbs [M=74;  $F(3, 486) = 7.8, p < .001$ ]. In these analyses, we control for type of community as we examine how other community characteristics may affect student success.
- Hispanic ethnicity and English Language Learner (ELL) student enrollment are powerful mediators of the effects of poverty and adversity on outcomes. In general, as Hispanic and ELL enrollment increases in schools, academic success is lower but the report of risk in the community on multiple measures is also lower.
- When we examined a wide range of specific risk and protective factors on academic outcomes, we found that (1) nearly all the risk and protective factors examined highly correlated with either or both poverty and community ACEs, and (2) specific single-dimension risk and protective factors added no additional predictive value when tested as factors in educational success and youth wellbeing. We confirmed these results in the present study. Because the association between community poverty and community adult adversity was extensively documented in the previous reports, we do not reproduce those confirmatory analyses in this report.

## 1. Poverty, adult ACEs in communities, youth adversity, and adjustment challenges.

The level of youth adversity risk is associated with both poverty and the degree that adults in the community report experiencing ACEs. Similarly, the level of adjustment concerns increases as the school poverty level and level of ACEs among adults in the community also increases. Poverty is a more powerful predictor of differences in youth adversity and adjustment, but community adult ACEs are confirmed as a modest additional influence after controlling for poverty. Because we are summarizing the experiences of such a large number of students, even small changes in average adjustment concerns reflect increased struggles for large numbers of students.

Figure 15 The association of school community poverty and adult community ACEs with youth report of adversity

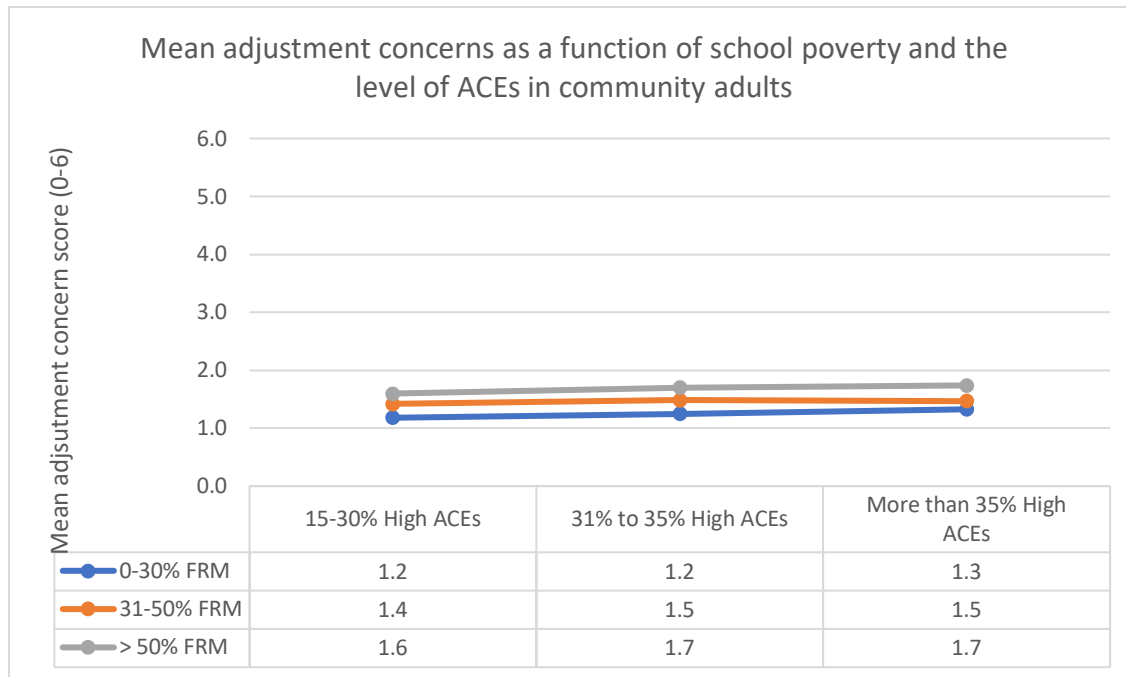


School poverty (FRM): Wald Chi Square (2) = 30.4, p<.001

Community Adult ACEs: Wald Chi Square (2) = 7.4, p<.001

Interaction is nonsignificant

Figure 16 The association of school community poverty and adult community ACEs with youth report of adjustment concerns



School poverty (FRM): Wald Chi Square (2) = 87.9, p<.001

Community Adult ACEs: Wald Chi Square (2) = 9.8, p<.001

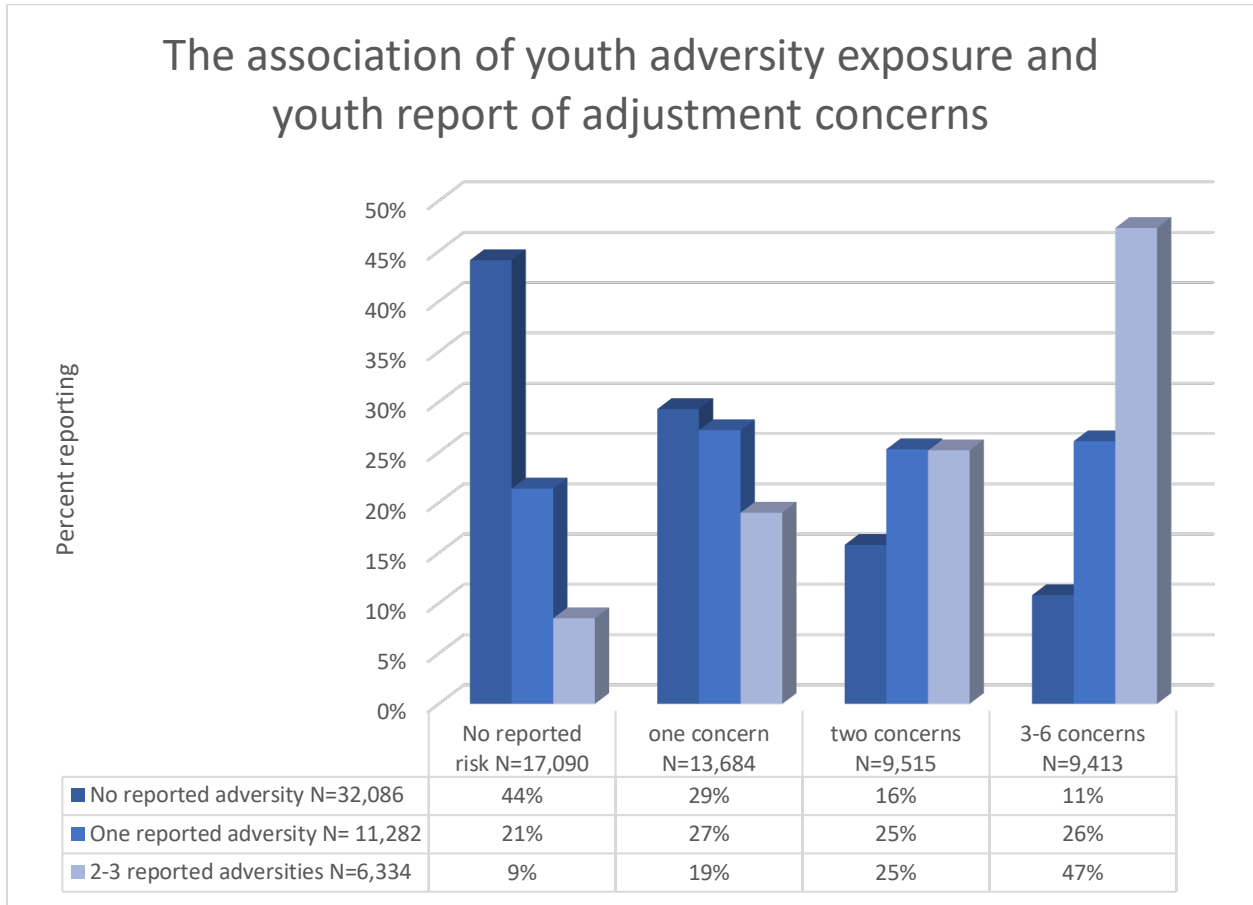
Interaction is nonsignificant

Persisting adjustment struggles combined with exposure to multiple ACEs is defined in the mental health literature as *complex trauma* (Cook et al., 2005) to distinguish these adaptive struggles from how we commonly refer to acute forms of trauma or to adjustment concerns not linked to adversity. The following figure illustrates the impact of adversity exposure on the occurrence of significant adjustment struggles:

- Nearly half of students with no reported adversity exposure report no adjustment concerns.
- Nearly half of students with two or more reported adversities experience three or more of the six areas of adjustment concerns.



Figure 17 The association of youth adversity exposure and reported adjustment concerns



Chi Square (6) = 7,510.2, p<.001

HYS includes a validated quality of life scale. The Youth Quality of Life Instrument-Surveillance Version (YQOL-S), is a thirteen-item inventory providing a summary measure of self-reported quality of life. Examples of questions include<sup>18</sup>:

- I feel I am getting along with my parents or guardians.
- I look forward to the future.
- I feel good about myself.
- I am satisfied with the way my life is now.
- I feel alone in my life.

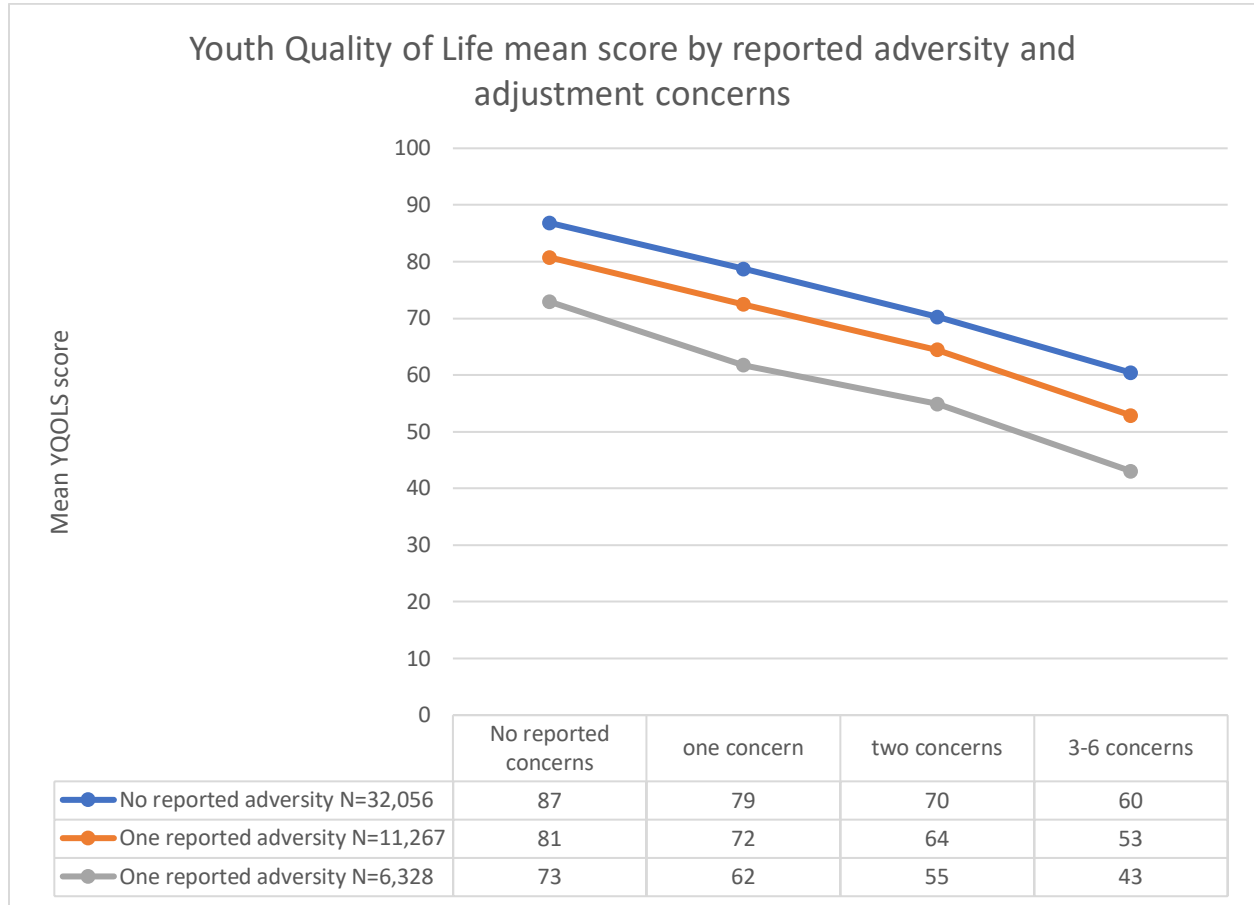
The quality of life scale provides a summary score ranging from 0-100 with higher scores indicating higher reported quality of life. We found that as reported adversity and adjustment concerns increase, student quality of life is reduced significantly.

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<https://www.doh.wa.gov/DataandStatisticalReports/DataSystems/HealthyYouthSurvey/TechnicalNotes/CompositeVariables>

While youth adversity is strongly associated with reported adjustment concerns, these are related but distinct concepts. The next figure illustrates the independent effects of adversity exposure and adjustment challenges on the Healthy Youth Survey’s Quality of Life scale (0-100 scale, higher scores equal better quality of life). We found that both adversity and adjustment concerns have significant effects on life quality. Specifically, students report lower quality of life as adversity exposure increases, but within each level of adversity exposure quality of life is more greatly impacted as reported adjustment concerns increase.

Figure 18 The effects of adversity and adjustment concerns on reported youth quality of life



Adversity:  $F(2, 49,639) = 1,688.7, p < .001$

Adjustment:  $F(3, 49,639) = 2,824.1, p < .001$

To assist with interpretation of the YQOL-S scores, HYS<sup>19</sup> provides grade level quartiles. In the following table, as high school students’ adjustment concerns increase, we see a stepwise reduction in quality of life that closely reflects the quartile divisions reported by HYS. The close alignment of our adjustment concern groups and quality of life quartiles provides a confirmation that the adjustment scale is reflecting broad differences in quality of life adjustment.

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Figure 19 Student adjustment concerns and alignment with YQOL adjustment quartiles

Grade	YQOL-S Quartile Score Ranges (Lowest to Highest)	Adjustment Concern Groups	Mean YQOL-S Score	S.D.
10	1-66	3-6 concerns	51	22.6
	61-78	2 concerns	65	20.3
	78-90	1 concern	75	18.7
	90+	No reported concerns	84	14.3
Grade	YQOL-S Quartile Score Ranges (Lowest to Highest)	Adjustment Concern Groups	Mean YQOL-S Score	S.D.
12	1-64	3-6 concerns	53	22.1
	64-82	2 concerns	64	21.0
	82-92	1 concern	73	19.3
	92+	No reported concerns	83	14.5

A closer look at the data above is warranted. While students are able to report 'no adjustment concerns' at each of the three levels of adversity, the percent of students reporting 'no concerns' decreases as the adversity exposure increases (moving from 44% to 21% to 8%). While correlational, these results are consistent with adversity exposure being a significant contributor to ongoing adjustment struggles for students.

We will continue to use the terms “adjustment struggles/concerns/challenges” to describe the students reporting one or more of the six adjustment questions we identified. However, when we look at the educational outcomes for students who report both adversity exposure and adjustment struggles, these results are consistent with struggles identified in complex trauma. As we explore in the Discussion, acknowledging the role of complex trauma in education opens a range of intervention opportunities that enhance existing support strategies.

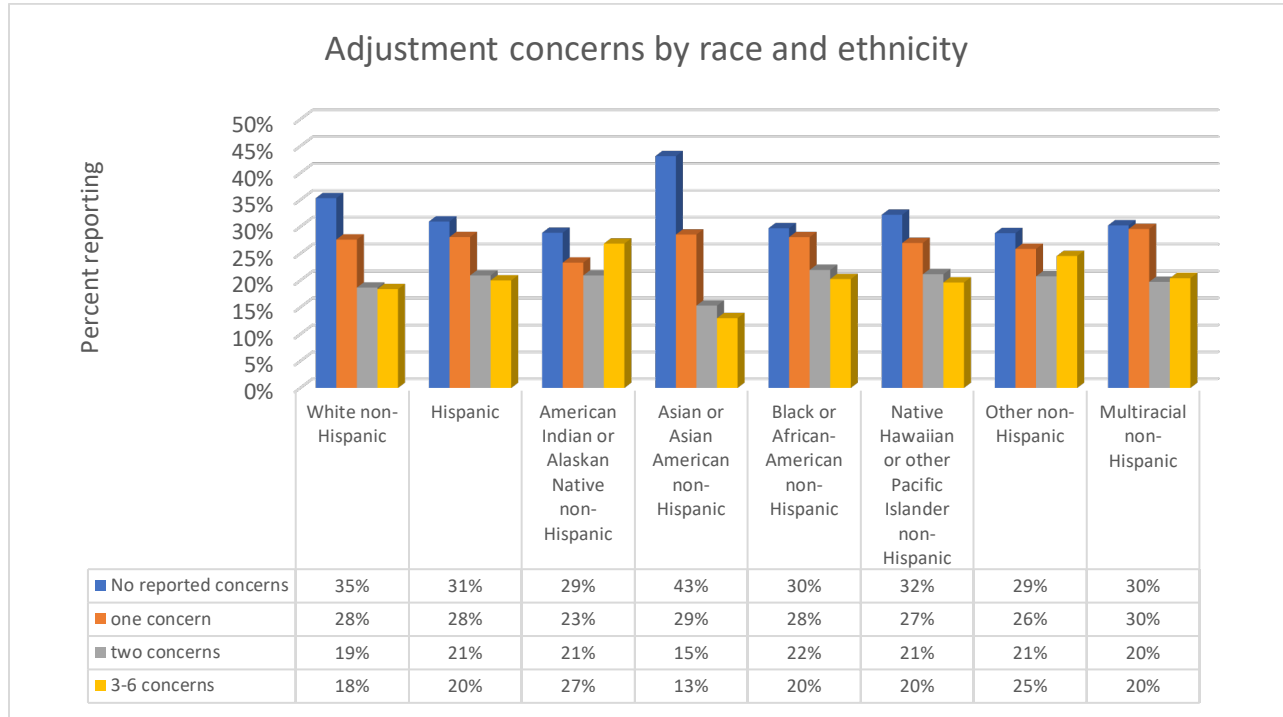
## 2. Individual differences in risk as a function of adversity and adjustment concerns

This report section documents the contribution of adversity exposure, adjustment struggles, and poverty on individual non-academic risks. While this is principally a report about collective characteristics of schools and their communities, we had access to individual level data for high-school students and graduates during the 2014 and 2016 HYS administrations. This information is drawn from the 2016 HYS survey, which permits us to test for several social risks. Consistent with the larger ACEs literature, we can demonstrate that increases of adjustment concerns reflect broader patterns of risk.

Differences in academic success are associated with gender and race, but neither of these characteristics are effectively summarized as school characteristics. These are better considered as individual differences across all students. For gender, the roughly equal proportions of students do not support using gender enrollment to describe school differences. With respect to race, a particular challenge is that non-White student enrollment is concentrated in specific communities and we often have effectively empty race groups in many schools. Such uneven distribution across schools would distort any statistical analysis looking at racial group enrollment across schools.

Race and gender are associated with differences in adversity risk and resulting adjustment concerns. Boys report significantly lower adversity exposure [Males= 0.44, Females M=0.59,  $F(1, 50,259) = 459.1, p < .001$ ] and significantly fewer areas of adjustment concerns [Boys M= 1.2, Girls M=1.4,  $F(1, 68,945) = 521.5, p < .001$ ]. Racial groups demonstrated significant differences with respect to both adversity exposure and adjustment concerns. White, Hispanic, and Asian students are at comparatively lower risk than other student groups.

Figure 20 Level of adjustment concerns by student race and ethnicity



Chi Square (21) = 651.2,  $p < .001$

In the remainder of this section, we address how adjustment concerns are associated with early sexual initiation, suicidal risk, initiation into alcohol and drug use, and youth’s self-rating of quality of life.

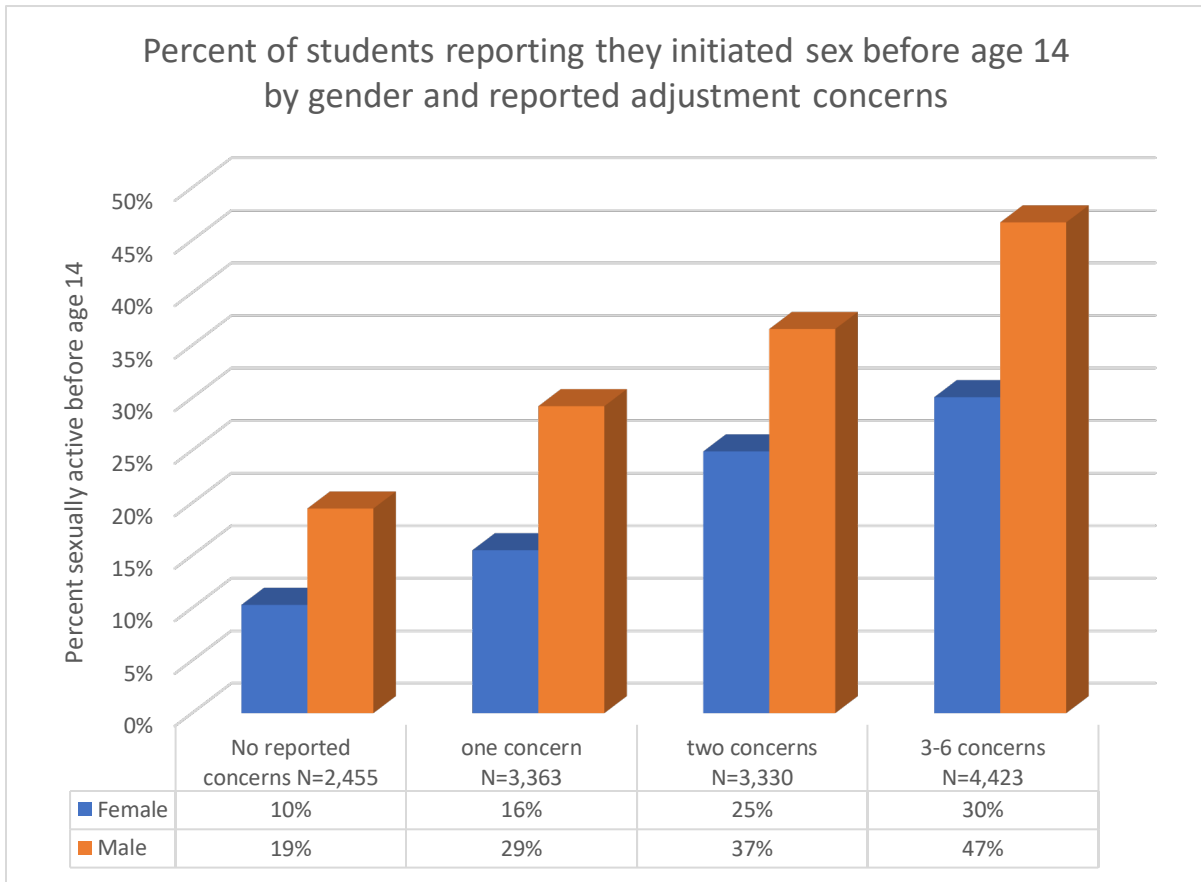
As exposure to youth adversities increases, students report significantly earlier initiation of sexual intercourse (please refer to the Appendix for results). Similarly, increasing adjustment concerns are also associated with earlier initiation of intercourse and with an increasing number of sex partners during adolescence. Early sexual initiation and multiple sex partners are concerning because of health risks associated with unintended pregnancies and sexually transmitted disease. Among students who have become sexually active, we found a significant gender-by-adjustment concern interaction for initiation of sexual activity before the age of 14. While boys report earlier sexual initiation, the percent of students reporting early sexual initiation increases as the number of adjustment concerns increase. We also documented that as adjustment struggles increase for both genders, the reported number of sex partners increases.

Figure 21 Student adjustment concerns and early initiation of sexual intercourse

	Intercourse before the age of 14
No reported concern N=2,458	16%
one concern N=3,418	24%
two concerns N=3,338	31%
3-6 concerns N=4,491	38%

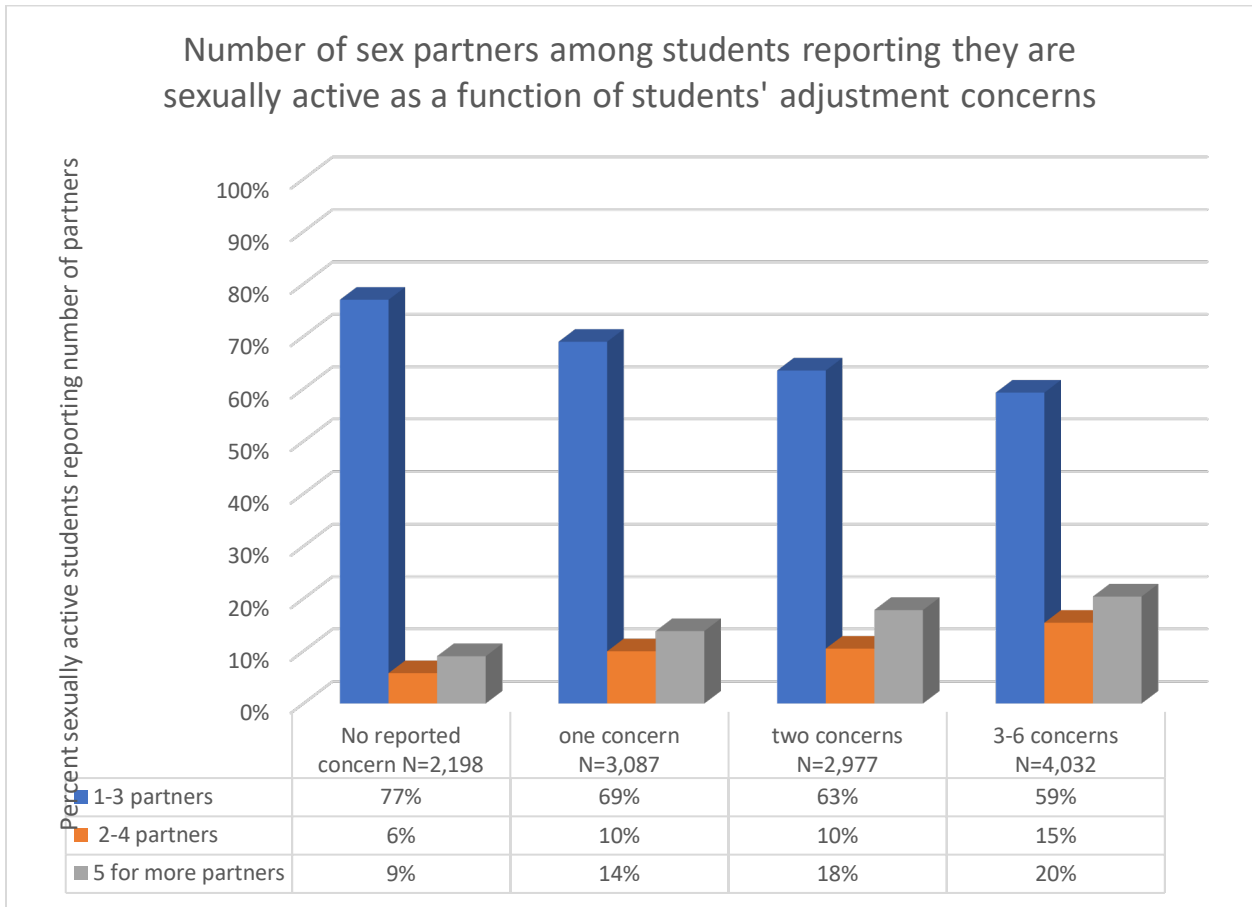
F (3, 13,704) = 153.6, p<.001

Figure 22 Gender by adjustment concerns and early initiation of sexual intercourse



Gender X Adjustment Concern Interaction: F (3, 13,570) = 4.3, p<.005

Figure 23 Level of adjustment concerns and number of sex partners

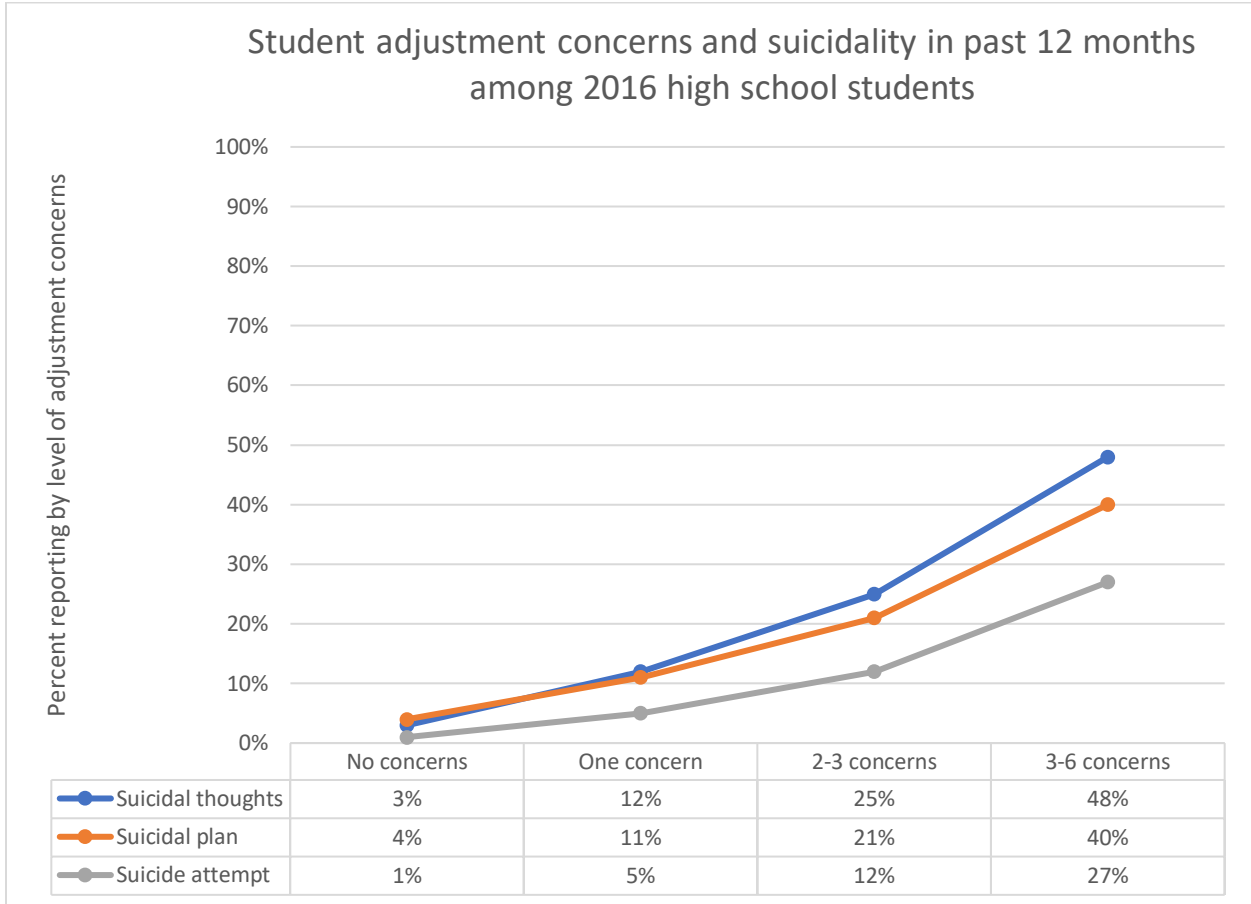


Chi Square<sup>20</sup> (16) =3,463.6, p<.001

Suicidal thought and report of serious risk associated with explicit plans and attempts are disturbingly common among adolescents. Increasing suicidality is associated with higher reports of adversity exposure and adjustment concerns. Results for the adversity groups are presented in the Appendix.

<sup>20</sup> The original HYS output included the percent of youth not sexually active. This option was removed to simplify the visual presentation.

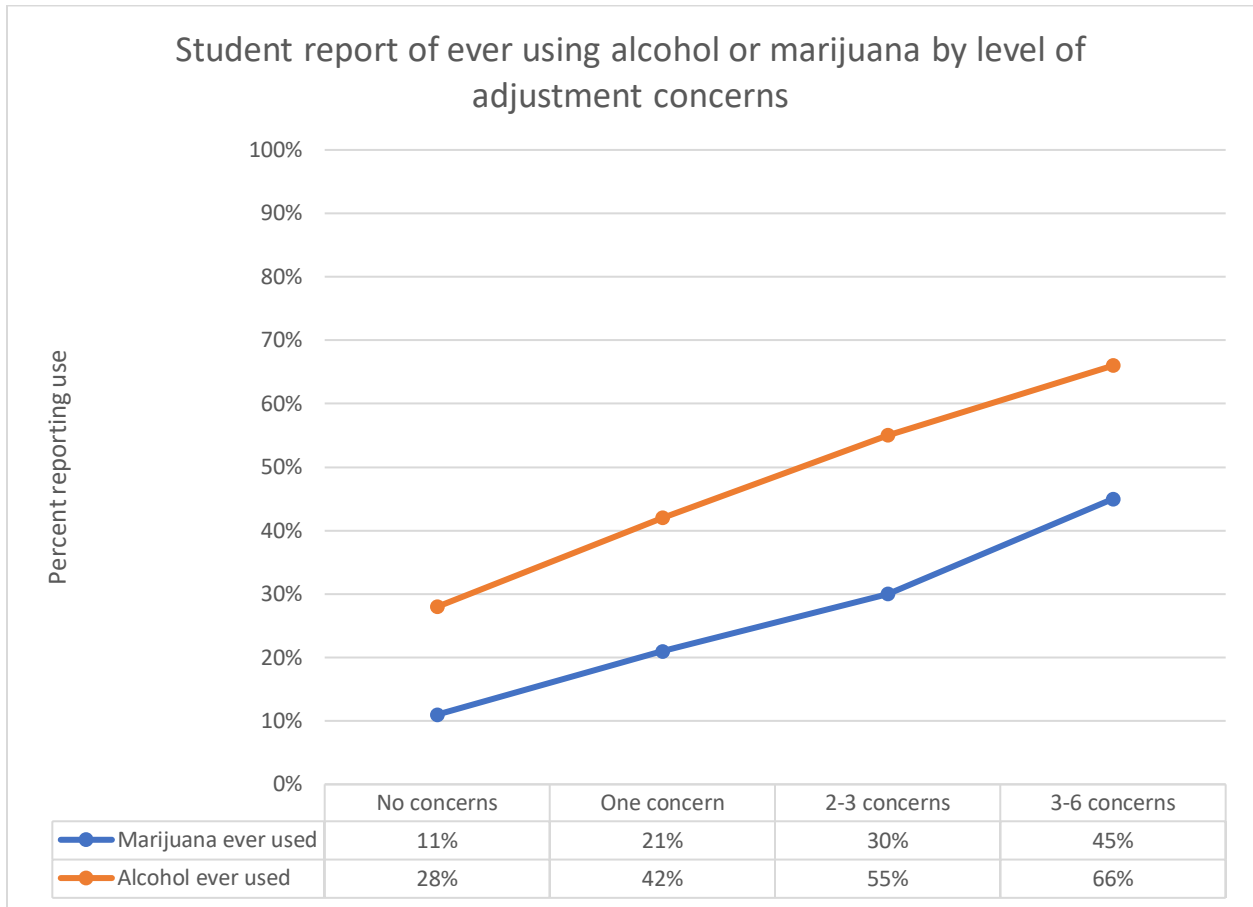
Figure 24 Level of student adjustment concerns and suicidality in the past 12 months



Suicidal thoughts: Chi Square (3) = 12,377.4, p<.001  
 Suicide plan: Chi Square (3) = 9,006.9, p<.001  
 Suicide attempt: Chi Square (3) = 7,504.6, p<.001

While recent binge drinking is included in our adjustment index, use of alcohol and marijuana in high school are established correlates for a range of other risks. The following figure demonstrates a strong linear relationship between reported adjustment concerns and the percent of students reporting substance use.

Figure 25 Level of adjustment concern and any reported use of alcohol or marijuana



Marijuana: Chi Square<sup>21</sup> (24) = 6,757.2, p<.001

Alcohol: Chi Square (24) = 6,617.4, p<.001

a. The comparative importance of poverty in describing individual risk

The Healthy Youth Survey includes a question on free and reduced meal (FRM) enrollment for individual students. While we have confirmed poverty in schools to be a powerful risk predictor, we did not find that poverty status was as powerful of an influence on individual differences described in HYS. Students who were FRM enrolled showed a significant but modest increase in relative risk of adversity exposure and in the degree to which they struggle across multiple concerns.

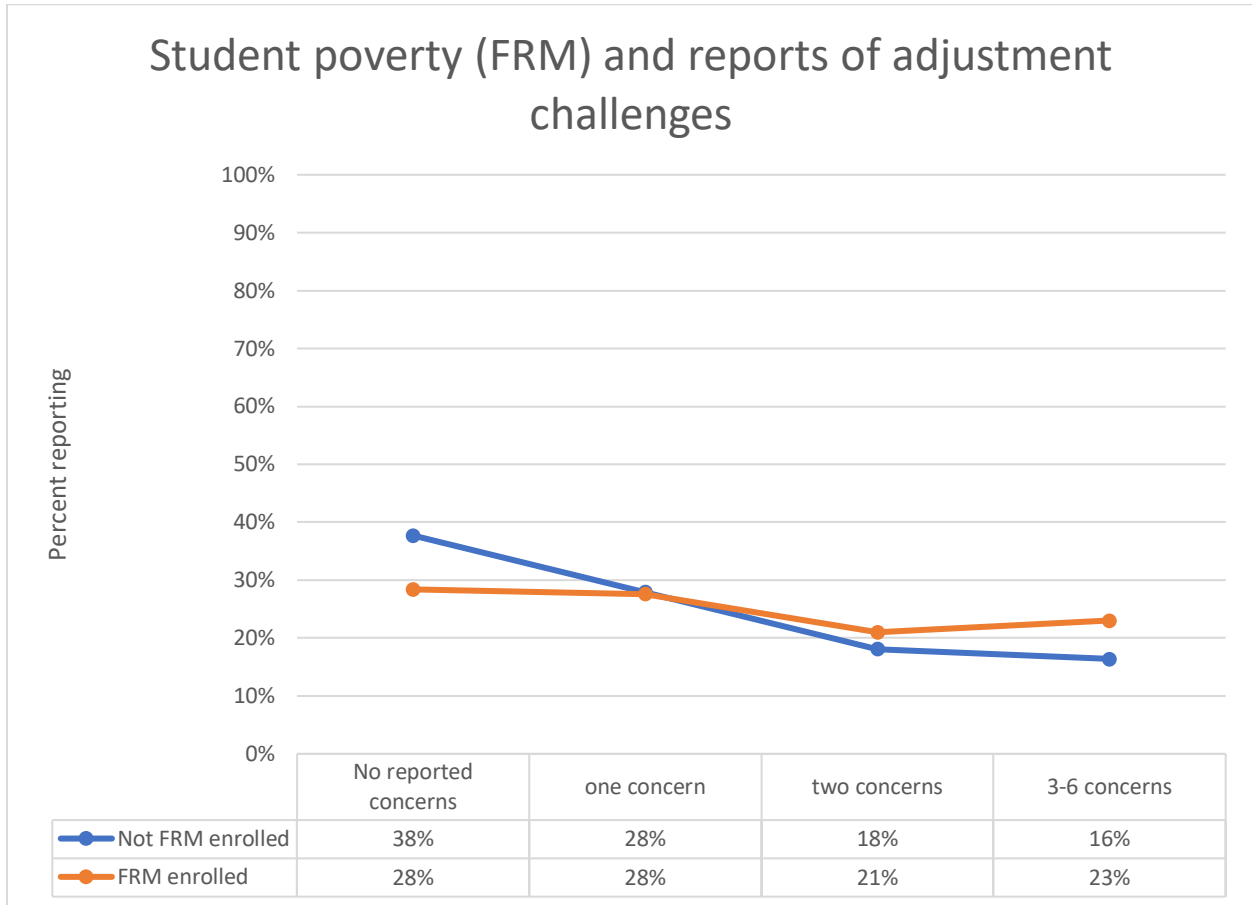
Among students not enrolled in FRM, 68% of students report no youth adversities, compared to 58% of students who are FRM enrolled [Chi Square (2) =561.9, p<.001]. FRM status is also associated with level of adjustment challenges. Students enrolled in FRM are more likely to struggle with multiple adjustment challenges (see next figure).

<sup>21</sup> The displays simplify results from an analysis of initial age of use. Along with the absolute difference in reported initial use, the age of initial use is significantly lower as function of adjustment concerns.



While these findings confirm the association between poverty and both adversity risk and resulting developmental struggles, the findings also suggest that poverty is a comparatively modest influence on adjustment struggles in the general population. As seen in the next figure, poverty’s impact may be focused in a subset of particularly vulnerable youth (3-6 concerns) reflecting significant adversity histories.

Figure 26 Individual student poverty and level of adjustment concerns



Chi Square (3) = 760.5, p<.001

Adversity exposure describes an increased risk of adjustment concerns, but not a guarantee that challenges will follow. The adjustment index is the report by the student of the degree to which they currently are struggling. Both the individual and school summary differences underscore two common themes in the ACEs literature: a dose-dependent increase in adjustment as adversity struggles increase, and earlier onset of a number of risk behaviors.

In summary, both adversity exposure and increasing adjustment concerns are very common among high school students. The individual and school summary differences underscore two common themes in the ACEs literature: a dose-dependent increase in adjustment as adversity struggles increase, and earlier onset for three of well-established threats to adolescent development and safety (: suicidal risk, early sexual initiation, and under-aged use of alcohol and marijuana). There is also evidence that individual poverty status plays a less central role in

describing risk than adversity and adjustment concerns. We conclude that the six-item adjustment scale employed in this report demonstrates high levels of associations with other risks and is associated overall with significant differences in the quality of life for many students.

### 3. Academic success and the impact of adjustment struggles

Academic performance is impacted by poverty, adversity risk, and subsequent struggles to adapt to adversity. While poverty has a major effect on almost all academic success indicators, adversity and associated adjustment struggles are more powerful predictors of academic performance among the high school graduates in this study.

In order to organize attendance, academic program participation, discipline, and GPA, we used individual level data to create summary measures for schools on each of these factors as supplemental information beyond OSPI’s available summary descriptions of schools.

We confirmed that the poverty-by-adjustment concerns comparisons included sufficient high schools in each group. With the lowest school count in any cell equal to 31, we concluded that we had an adequate number of schools in each condition to support the following analyses.

*Figure 27 Count of Schools by FRM and Adjustment Groups*

	Lower Adjustment Concerns	Intermediate Adjustment Concerns	Higher Adjustment Concerns
0-50% FRM	100	97	60
>50% FRM	31	42	73

We included all graduates, irrespective of school type. We examined differences between general education high schools and alternative high schools and related alternative education programs (e.g., contract learning). We found that the student report of adversity and adjustment struggles in the alternative programs was so great that we had too few low-adversity alternative education programs (N=3) to permit analysis.

To describe the degree of student adjustment concerns in a school, we used the individual HYS data for the 0-6 adjustment scale and computed the mean student adjustment score for the school. We then ranked schools based on the mean adjustment score and assigned schools to ‘school adjustment groups’ based on if they were ranked in the lowest (M=1.1 concerns, SE=0.2), intermediate (M=1.4 concerns, S.E.=0.2), or highest third of schools (M=1.8, S.E.=0.2).

In this section, we present the results for standardized test outcomes and GPA as measures of academic mastery. In addition, we produced school summaries based on percent of students (e.g. percent of students in a school with a disciplinary referral) for attendance concerns, disciplinary actions, and student participation in learning support programs. After presenting these findings, we address the overall success in transition to postsecondary education and assess what school characteristics are most predictive of success.

a. School differences in standardized test outcomes

A constraint in our data resources is that standardized test outcomes (Smarter Balanced Assessment, SBA) are not available for the individual student. Rather, we can examine pass percent rates for schools by all students and a number of student subgroups defined by OSPI. In this report, we have opted not to conduct subgroup SBA comparisons because we already address these demographic groups in the analyses using available data from the individual students in each school. For any reader interested in the publicly available OSPI data for student subgroups, we analyzed SBA testing results using the OSPI subgroup structure in the *No School Alone 2018* report.

*English Language Arts (ELA) State Test*

In testing the effect of school poverty<sup>22</sup> and adult community ACEs on ELA state testing, we found a main effect for school poverty but did not find that adult community ACEs were predictive. Neither Hispanic nor ELL percent enrollment were significant covariates.

*Figure 28 Effect of school poverty on SBA Grade 10 ELA pass percent*

School poverty	Mean ELA Pass Percent
0-30% FRM	83%
31-50% FRM	73%
> 50% FRM	57%

Wald Chi Square (2) = 123.1, p<.001

When we examined student’s report of youth adversity as a school characteristic (percent of students with 0, 1, or 2-3 adversities), both school poverty and the level of school youth adversity were significant main effects on ELA pass percentages. [Please see the Appendix for the detailed results for the ELA poverty by youth adversity comparison.] Hispanic and ELL percent enrollment were not significant covariates.

We then examined the degree to which students in a school report struggles with concerns, indicating adjustment concerns. We found both school poverty and increasing adjustment concerns were independent influences on ELA pass percent. FRM enrollment was simplified to two levels for the analyses, including student adjustment, and the results for that analysis follow.

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<sup>22</sup> When conducting the community adult ACEs by poverty analyses, we are able to use three levels of poverty to describe schools because of adequate counts at each level. In the balance of the report, we use a two-factor strategy to address poverty.

Figure 29 Effect of school poverty on SBA Grade 10 ELA pass percent

School poverty	Mean ELA pass percent	S.E.
0-50% FRM	76	1.04
> 50% FRM	62	2.24

Wald Chi Square (1) = 32.7, p<.001

Figure 30 The level of school student adjustment concerns and Grade 10 ELA pass percent

School level of adjustment concerns	Mean ELA pass percent	S.E.
Lower	75	2.10
Intermediate	70	1.78
Higher	62	1.48

Wald Chi Square (1) = 27.1, p<.001

We did find in the adjustment by poverty analysis that ELL enrollment was a significant covariate; ELA pass percentages decrease as the percent of ELL students increase.

Figure 31 ELL enrollment and mean ELA test pass percent

Percent ELA Pass	N	Mean Pass Percent ELA	S.E.
5% or less ELL	209	71	1.2
6-10% ELL	42	70	2.2
11-20% ELL	23	63	3.1
Greater than 20% ELL	10	50	5.6

F (3, 281) = 5.6, p<.001

*SBA Math*

We demonstrated a main effect for school poverty (but not for community adult ACEs) on math pass percent. With adult ACEs considered in the analysis, neither Hispanic nor ELL percent enrollment were significant covariates. Although we tested for group differences with two poverty groups, the next figure provides the results for our original three levels of school poverty, documenting the effect of poverty on Math results principally in schools with the highest levels of poverty.

Figure 32 The effect of school poverty on Grade 10 Math mean pass percent

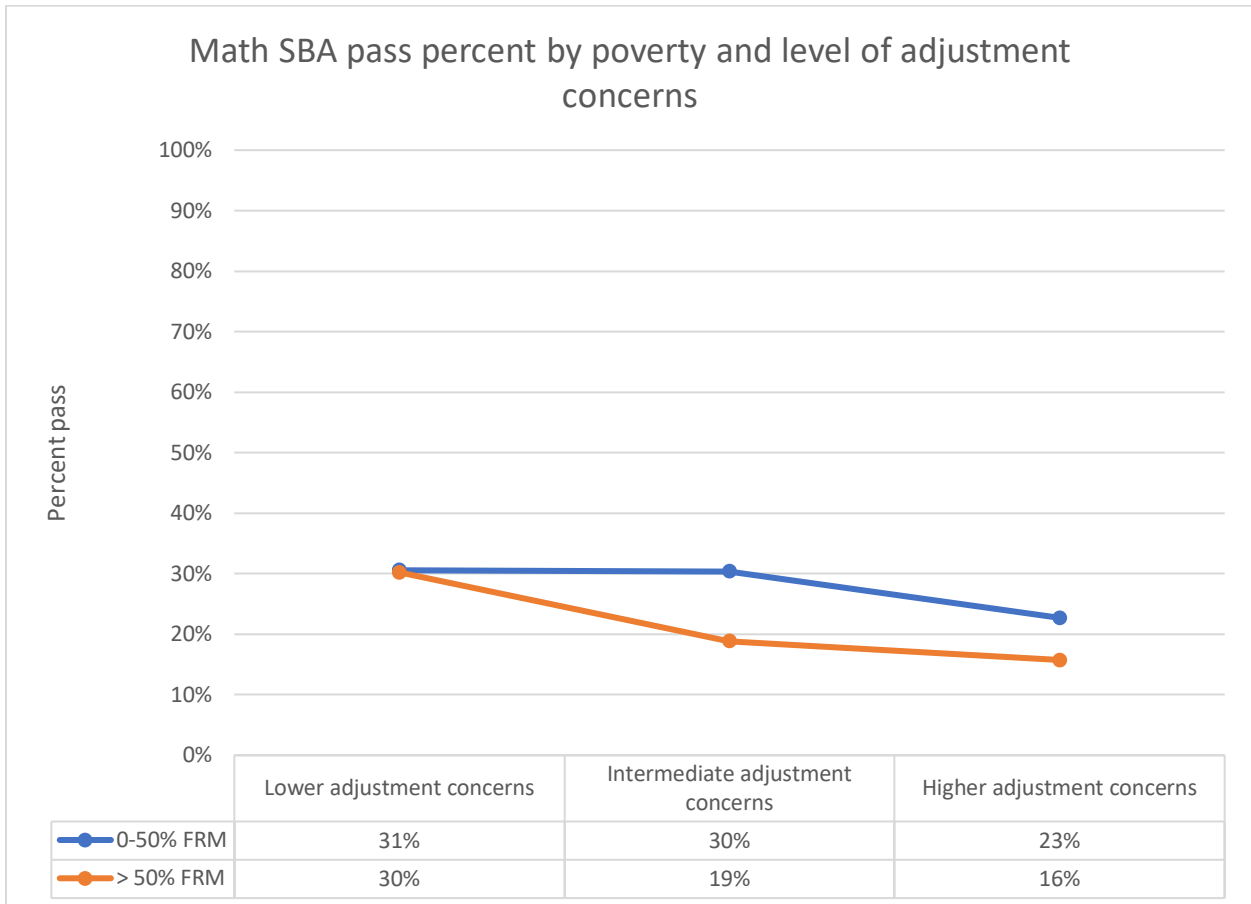
Percent School Poverty	Mean Math Pass Percent	Std. Error
0-30% FRM	29	1.6
31-50% FRM	27	1.2
> 50% FRM	19	1.7

Wald Chi Square (2) = 6.5, p<.04

When we used youth adversity in combination with school poverty, we found a significant interaction on SBA Math pass percentages. Neither percent Hispanic nor ELL enrollment were significant covariates. Please see the Appendix for the adversity group results.

The adjustment concerns by poverty analysis also resulted in a significant interaction effect on SBA Math pass percentages. Again, Hispanic and ELL enrollment were not significant covariates.

Figure 33 The interaction effect of poverty and student adjustment on SBA Math pass percent



Interaction Poverty X Adjustment Concerns: Wald Chi-Square (4) = 8.8, p<.01

*SBA Biology*

Examining community adult ACEs, we again found that poverty was a significant main effect on the Biology exam pass percentage, but that community adult ACEs was not significant. Hispanic and ELL enrollment were not significant covariates.

*Figure 34 The effect of school poverty on SBA Biology mean pass percent*

School poverty groups	Mean	S.E.
0-30% FRM	78	1.4
31-50% FRM	68	1.4
> 50% FRM	52	1.9

Wald Chi-Square (2) = 120.4,  $p < .001$

Both school poverty and youth adversity in the schools were found to be significant main effects on a school’s Biology pass percent. ELL percent enrollment was found to be a significant covariate, but not Hispanic enrollment. As the percent enrollment of ELL students in a school increases, overall Biology pass percent decreases, as shown in the next figure. Please see the Appendix for the school adversity result on SBA Biology outcomes.

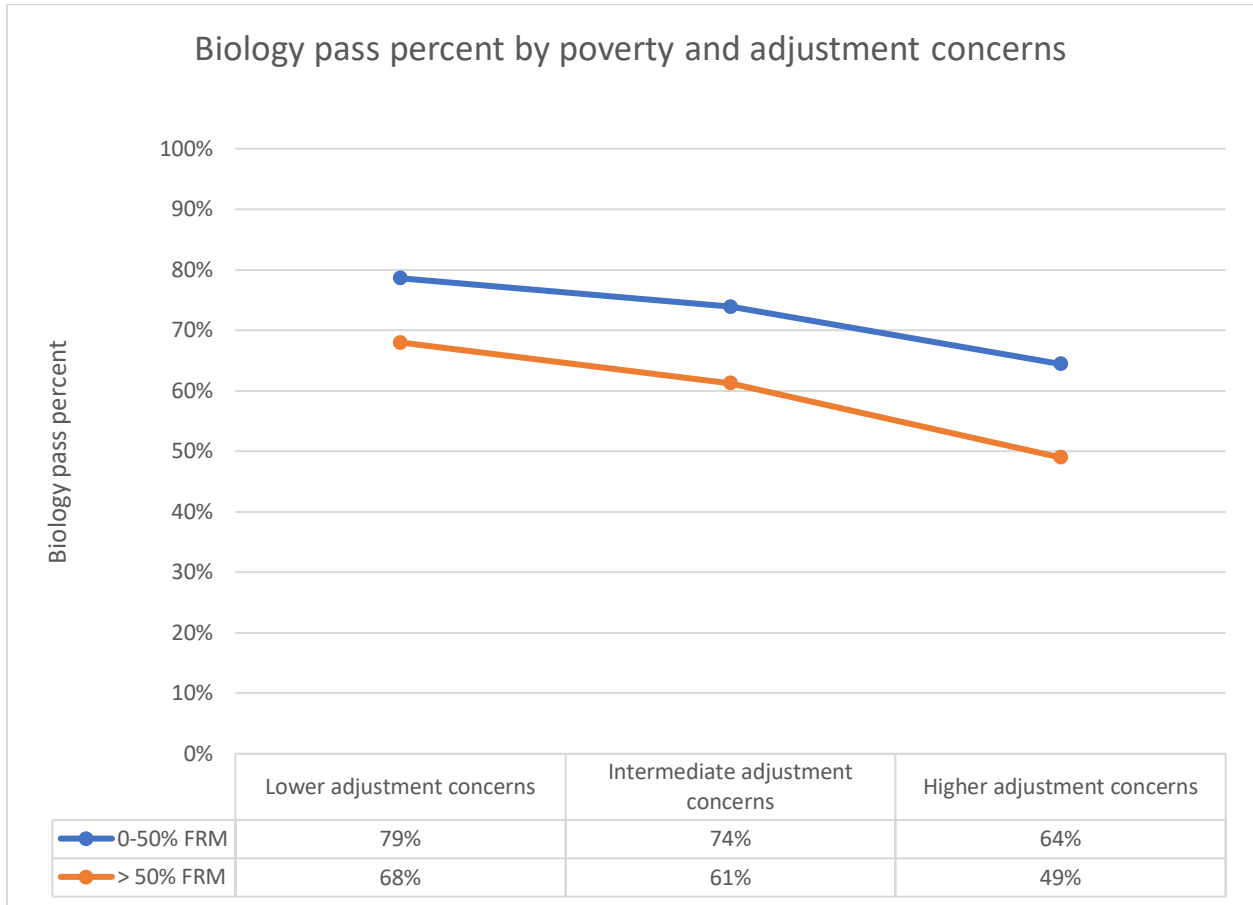
*Figure 35 Differences in the SBA Biology pass percent ELL enrollment*

	N of schools	Mean Biology Pass Percent	S.E.
5% or less ELL	247	69	19.2
6-10% ELL	43	65	18.4
11-20% ELL	27	54	15.7
Greater than 20% ELL	12	38	15.9
Total	329	66	19.9

F (3, 328) = 14.8,  $p < .001$

When we examined the effect of poverty and the average level of adjustment concerns, we found both factors were independent main effects on the SBA Biology outcome.

Figure 36 The effect of poverty and student adjustment concerns on SBA Biology pass percent



School poverty (FRM): Wald Chi Square (2) = 25.9, p<.001

Community Adult ACEs: Wald Chi Square (2) = 38.1, p<.001

Interaction is nonsignificant

b. Grade Point Average (GPA) and student adjustment

GPA report in Washington is based on standard 0.0-4.0 grade range and common curricula. Because grading can be a subjective judgment for educators, we recommend caution interpreting the results. However, because GPA plays a significant role in being eligible for many college programs, it is important to examine this indicator for systematic differences on our primary measures.

In the poverty by community adult ACEs test, school poverty had a significant impact on GPA but adult community ACEs was not a significant factor. While Hispanic enrollment percent was not associated with GPA, ELL percent enrollment was a significant covariate such that GPA in schools was lower as the percent of ELL students increased. The ELL group differences were not significant when examined in isolation and as a result are not reported here.

*Figure 37 The effect of school poverty on high school cumulative GPA*

School poverty groups	Mean GPA	S.E.
0-30% FRM	2.92	0.07
31-50% FRM	2.82	0.03
> 50% FRM	2.56	0.04

Wald Chi Square (2) = 30.2,  $p < .001$

When we tested poverty by school adversity groups, we confirmed the poverty main effect<sup>23</sup> but in addition found that there is a significant main effect for school adversity levels—that is, GPA is lower as school adversity levels increase. Neither Hispanic nor ELL percent enrollment were significant covariates. The result is presented in the Appendix.

In the poverty by school adjustment concern analysis, we again found main effects for poverty and for the level of adjustment concerns, both of which mirror the results for school adversity levels. GPA is significantly lower in the schools with the highest levels of adversity exposure and adjustment concerns. Hispanic enrollment was a significant covariate but not ELL enrollment. When examined separately, the results suggest a weak association where GPA is higher in the schools grouped with the lowest Hispanic enrollment.

*Figure 38 The effect of school adjustment concerns on cumulative GPA*

School adjustment concerns	Mean GPA	S.E.
Lower adjustment concerns	2.80	0.08
Intermediate adjustment concerns	2.82	0.03
Higher adjustment concerns	2.58	0.04

Wald Chi Square (2) = 26.3,  $p < .001$

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<sup>23</sup> While there were minor in the GPA results, we do not report poverty for the school adversity and school adjustment comparisons because the results are effectively the same.



Figure 39 Hispanic percent enrollment and cumulative GPA differences

School Percent Hispanic Enrollment	N	Mean GPA	S.E.
Less than 15% Hispanic	232	2.83	0.04
15-25% Hispanic	87	2.65	0.04
25-40% Hispanic	56	2.72	0.05
Greater than 40% Hispanic	49	2.61	0.06

F (3, 423) = 4.6, p<.003

In summary, we demonstrated that significant GPA and standardized test outcomes across schools are predicted either by poverty and adjustment concerns as main effects or operating through an interaction of influences. We also confirmed on some but not all of the measures that either Hispanic or ELL percent enrollment across schools were significant covariates for academic performance. The differences in school academic performance are not only statistically significant but describing marked differences in average levels of success across schools. We conclude that poverty, adversity, and student adjustment differences are strong correlates of overall school academic performance

c. Quality of school connection, poverty, and level of student adjustment concerns

A successful connection to school, attendance and conduct in school all contribute to (but are separate from) academic performance measures that are critical indicators of success in high school years. Academic mastery shown through testing and GPA defines the level of competency needed to transition into higher education. Attendance and disciplinary involvement are markers of school adjustment concerns, which are barriers to academic performance and often serve as markers of disconnection from the value of education. Among the graduates, we were able to examine school differences with respect to attendance (absences, chronic absenteeism) and discipline actions, both as individual differences and as estimates of average experiences in the students’ schools.

Attendance and Chronic Absenteeism

The measures for attendance are the total days absent and the risk a student establishes a persistent pattern of missing many days in school. ‘Chronically absent’ is defined as missing more than 18 days in a school year irrespective of reason. We examined attendance concerns at two levels consistent with OSPI data practices: the total days absent from school and the percent of students designated as chronically absent.

Because we are working with data in the Washington State Educational Research Data Center’s data warehouse, we are constrained in reporting absences because of how the data warehouse has developed over time. The first school year for which the data warehouse has attendance information is 2013. As a result, with incomplete high school career attendance data for the 2014-2016 graduating cohorts, we chose to restrict reporting to the student’s senior year for consistency as we validated the 2016 findings with results from the previous two years. The

reader should recall that senior year is known to be a time period in which attendance concerns are more likely to occur.

When we examined the impact of poverty and adult community ACEs on whole day absences, we found that poverty was a significant main effect, but adult community ACEs was not predictive of absences. Neither Hispanic nor ELL enrollment percent was a significant covariate. As the percent of FRM enrolled students increased in a school, the mean days absent in their senior year increased. Indeed, in the highest poverty schools, the average days absent met the threshold for chronic absenteeism and thus represented the average student experience (M=18.9 days absent).

*Figure 40 School poverty and mean days absent in senior year*

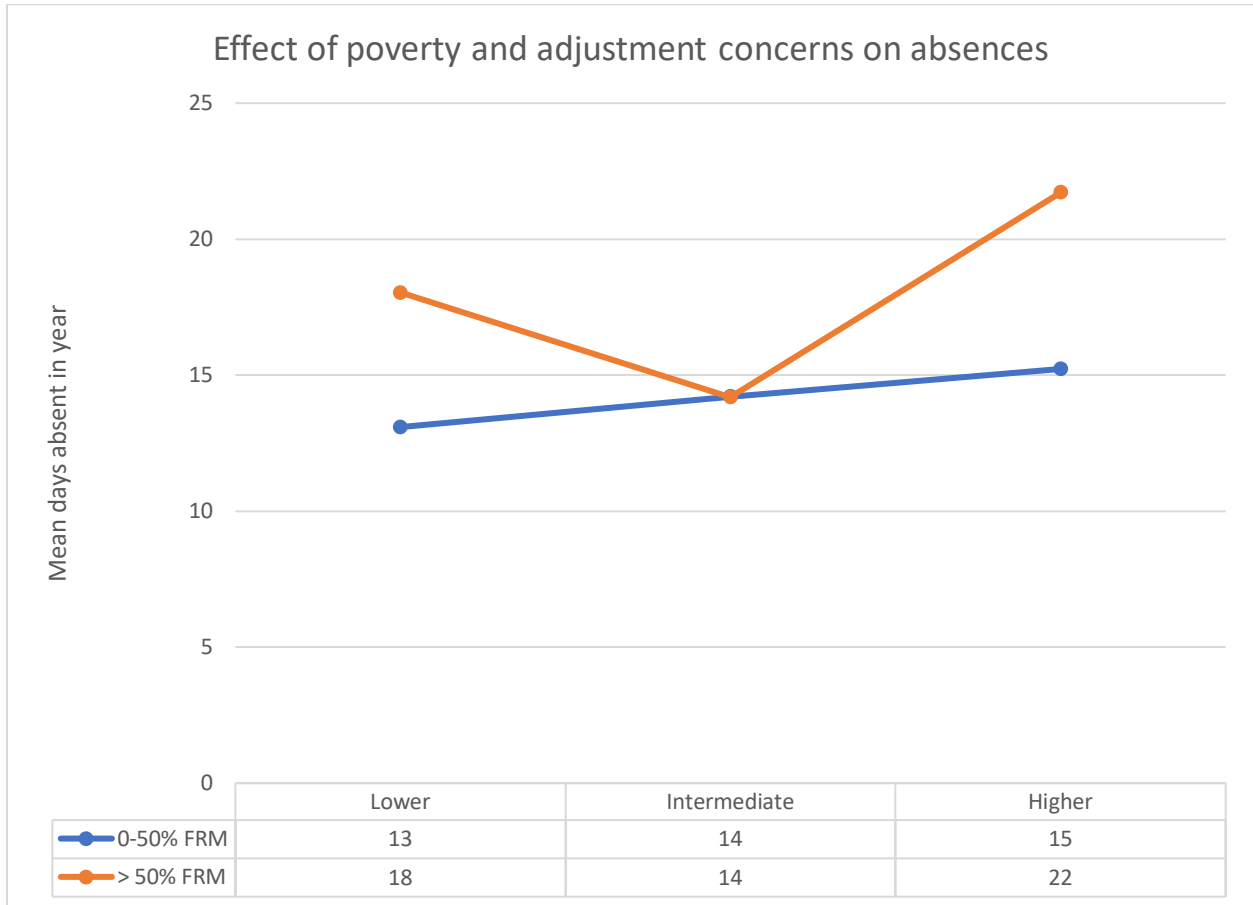
School Poverty	Mean	Std. Error
0-30% FRM	11.8	.91
31-50% FRM	14.5	.57
> 50% FRM	18.9	1.1

Wald Chi Square (2) = 26.4, p<.001

Similarly, when we examined the effects of levels of school youth adversity and poverty, we found poverty was a significant predictor, but youth adversity levels were not predictive of attendance. Hispanic and ELL percent enrollment were not significant covariates.

We found that there is a significant interaction effect for absences between poverty and level of adjustment struggles. There is significant variability across schools with respect to how schools address frequent absences. While many schools have specific outreach programs to address frequently absent students, the scope and effectiveness of these programs varies across districts. Despite this variability, students in the highest poverty schools and with highest average adjustment concerns were found significantly more likely to be absent.

Figure 41 Poverty by adjustment concerns interaction for number of absences



Interaction Poverty X Adjustment Concerns: Wald Chi-Square (4) = 13.2, p<.001

Overall, as adjustment concerns increase, so do reported absences. We do not have an explanation for the reduction in days absent for the higher poverty, intermediate adjustment challenge schools. This may be an example of variation in school strategies to address absences.

We examined the incidence of chronic absenteeism. In the senior year of the graduating cohort, the chronic absentee percent for the entire sample is M=30%, S.D.=0.19. This is well above the Washington State K-12 2016 result of 16.7% of all students<sup>24</sup>, or the national high school estimates of 21% chronic absenteeism in high school<sup>25</sup>. However, our results align well with available estimates of chronic absenteeism and its increase among senior class students (Balfanz & Byrnes, 2012).

In examining the effects of poverty and community adult ACEs on chronic absences, we confirmed a main effect for poverty. Community adult ACEs were not a significant predictor and neither Hispanic nor ELL percent enrollment was a significant covariate. In examining youth

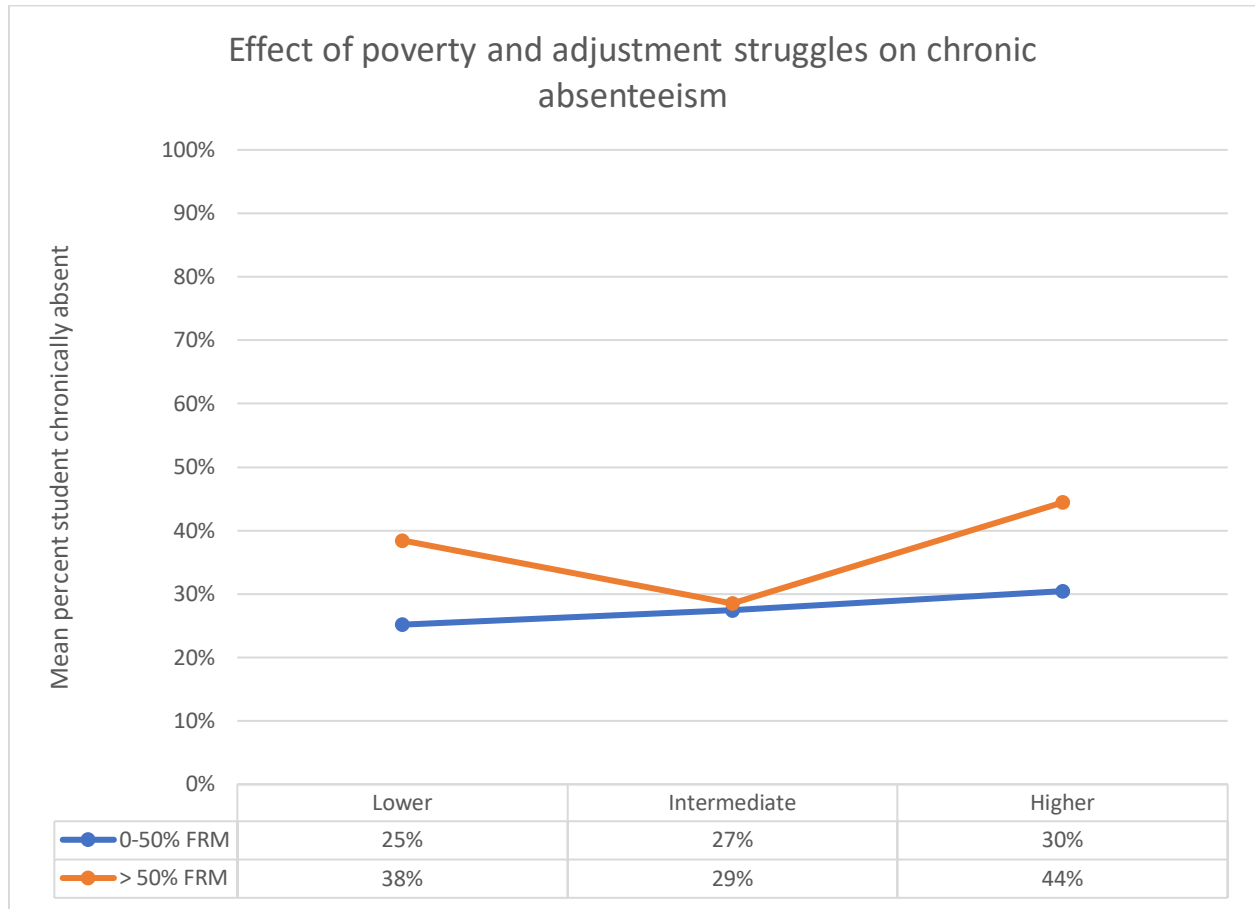
<sup>24</sup> <http://www.k12.wa.us/DataAdmin/PerformanceIndicators/ChronicAbsenteeism.aspx>

<sup>25</sup> <https://www2.ed.gov/datastory/chronicabsenteeism.html#one>

adversity as a school characteristic, again poverty was a significant predictor, but youth adversity did not add any explanatory power. Neither Hispanic nor ELL enrollment were significant covariates for the youth adversity analysis.

We confirmed that there is an interaction between school poverty and level of student adjustment challenges for the percent of students identified as chronically absent. Because chronic absenteeism is defined by the number of days absent, the results mirror the mean days absent presented above. As adjustment concerns increase in a school, the percent of students chronically absent increases in both income groups, but more so for schools with higher rates of poverty.

Figure 42 Poverty by adjustment concerns interaction for chronic absenteeism



Poverty X Adjustment Challenges in the School: Wald Chi-Square (4) = 12.8, p<.001

d. Disciplinary Actions and Student Adjustment

OSPI data includes a list of potential infractions including both minor and major concerns. Minor concerns include instances of nonviolent and nonthreatening actions: disruptive conduct, failure to cooperate, theft or possession of stolen property, tobacco use, academic dishonesty/plagiarism, alcohol use, illicit drug use (other than marijuana), and marijuana use.

In addition, major disciplinary concerns can include the following issues more associated with violence, threats, and risk to another person: discriminatory harassment, fighting without major injury, destruction of property/vandalism, bullying, possession of a weapon, serious bodily injury, sexual harassment, sexually inappropriate conduct, violence with major injury, and violence without major injury. Among the Class of 2016 graduates, there were 761 major events compared to a total of 6,212 reported disciplinary incidents. Because major disciplinary events are comparatively rare (12% of all incidents), we used total disciplinary actions as our outcome measure.

The variable we tested is the number of incidents (single students can have multiple referrals) for the school’s base population of students in a year. For reporting here, we present results as rate of disciplinary actions per 1,000 students. In the 2016 graduating cohort, 85% of the students had no reported disciplinary action, 9% had one action in their high school career, and 6% had more than one disciplinary action over their high school career. In the following analysis, we focused on disciplinary actions in the students’ senior year rather than cumulative disciplinary actions or actions in previous years. Our reasoning was that the senior year is a pivotal period for any student regarding next steps in life. We chose to use the disciplinary information closest to the transition choice, particularly given that disciplinary events are relatively rare.

We did examine the relationship between career discipline history and postsecondary enrollment. While any disciplinary event in high school was associated with lower prospects of enrolling in postsecondary education, any number of repeat disciplinary actions sharply reduced the likelihood the student entered college after graduating. The results underscore the significance of any disciplinary action as a measure of student risk.

*Figure 43 Career disciplinary actions and postsecondary enrollment*

	Percent enrolled postsecondary
No reported disciplinary actions N=58,743	63%
One career disciplinary action N=6,118	42%
Two or more career disciplinary actions N=4,232	31%

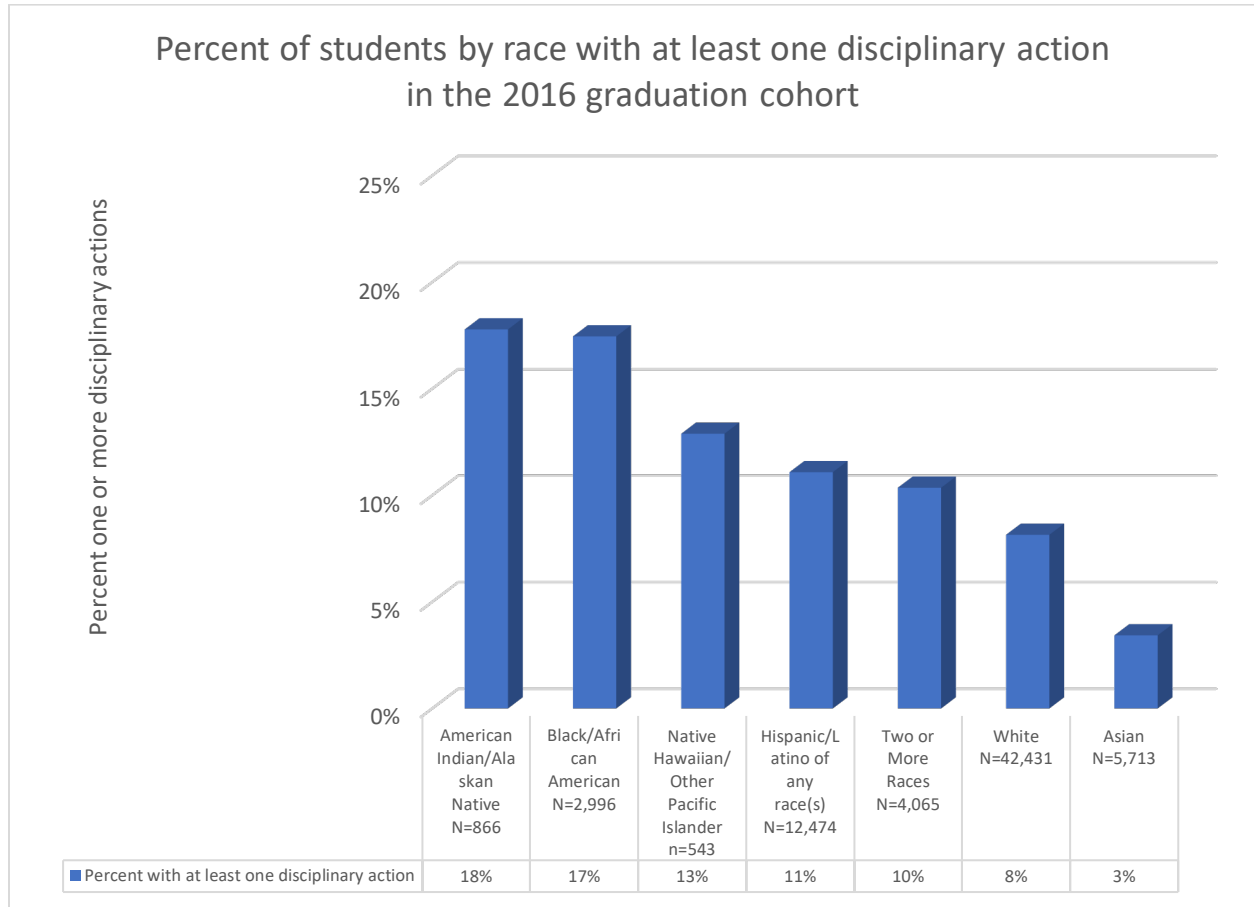
Chi Square (2) = 2,530.4, p<.001

*Individual differences and discipline.* Because both gender and race specific interventions intended to improve academic success are common in schools (e.g., formal STEM programs emphasizing female student participation; career exploration and mentor programs for African American male students), we address these individual differences for discipline before returning to our tests of significant community factors.

Among the 2016 graduating class:

- Disciplinary incidents are significantly more common for boys than for girls [13% v. 5%,  $F(1, 69,092, p<.001)$ ].
- FRM enrolled students are more likely to be involved in disciplinary actions than non-enrolled students [13% v. 7%,  $F(1, 69,092, p<.001)$ ].
- Hispanic and non-Hispanic students have comparable involvement in discipline incidents (9% non-Hispanic v. 11% Hispanic). While this is a statistically significant result, our interpretative standards<sup>26</sup> is to not view the difference as meaningful.
- ELL and non-ELL students are involved in disciplinary actions at identical percentages (9%).
- Significant racial group differences were found. Please see the next figure.
- Students with an identified disability were significantly more likely to be involved in disciplinary actions [20% v. 8%,  $F(1, 69,010) = 326.9, p<.001)$ ].

Figure 44 Student race and report of at least one school disciplinary action



$F(7, 69,092) = 31.6, p<.001$

<sup>26</sup> Because we are dealing with very large sample sizes, statistical significance is easily met in these analyses. We set the standard that mean group differences of less than three percent were not considered as meaningful differences of reporting.

The poverty by level of adult community ACEs analysis found a modest effect for the level of poverty, but community adult ACEs was not a significant predictor. In the higher poverty schools, disciplinary actions were more common [Wald Chi Square (1) = 4.5,  $p < .04$ ; Less than 50% FRM enrollment discipline rate of 7/1,000, Greater than 50% FRM enrollment 15/1,000].

We would not typically report a modest result like this, given how comparatively easy our large sample sizes make finding significant results, but this is a rare finding where poverty was not a primary influence on school outcomes. Also, as seen in the next two analyses, when we enter information more directly reflecting student experiences (adversity report, adjustment report), any effect of poverty was found to be a nonsignificant influence on disciplinary actions.

The poverty by level of school adversity did not produce significant effects on disciplinary actions for either poverty or adversity.

We found a significant main effect for the level of adjustment challenges in the school. School poverty level, Hispanic enrollment, and ELL enrollment were not significant factors when analyzed with student adjustment concerns. As the level of school adjustment challenges increase in the school, disciplinary actions increase in a dose-dependent manner.

*Figure 45 School adjustment concerns and the rate of disciplinary actions*

	Discipline Rate per 1,000 students
Lower adjustment concerns	8/1,000
Intermediate adjustment concerns	12/1,000
Higher adjustment concerns	16/1,000

Wald Chi Square (2) = 7.2,  $p < .03$

While school suspension data was available to us at the individual student level, we chose not to interpret the data. Differences in the use of suspension often reflect local school leadership decision-making, and these school practices may be confounded with differences among students in terms of their discipline violations. Our available data could not distinguish severity of disciplinary infraction except in extreme cases like violence with injury or use of a weapon, which both are relatively rare events.

*e. Special education and postsecondary enrollment*

In the 2016 graduating cohort, 7,224 students had been enrolled in special education services for at least one year in their high school career. Using this rule to define special education students, SPED students comprised 10.5% of the graduating cohort. The overall 2016 SPED enrollment percent was 13.5% for K-12 grades. This lower percent value in high school provides some additional evidence that we need to remain aware that we are describing in the SPED graduates a group that already has seen many vulnerable students exit from school.

We examined the type of disability identified for special education enrolled students. Specific learning disability (50% all SPED students) and health impairment (26% of all SPED students) are the principal reasons for SPED identification. Intellectual disability in this high school

graduating cohort accounted for six percent of the SPED population and emotional/behavioral disability four percent.

Students enrolled in SPED during high school are significantly less likely to enroll in college following graduation than their general education peers [29% v. 63%, Chi Square (1) = 3,026.1,  $p < .001$ ]. As poverty levels in the school increase, the percent of SPED students entering college is reduced from 36% to 28% to 21% as poverty in schools increases [Chi Square (1) = 3,025.2,  $p < .001$ ]. Similarly, we found a comparable reduction in SPED enrollment rates as school adversity reports and school student adjustment concerns increased. Please see next figure.

*Figure 46 Youth adversity and adjustment concerns and the percent college enrollment among SPED students*

	Lower Risk	Intermediate Risk	Higher Risk
School Youth Adversity	40%	30%	22%
School Student Adjustment Concerns	49%	28%	16%

School Youth Adversity: Chi Square (1) = 2,254.5,  $p < .001$   
 School Student Adjustment Concerns: Chi Square (1) = 2,532.6,  $p < .001$

While SPED enrollment is an important factor in its own right with respect to starting college, our analyses indicate that overall school community characteristics serve as major mediators of the percent of students who go to college. Consequently, these findings provide additional support for being cautious about interpreting specific qualities of a student’s experience without the broader context of supports and challenges.

e. Academic support programs

Based on student need, public high schools offer a variety of academic support and enrichment programs. Academic support programs include both remedial educational assistance and career exploration programs. Examples included the Title I individual and schoolwide supports and the state Learning Assistance Program (LAP). Free and reduced meal program participation was excluded from these learning supports, given the powerful independent role in these analyses.

In high school, 31% of students in the 2016 graduating cohort participated in some academic support program at some point in their career. Eleven percent of the graduating cohort participated in a gifted program at some time while in high school. Please note that because of the rolling build-out of the ERDC data warehouse, some early career information on program participation may be incomplete, which is why we chose to use any high school participation as the reporting variable.

Level of poverty in the school is highly correlated with participation in academic support programs. This is not surprising given that both state and federal educational policies use academic support programs in a targeted fashion to address the effects of poverty. In the 2016 graduation cohort, enrollment in academic support programs was associated with the level of poverty in the school. Respectively, 20%, 31%, and 52% of students were enrolled for at least



one year in an academic support program across the three levels of poverty we employ in this report.

There is an overall finding that involvement with an academic support program at any time in a student’s high school career is associated with lower enrollment in higher education [50% v. 63% higher education enrolled, Chi Square (1) = 991.9,  $p < .001$ ]. College enrollment is higher among students enrolled in a gifted program at any time in their high school career [77% v. 57%, Chi Square (1) = 1,119.1,  $p < .001$ ]. However, the impact of these supports on college enrollment is different as a function of the overall level of poverty in the school, as shown in the next two figures.

*Figure 47 Percent of students receiving academic supports who enter college by the poverty level of their high school*

	Percent enrolled in higher education
0-30% FRM N=5,766 in support programs	59%
31-50% FRM N=7,119 in support programs	50%
> 50% FRM N=8,112 in support programs	45%

Chi Square (1) = 993.3,  $p < .001$

*Figure 48 Percent of students in gifted programs who enter college by the poverty level of their high school*

	Percent enrolled in higher education
0-30% FRM N=2,935 in gifted programs	85%
31-50% FRM N=2,498 in gifted programs	75%
> 50% FRM N=1,835 in gifted programs	69%

Chi Square (1) = 1,117.4,  $p < .001$

We found that participation in these support programs was also associated with the community level of adult ACEs and the percent of youth reporting youth adversity in a school.

*Figure 49 Percent of students in academic support programs who enter college by the level of adult reported ACEs*

	Percent enrolled in higher education
15-30% High ACEs N=9,427 in support programs	55%
31% to 35% High ACEs N=4,534 in support programs	50%
More than 35% High ACEs N=7,475 in support programs	46%

Chi Square (1) = 982.6,  $p < .001$

*Figure 50 Percent of students in gifted programs who enter college by the level of adult reported ACEs*

	Percent gifted students enrolled in higher education
15-30% High ACEs N=3,512	80%
31% to 35% High ACEs N=1,996	76%
More than 35% High ACEs N=1,687	74%

Chi Square (2) = 27.66, p<.001

*Figure 51 Percent of students in gifted programs who enter college by the level of school youth adversity*

	Percent enrolled in higher education
Lower youth adversity N=3,027 in support programs	84%
Intermediate youth adversity N=2,515 in support programs	78%
Higher youth adversity N=5,747 in support programs	71%

Chi Square (2) = 87.99, p<.001

*Figure 52 Percent of students in gifted programs who enter college by the level of school adjustment concerns*

	Percent enrolled in higher education
Lower school adjustment concerns	84%
Intermediate school adjustment concerns	75%
Higher school adjustment concerns	69%

Chi Square (2) = 142.99, p<.001

In the absence of a comparison group of students who qualified for the supports but did not receive them, we cannot address program impact on higher education success. By mission, these programs identify and are intended to address the needs of at-risk or academically highly capable students. The consequence is that outcomes partially reflect both school and individual student differences which are separate from program effects. We conclude that program participation is a useful marker for comparative success in postsecondary enrollment but that overall, both individual student differences and school community characteristics otherwise explain differences in postsecondary enrollment.

## 4. Transition to Postsecondary Education

Overall, in the 2016 graduation cohort, 59% of the graduating seniors enrolled in college for the next year. This included 33% of high school graduates who entered college in a four-year program, 26% for two-year programs, and 41% who did not continue to college<sup>27</sup>. Seventy-seven percent of students in this cohort entering college did so at a Washington State public higher education institution. Although non-state private enrollment was reported, they are a minority of college students and we opted to not analyze for differences in school type beyond distinguishing two-year and four-year school enrollment.

When we tested the poverty by community adult ACEs analysis, poverty was a significant main effect on postsecondary educational enrollment with higher enrollment from lower poverty schools. Community adult ACEs were not a significant predictor in their own right. ELL enrollment was a significant covariate, with the observed relationship being lower enrollment in higher education as the percent of ELL enrollment increases. We did not demonstrate ELL enrollment as a principal effect on higher education enrollment when considered by itself.

### a. Individual differences in postsecondary enrollment.

Student success is influenced by a number of individual differences including gender, race, ethnicity, income, and disability status. Each of these individual differences is recognized in the educational literature as common influences on postsecondary transitions.

We observed significant individual differences as students enrolled in either two-year or four-year institutions:

- 55% of male graduates enroll in higher education compared to 63% of girls [Chi Square (1) = 497.4,  $p < .001$ ].
  - Young men and women are equally represented in two-year schools, but women are significantly more likely to enroll initially in four-year schools [59% v. 52%, Chi Square (1) = 173.7,  $p < .001$ ].
- 47% of students enrolled in FRM supports transition to higher education compared to 67% of students who do not receive FRM [Chi Square (1) = 2,706.9,  $p < .001$ ].
  - Low income students (FRM eligible in high school) are significantly more likely to attend two-year schools (58% v. 39%) rather than four-year schools (42% v. 61%) Chi Square (1) = 1,268.3,  $p < .001$ .
- 50% of Hispanic students enroll in higher education compared to 61% of all non-Hispanic students [Chi Square (1) = 499.8,  $p < .001$ ].
  - Hispanic students enroll more often in two-year schools than non-Hispanics [59% v. 42%, Chi Square (1) = 642.2,  $p < .001$ ].
- Student race and ethnicity result in large systematic differences in postsecondary transitions. Please see next figure.
  - There are large enrollment differences by type of institution based on race [Chi Square (6) = 868.4,  $p < .001$ . Please see next figure.

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<sup>27</sup> Our percentages vary slightly from the ERDC summary information presented at <https://erdc.wa.gov/data-dashboards/high-school-graduate-outcomes>. This reflects the exclusion rules we applied in cleaning the raw data and not inconsistent findings.

- 49% of ELL students enroll in higher education compared to 60% of non-ELL students [Chi Square (1) = 252.9,  $p < .001$ ]. The similarity with the result for Hispanic students in part reflects that 60% of ELL students are Hispanic.
  - Students identified as ELL students in high school are significantly more likely to attend a two-year school (69% two-year v. 31% four-year) than non-ELL students (57% v. 43%) [Chi Square (1) = 646.1,  $p < .001$ ].
- 27% of students identified with a disability enrolled in higher education compared to 63% of students with no identified disability [Chi Square (1) = 3,1105.0,  $p < .001$ ]. Nine percent of the graduating class in 2016 were identified with a disability. Among the graduating seniors in 2016 with an identified disability, 50% of students were identified with a specific learning disability and 26% were identified as health impaired. The remaining students experience a range of concerns with autism (9% of students with a disability), intellectual disability (5% of students with a disability, and emotional/behavioral disabilities (4% of students with a disability)<sup>28</sup>.
  - Among the students with a disability, students overwhelmingly start their higher education career in a two-year college [83% two-year, 17% four-year; Chi Square (1) = 1,062.9,  $p < .001$ ].
- Other available student differences (immigrant, homeless) involved comparatively small numbers of students and were not used in this report because relatively low frequency differences are not effectively represented as school level differences.
- College credits attempted were fewer in two-year schools than in four-year schools [M=34 credits in two-year school v. M=39 credits in four-year schools,  $F(1, 31,617) = 1,205.6$ ,  $p < .001$ ].

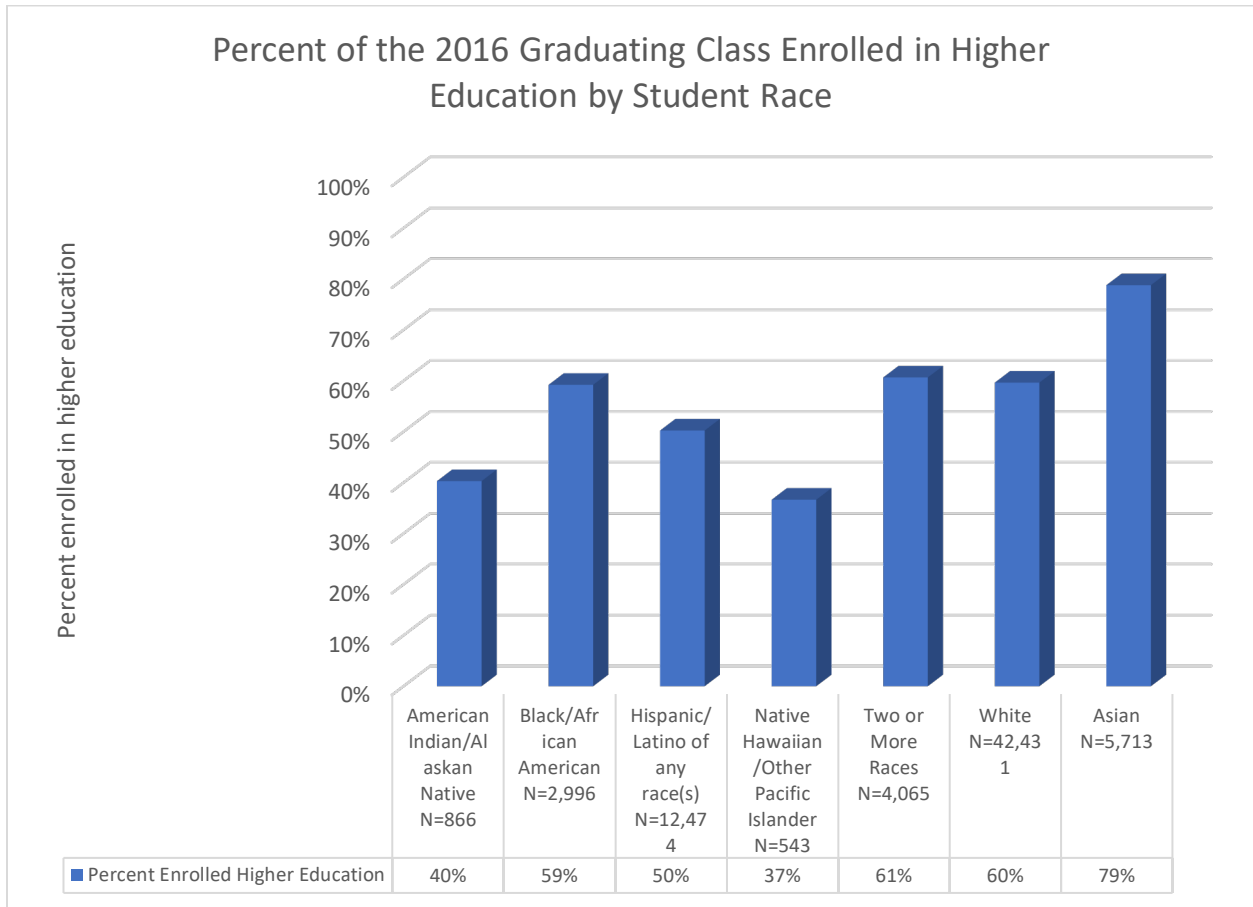
Because each of these individual differences are correlated with our primary variable of interest, adjustment concerns, we separately assess impact on credits attempted, remedial supports required, and continuation of their higher education program after the first year.

We analyzed the differences in postsecondary enrollment for a number of individual student characteristics.

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<sup>28</sup> While the observed percentages differ, the ranking of reported disabling conditions in 2016 graduating class mirror national reporting of identified disabilities in K-12 education [https://nces.ed.gov/programs/coe/indicator\\_cgg.asp](https://nces.ed.gov/programs/coe/indicator_cgg.asp).

Figure 53 Student race and enrollment in college following graduation



$F(7, 69,092) = 229.7, p < .001$

As important as these race differences in postsecondary enrollment are, we are unfortunately limited in our ability to examine race when describing schools’ success. In Washington State, non-white student enrollment is concentrated in largely urban districts and the distribution of specific races across schools is highly variable. By contrast, Hispanic and ELL student enrollment is more broadly represented across communities and was adaptable for use as a summary school characteristic.

b. Student disability and postsecondary enrollment

As a school characteristic, disability percent increases with increased adjustment struggles and with poverty, but not with adversity. We grouped schools as less than 10% of students with identified disabilities and schools with greater than 10% of students with disabilities. There is an increase in the percent of alternative education programs in the higher disability group (30% alternative programs in the group of schools with higher disability v. 21% alternative programs among schools with lower disability percentages). Disability percentages are also associated with the level of poverty in the school such that as poverty increases in schools, more schools report higher disability percentages: 32% of lower poverty schools fall in the higher disability group compared to 53% of intermediate poverty schools, and 63% of schools in the highest poverty group. We retained student disability as an important factor to address in postsecondary success

but recognize that disability status is correlated with a number of other important school characteristics.

c. School and community characteristics effecting postsecondary enrollment

We found a significant effect for school poverty but not adult community ACEs when we tested for differences in college enrollment across schools. ELL percent enrollment was a significant covariate, but not Hispanic enrollment. However, examined in isolation, ELL percent enrollment was not a significant effect.

*Figure 54 The effect of school poverty on the percent of students enrolled in higher education*

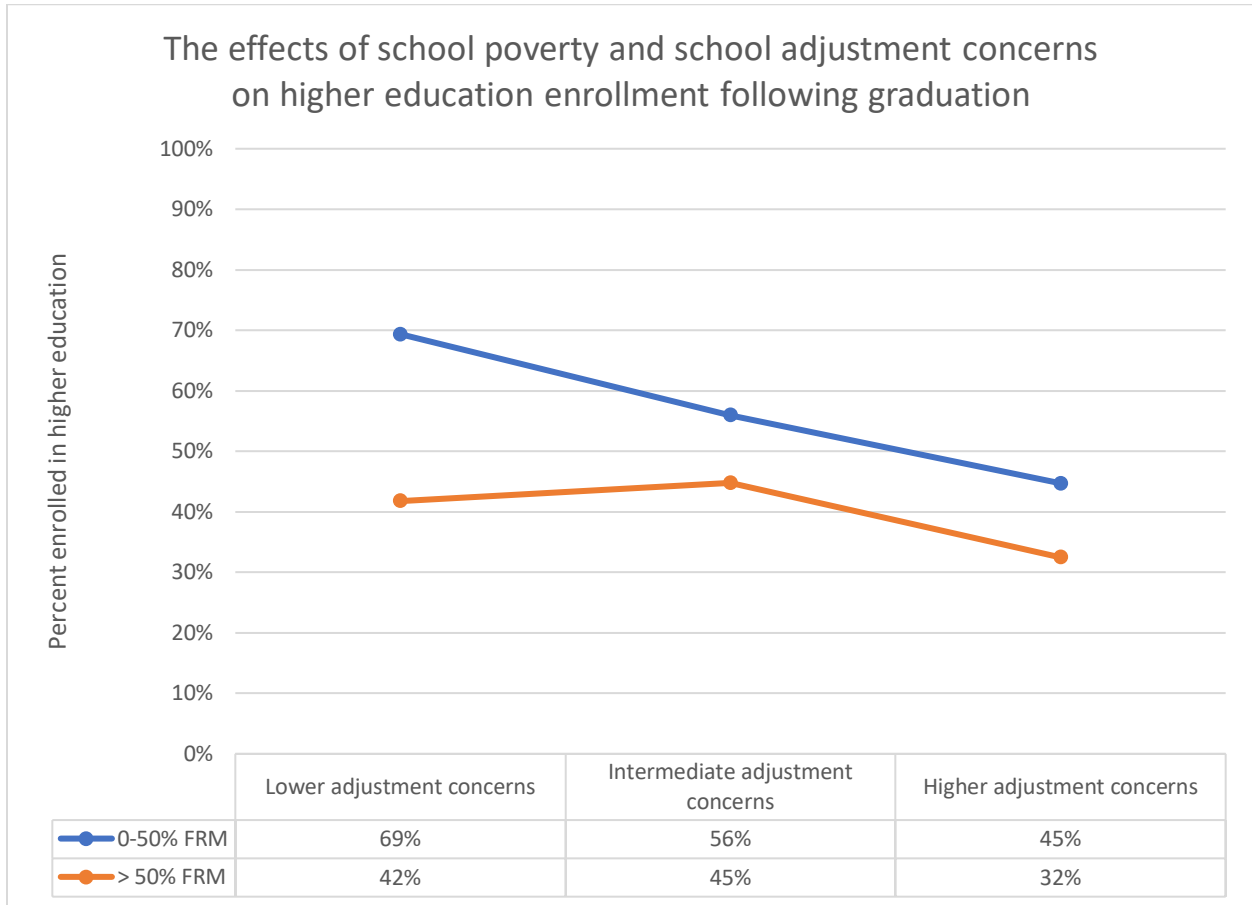
School poverty	Percent HE enrolled	S.E.
0-30% FRM	61%	0.02
31-50% FRM	50%	0.01
> 50% FRM	33%	0.02

Wald Chi Square (2) = 138.8, p<.001

When we tested postsecondary enrollment by school poverty and level of school’s student adversity, we found significant poverty by youth adversity. As adversity exposure and poverty in schools increased, postsecondary enrollment was lower but the degree of impact for adversity was more apparent in more affluent schools. Hispanic and ELL percent enrollment were not significant covariates. Please see the Appendix for the adversity findings.

We found a significant interaction effect on postsecondary enrollment between school poverty and level of school adjustment concerns. As the level of student adjustment concerns increases in a school, postsecondary enrollment among graduates is lower. Hispanic and ELL enrollment percent were not significant covariates.

Figure 55 The interaction of school poverty and level of adjustment concerns on higher education enrollment



Poverty X adjustment interaction:  $F(2) = 8.0, p < .01$

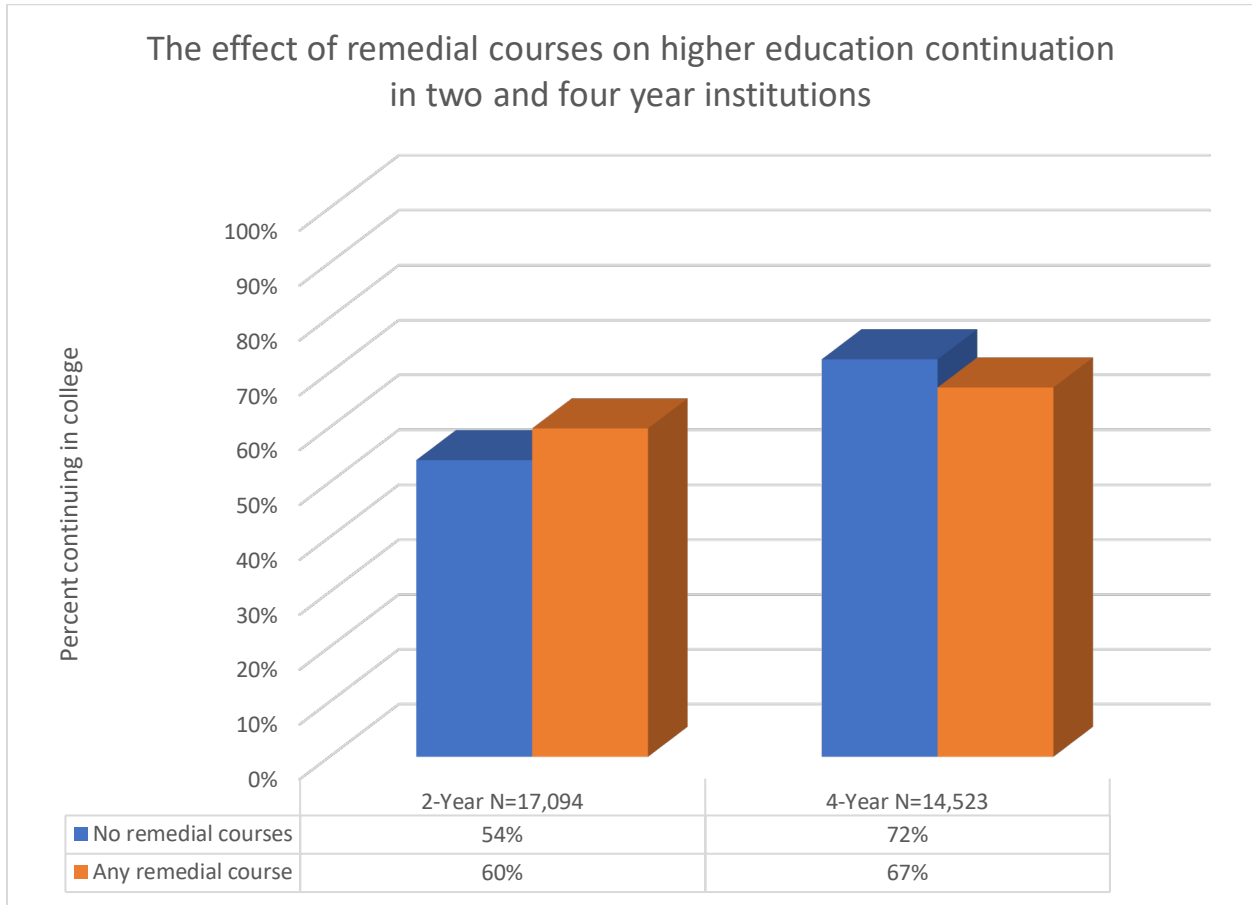
The effect of increasing school adjustment concerns on postsecondary enrollment is most pronounced in schools with comparatively lower poverty. The more muted impact of adjustment in the higher poverty schools likely reflects the poverty’s own suppressing effects on academic success which are not as pronounced in schools with lower poverty rates. But, even in the higher poverty schools, we document a mean difference of 10 percentage points in higher education enrollment between the lower and higher adjustment concern high schools.

d. Remedial College Coursework

Remedial math and English classes in college are common and are intended to address skill gaps when students don’t meet prerequisites for regular college level classes. For the 2016 graduates entering college, 31% of all students were enrolled in at least one remedial class during their first year of college. Students receiving college remediation did so principally in math. Twenty-seven percent of the freshman were enrolled in remedial Math classes compared to nine percent English remediation and six percent of the freshman enrolled in both. Remedial courses were required more commonly in two-year schools with 48% of two-year students and 12% of four-year students enrolled in at least one remedial class [ $\chi^2(1) = 4,812.4, p < .001$ ].

Remedial coursework demonstrated a significant impact on continuation in college, but the relationship appears to depend on the level of higher education. Please see the next figure indicating that remedial course participation resulted in greater retention in two-year schools while the remedial participation was associated with lower retention in four-year schools.

Figure 56 The effect of remedial courses on retention in higher education at the end of the first year



Chi Square (1) – 42.2, p<.001

e. Credits Attempted

The ERDC data warehouse for postsecondary students includes credits attempted in the initial year of college. The available data is for Washington State public institutions which includes 59% of the 2016 graduation cohort that enrolled in college.

Because our core question is whether community differences impact postsecondary enrollment and progress, we assessed the progress of graduates in higher education both as a group average for graduates from high schools and by examination of individual differences. We found multiple individual level differences in credits attempted. Based on their high school records, Hispanic students, FRM enrolled students, non-White racial groups other than Asian Americans, ELL students, and males all on average attempted fewer credits than their peers. These results are summarized in the Appendix.



At the level of the school community, we found that poverty, community adult ACEs, and adjustment concerns were not predictive of college credits attempted in the first year. However, the level of youth adversity in the students’ high school was associated with the number of college credits attempted. As average adversity level in the school increased, attempted credits by students from those schools was on average lower in the first year of college. The percent Hispanic enrollment was a significant covariate in the full analysis but when tested independently was not associated with credits completed.

*Figure 57 Higher education credits attempted by level of high school youth adversity*

High school youth adversity groups	Mean HE Credits	S.E.
Lower youth adversity	37.1	0.56
Intermediate youth adversity	36.5	0.42
Higher youth adversity	34.7	0.47

Wald Chi Square (2) = 9.6, p<.008

f. Continuation in Higher Education after the First Year

Among those students who started college in the 2016 high school cohort, 69% of all students continued to their second year<sup>29</sup>. There is a sharp difference in continuation rates between two-year and four-year schools with 79% of freshman in four-year schools returning compared to 57% of freshman in two-year schools [Chi Square (1) = 2,292.6, p<.001].

When we examined the poverty by adult community ACEs effects on continuing in higher education, we found a modest main effect for poverty, a nonsignificant result for adult community ACEs, and that both the percent Hispanic and ELL enrollment were significant covariates. ELL enrollment was not confirmed as a significant effect in its own right, but Hispanic percent enrollment was confirmed as an influence on higher education continuation. College students from schools with the highest Hispanic enrollment were at greatest risk of stopping their education at the end of their first year in college.

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<sup>29</sup> Again, please note that our final sample included decision rules on who was retained in the analyses that result in some minor variation in our percentages and the summary results reported through the ERDC data warehouse.

*Figure 58 School Hispanic enrollment and continuation in postsecondary after the first year*

School percent Hispanic Enrollment	Percent continuing in college	S.E.
Less than 15% Hispanic N=177 schools	68%	0.01
15-25% Hispanic N=62 schools	65%	0.02
25-40% Hispanic N=43 schools	64%	0.02
Greater than 40% Hispanic N=36 schools	60%	0.02

F (3, 317) = 5.9, p<.001

In testing the poverty by youth adversity effects on higher education continuation, we found a significant interaction effect for poverty by youth adversity. Hispanic but not ELL percent enrollment was a significant covariate as described above. The results for this analysis are presented in the Appendix.

As was the case for initial higher education enrollment, we found a main effect for the level of adjustment concerns in a school and the decision to continue in higher education. Poverty did not meet our criteria to be considered a significant result (p<.04 for the main effect of school poverty) and neither Hispanic nor ELL percent enrollment were significant covariates.

*Figure 59 School adjustment concerns and percent of student returning after their first year in college*

School level of student adjustment concerns	Percent continuing in college	S.E.
Lower	69%	0.02
Intermediate	66%	0.01
Higher	62%	0.01

Wald Chi Square (2) = 13.7, p<.001

In summary, poverty and adjustment struggles during high school are highly predictive of the success of individual students' transition to postsecondary education. In addition, the collective level of struggle among students in a school functions as a shared impact that defines the overall success of students from a school entering postsecondary programs and continuing beyond their first year. While important individual differences were identified, collective school effects from poverty and adjustment are shared characteristics impacting the success of students from different communities.

## Discussion

Before discussing the implications of our findings, it is helpful to summarize the key community differences we assessed as influences on success in high school and transition to postsecondary education. Building on the previous reports in this series, the themes identified as barriers to success as students enter Kindergarten are painfully familiar as students graduate. While there are structural differences between two- and four-year institutions that need to be considered, transition to postsecondary education and continuation in programs reflect the same issues that describe academic success and the quality of youth wellbeing across K-12 experiences.

- While specific risk and protective factors remain useful when addressing targeted issues, poverty and the dose of adversity in a community, school, or individual are overarching themes with potent explanatory power.
- Both poverty and experiences of significant adversity are common across Washington's schools. Differences in schools' collective experiences on these two dimensions are predictive of academic success and youth wellbeing.
- Poverty and adversity co-occur to a significant degree but based on our evidence are best considered as overlapping but discrete challenges to be addressed in schools.
- The growing diversity of Washington communities requires we address ethnicity as involving complex influences on education and youth outcomes. Specifically, Hispanic ethnicity appears to involve increases both in risk and protective factors in a complex fashion requiring greater understanding. In addition, racial group differences in risk are important considerations that the nature of our data did not permit us to address. Consequently, addressing racial and ethnic group differences is a continuing area needing development to understand school success in Washington.
- The more our measures reflect the direct experience of the child, the more powerful their predictive value for understanding academic success and youth risk. Collectively, students' adversity and their resulting struggles can be used to describe adversity and adjustment as attributes of the school community with meaningful predictive power. The biennial Healthy Youth Survey is a well-established resource for schools to identify the scope of concern with adversity exposure. The Healthy Youth Survey also could potentially help to track the success of school efforts to address the resulting struggles as common student experiences.
- When we focus on student adjustment rather than only the report of adversity exposure, three conclusions are supported in the data:
  - A significant percent of students across all schools report persisting struggles with adjustment. Sixty-six percent of students reported one or more areas of adjustment struggles identified in this study. The level of reported concerns reflects in part the vulnerability of adolescence in which emotional and behavioral struggles are common. For example, Merikangas et al. (2012) estimated that nearly half of adolescents (49.5%) meet the criteria for a mental health diagnosis.
  - While adjustment problems are not exclusively associated with adversity exposure, adjustment struggles are highly related to adversity. This combination of adversity exposure and concurrent adjustment struggles argues for the use of complex trauma as a framework for response to extend natural supports for all students and to provide a central focus for mental health strategies in schools for the most vulnerable.

Focusing on the degree of adjustment struggles provides a more sensitive indicator of risk and more explicit targets for intervention. To address the core question in this report, we found poverty and level of student adjustment challenges in a school influenced postsecondary enrollment through an interaction effect. Overall, students in more affluent schools enter postsecondary education at greater levels. But, irrespective of poverty level, as schools report higher levels of adjustment struggles in their students, postsecondary enrollment drops dramatically. Among more affluent schools, postsecondary enrollment drops from nearly 70% of students in schools with the lowest average percent of students reporting adjustment struggles to 45% in schools with the highest average adjustment concerns. Among less affluent schools, while we found a general suppressive effect for poverty on postsecondary enrollment, the same pattern of results occurs with a change in postsecondary enrollment from 42% in schools with lower adjustment concerns to 32% percent in schools with the highest levels of student concerns. We conclude that unaddressed the adjustment challenges across Washington students will act a principal barrier to greater postsecondary enrollment.

Working with large, interconnected public data sets provides the opportunity to approach population-level descriptions of the experiences of students. The challenge is that to some degree the report is a documentation of what is discovered rather than a narrow test of a specific question. The implications of several of our findings can get lost in the detailed documentation of findings. Consequently, an example can help underscore the startling level of risk described:

- Based on responses from more than 69,000 students, 19% report struggling with three or more of the six adjustment indicators we examined.
- Suicidal risk increases in a dose dependent relationship with reported adjustment concerns. Among the 19% of students with three or more areas of concern, nearly half report suicidal ideation in the past year and one out of four of these students report having a plan to commit suicide in the past year.

Discussed below in detail, here are the principal recommendations for this report:

- Poverty and adjustment struggles resulting from childhood adversity require coordinated but distinct strategies to mitigate their effects on academic success and youth risk.
- Policies based on the idea that emotional adjustment problems are exceptional and should be responded to as a special need for a subset of students do not align with the experience of a large percent of students. The emotional adjustment struggles of students, typically associated with a history of multiple ACEs, are a direct collective threat to the success of schools as academic institutions. Emotional and remedial skill supports beyond a focus on formally diagnosed students may need to be viewed as core educational functions if academic outcomes are to improve. Educator competencies require the adoption of a broader emphasis on youth wellbeing as a direct influence on academic success, an increased understanding of adversity and its impact in the classroom, and staff skills development to recognize and respond to trauma as part of their routine educational practice.
  - Educators remain largely uninformed about adversity and trauma as a public health challenge to the success of schools. Consequently, while there is growing interest in these issues across the profession, there is no current consensus among educators as to how central addressing adversity is to the school mission. There is a need for greater literacy in these areas if educators are to support the need for a

change in their professional practices. Because most support for mental health is through natural relationships like those occurring in schools, educators need to agree that being such a natural support is a job responsibility and investment in the effort to do such work well is worthwhile.

- Expanded support for social emotional learning evidence-based models would help to meet the need. However, the scope of adversity and resulting trauma in schools may require specific skills development in understanding and responding to trauma as part of teaching practices.
- Expanded mental health treatment resources in schools are needed but the distribution of services and available funding make treatment an option for only some schools.
- Change is unlikely unless efforts to change can be measured. There is no current consensus on what best practices in education should address the scope of need. Schools currently make these decisions school-by-school, but the scope of the challenges suggests that development of minimum expectations for schools is required.
- There is a need for investment in the evidence base for trauma-informed school strategies. Aside from delivery of mental health treatments for trauma in schools, the models for whole school trauma-informed practices are based on established science but still require proof of their effectiveness in the field.
- Schools are unlikely to succeed addressing these issues in isolation. Building community alliances and family support to address adversity and resulting trauma is necessary to have the social capital to engage in significant change efforts in education. There are well-established strategies to support such alliances, but they require investment.

*The central role of poverty.* Public education in Washington is principally a resource for low income children. In 2018, 69% of K-12 students were enrolled in FRM nutritional support programs<sup>30</sup>. The role of public schools as a principal resource for poor families reflects not just 14.7% of Washington's children living below the federal poverty line, but the nearly 70% students who are enrolled in nutritional programs in the state<sup>31</sup>. In this respect, Washington, like all states, reflects the fact that poverty continues as a principal threat to child development in the United States.

Our first recommendation to policy makers is to address the effects of poverty and ACEs as related, overlapping but distinct issues in the lives of children. Conflating these issues makes specification of the key elements in effective interventions more problematic. Working in trauma informed educational response for the past 12 years, we have also experienced that a professional's comparative familiarity with poverty as a risk can obscure the significance of ACEs in schools. Poverty is a familiar explanation but understanding adversity requires significant new professional efforts to build literacy and competence in how to respond.

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<sup>30</sup> <https://www.k12.wa.us/data-reporting/reporting/child-nutrition-program-reports>. FRM eligibility is based on family income with children in homes below 130% of federal poverty eligible for free meals and children below 185% of federal poverty eligible for reduced cost meals. For a family of four, the respective income thresholds in 2018 were \$32,630 for free and \$46,435 for reduced cost eligibility. In 2017, the median family income in the U.S., was \$57,652<sup>30</sup>.

<sup>31</sup> [http://www.nccp.org/profiles/WA\\_profile\\_8.html](http://www.nccp.org/profiles/WA_profile_8.html)

It is difficult to overstate the impact of student poverty as a structural barrier to educational success. Either as an individual characteristic or as a characteristic of the school, this report demonstrates that as poverty increases we find:

- Lower pass percent rates on standardized tests, GPA, attendance, and discipline outcomes.
- Increased exposure to adversity based on the three HYS questions.
- A higher percent of poor students report 3-6 of the adjustment concerns.
- Fewer FRM students transition to any postsecondary program (47% v. 67%).
- FRM enrolled students are more likely to enroll in two-year programs and consequently are at greater likelihood of not completing a postsecondary degree given overall retention/completion challenges for two-year schools.

Because poverty is frequently concentrated in specific communities, the risks associated with poverty also become concentrated. Our public schools are community-centered, and schools' capacity routinely reflects the challenges and resources of their communities. As poverty increases, violent victimization, contact with the criminal justice system, behavioral health problems, poor physical health, earlier death, employment struggles, and lower educational attainment all are more common community concerns (Ellen & Turner, 1997; Sampson et al., 2005).

Economic mitigation strategies have been effective in reducing poverty in communities. Both direct and indirect economic supports (TANF, health insurance, nutritional support programs, and tax strategies such as earned income and child tax credits) have proven to reduce levels of poverty<sup>32</sup>. In addition to these economic policies, poverty risk is significantly mediated through strategies to increase parenting capacity and responsiveness to children, mental wellbeing of caregivers, level of social cohesion in a neighborhood, and access to enriched learning environments both at home and in community education programs (Chazan-Cohen et al., 2009; Tomer, 2014).

While poverty reduces opportunities and adds burdens to the day-to-day business of life, these effects vary widely across families and communities. Many families who are poor in material resources are rich in family stability and social connections needed to limit the negative effects of poverty. A lack of safety, isolation from neighbors and family, limited access to cultural resources and social connections are not inescapable results of poverty. Schools have the capacity to play pivotal roles in either preventing or mitigating the effects of poverty and its associated risks. Programs like Communities in Schools (Communities in Schools, 2017) can be effective support strategies to significantly address poverty for individual students as well as the overall capacity of the school to address barriers to learning. Consequently, a balanced emphasis on addressing material deprivation and social disruption is required.

*A structural challenge for vulnerable students and 2-year higher education programs.*

Disproportionately, 2-year postsecondary programs are the choice of poorer students. In the 2016 graduating cohort, 58% of FRM enrolled students started in a 2-year program compared to 39% of non-FRM enrolled students. This is of concern because of the sharp differences in retention at

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<sup>32</sup> <https://www.cbpp.org/what-works-to-reduce-poverty>

the end of the first postsecondary year (79% in 4-year schools v. 57% in 2-year schools for the 2016 cohort), and the fact that fewer 2-year students will receive any degree six years after graduating from high school (75% of 4-year school enrollees v. 37% of 2-year school enrollees, Shapiro et al., 2018). High rates of part-time enrollment in 2-year schools contribute to the poor retention and graduation rates for 2-year schools.

We did not find that poverty had an effect on overall continuation rates in higher education, but because we could not separately assess 2-year and 4-year schools<sup>33</sup> the effects of poverty may have been obscured. However, we were able to confirm that as the level of adjustment concerns in a high school increases, the students who enrolled in higher education are less likely to return after their first year (69% continuation in the students from lower adjustment concerns schools v. 62% for higher adjustment concerns schools).

The attrition rates in 2-year institutions disproportionately impact low-income groups of students. This is of particular concern given the role of 2-year institutions in technical career training and offering a low-cost opportunity to complete prerequisites before transferring to 4-year schools. We recommend that addressing the adjustment challenges in students entering postsecondary programs, particularly 2-year institutions, may offer a strategy to increase retention and ultimately degree completion.

*The interplay of adversity and poverty.* Communities in Washington vary widely in terms of the percent of adults estimated to have experienced three or more ACEs during childhood. Equally true, Washington communities vary in levels of youth adversity and associated adjustment problems. Adults reporting high ACEs range from an estimated 11–51 percent of community residents across the locales examined here. At the community level, we found that poverty and percent of high ACE adults were not highly correlated ( $r= 0.2$ ). While it is true that rates of ACEs increase in lower income families, the relationship is conceptually complex and has received relatively little systematic attention. We call this out as a policy consideration because the strategies that have the potential to mitigate poverty's effects are largely distinct from strategies that would address the risk of ACEs in childhood.

Efforts to understand the interplay of poverty and ACEs are relatively recent in the published literature. Rates of ACEs do increase in families who live in poverty. For example, *Child Trends* (2019) re-analyzed 2011-2016 National Survey of Children's Health data to examine parent report of their children's ACEs exposure after removing poverty as an ACE in their definition. The authors found that 13% of children living in poverty had three or more adverse experiences, compared to 10% among children with family incomes from 101 to 200 percent of the poverty level, and 5% for children in families with incomes more than twice the poverty level.

The stress of deprivation in material and social supports certainly can contribute to the disruptions in parental capacity that are among the core risk mechanisms for ACEs. Parenting difficulties due to caregiver health, behavioral health problems, and limited material and social resources are established as important mechanisms placing cognitive and emotional development

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<sup>33</sup> Separating students based on enrollment in 2- and 4- year programs resulted in problems with low counts of students such that we would exclude an unacceptable number of schools from analysis with our suppression rules when too few students contributed to the estimate.

at risk (Perkins et al., 2013; Shaw & Shelleby, 2014). Similarly, struggles with mental health, addiction, and the use of violence which define the other elements of ACEs can push families into poverty, making it far more difficult to have the supports and capacity to become more economically secure. For example, a common consequence of intimate partner violence is a loss of income and housing stability, resulting in families being suddenly confronted with homelessness and loss of security<sup>34</sup>.

Tomer (2014) used economic theory regarding building human capital to suggest a more central role for adversity as a contributor to economic vulnerability. Human capital in this context refers to the capacity for thought, self-discipline, and the depth of skills and knowledge that contribute to economic benefits. While poverty can compromise parenting due to stress and challenges to parenting time and resources, Tomer argues that the addition of adversity in the family contributes independently to the generational persistence of poverty. For example, Steele et al. (2016) confirmed higher ACEs in low-income families but after controlling for income found that ACEs exposure was a significant independent predictor of parenting stress. In their 2012 study, Nurius et al. found that after controlling for current economic status, ACEs were predictive of mental health in adults. Metzler et al. (2016) confirmed that ACEs history in adults are associated with lower high school completion, lower current income, and less occupational success suggesting additional mechanisms for the overlap of poverty and ACEs risk. These findings are consistent with the evidence in this report that we should consider poverty and ACEs as distinct but related influences on the quality of individual and community success.

*Adversity, students' struggles to develop well, and the need for an integrated framework for improving school outcomes.*

In this report, we employed three ways to describe adversity as a school community characteristic: how prevalent are ACEs among adults in a school community, how many students report three types of early adversity (emotional abuse, physical abuse, sexual abuse) before graduating, and students' report of current adjustment struggles in school on six dimensions related to other victimization, emotional distress, and degree of school connection. Specifically, this report permitted us to look at high school students' reports of adversity exposure and adjustment struggles in a manner that described the cumulative challenges across schools. The Healthy Youth Survey (HYS) provides a well-established ongoing tool to describe both adversity exposure and adjustment struggles. While asking about adversity exposure in students produces sensitive predictions of student outcomes, we found that the impact of adversity is duplicative with the more sensitive indicator of the degree to which students struggle to adjust in the face of adversity.

The key findings regarding the struggles with adjustment in this report are:

- 35% of high school students report exposure to one or more adversity. Thirteen percent report two or more adversity exposures.
- Schools vary widely in terms of the degree of youth adversity and adjustment concerns but even in schools with lower levels of youth adversity and adjustment struggles, adversity and distress is common.

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<sup>34</sup> <https://www.acf.hhs.gov/fysb/resource/dv-homelessness-stats-2016>



- Adjustment concerns increase with poverty, but the increased adjustment risk appears to principally involve a subset of low-income students who have multiple needs rather than a generalized effect of increased adjustment concern.
- As adversity exposure and adjustment struggles increase, students report a broader pattern of multiple risk behaviors including bullying victimization, early sexual initiation, substance misuse, and suicide risk.
- Among students with no reported youth adversity, 44% report no adjustment concerns on our six indicators. By contrast, with one adversity, 21% report no adjustment concerns, and among students with 2-3 youth adversities, only 9% report no adjustment concerns. While we cannot make a causal link between adversity and adjustment based on this data, the correlation between adversity and adjustment struggles is substantial<sup>35</sup> ( $r=0.38$ ,  $p < .001$ ). The term for adjustment struggles associated with adversity is complex trauma.
- After controlling for poverty, we found that all indicators of academic success- standardized test scores, GPA, attendance, disciplinary concerns, postsecondary enrollment, college credits enrolled, and postsecondary continuation- were significantly associated with the level of adjustment concerns among high schools graduates.

Our previous reports used the level of adults reporting three or more ACEs as the estimate of adversity in the community. Based on more than 32,000 adults who responded to the BRFSS ACE questions, 27 percent of Washington residents report they experienced three or more ACEs before the age of 18. In the ACEs literature, three or more ACEs is a common threshold for increased risk of a range of problems emerging in adulthood. Despite the indirect nature of this community measure, in the previous reports we found that adult ACEs provided a community indicator predictive of academic outcomes particularly so in primary grades.

We found that as adult community ACEs increase across schools, students' reports of youth adversity exposure and adjustment struggles increase as well. This association of risk in a community across generations is a significant finding because it is consistent with the assertion in the general ACEs literature that adversity is a multi-generational challenge within families (Anda & Brown, 2010). The present findings suggest that the generational impact in families may contribute to how adversity becomes a shared quality in communities.

Until very recently, little information about the scope of adversity exposure and associated trauma in childhood was known (Blodgett & Lanigan, 2018) because the ACEs literature was focused on adult life course outcomes. An additional limitation had been that adversity indicators were often only incompletely included in studies of youth wellbeing. The present results document how existing health surveillance surveys like the Healthy Youth Survey can be used to fill the gap.

There are three limitations in this study's description of youth adversity. First, our questions are limited to indicators of abuse; the equally significant ACEs describing caregiver capacity were not available in our data. Despite the limited picture of risk, the level of adversity exposure equal to 35% of high school students is substantial. Adversity exposure is not only an individual

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<sup>35</sup> A linear correlation is an incomplete estimate of relationship because among students who have adversities, the association with adjustment concerns is not linear but rather one of an accelerating risk curve for students with 2-3 adversities.

experience but concentrates in communities, resulting in schools differing in terms of the level of collective risk in their students. Despite our limited description of adversity, we found a dose-dependent relationship between adversity and youth outcomes that helps explain variations in success across schools. Second, because the adversity questions are anonymous, we don't have a way to more definitively associate adversity with academic outcomes at the individual level. We did confirm the powerful dose effect of adversity on social and behavioral risks in individual students. Third, while HYS includes questions that indicate positive connection and social competency, we did not assess resilience as a complementary influence with the potential to mitigate adversity's effects on student development.

With these limitations in mind, we conclude that there is a clear association between adversity exposure and resulting serious academic, social, and behavioral health risks among Washington youth. In turn, poverty appears to accelerate the effects of adversity for many, but greater economic resources are not a blanket protection against the experience of adversity. Our results are consistent with other findings in the literature. For example, Barnes et al. (2006) found the expected significant contribution of community poverty on disrupted learning in schools but, after controlling for poverty, found that 'school disorder', which included reports of violence, interpersonal conflict, and low school connection, was a significant independent predictor of academic risk.

Schools have not ignored adjustment concerns as a barrier to success, but efforts typically are local and variable in terms of their scope and persistence. Increasingly, schools are recognizing that they need to pay attention both to individual students' social emotional competence and attention to the quality of community in the schools. Schools have all the characteristics of persisting communities, "...a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings" (MacQueen et al., 2001). In recent years, 'school climate' has gained great attention in school improvement efforts as a measure of the health of a school community (Voight et al., 2013). As defined by the U.S. Department of Education<sup>36</sup>, "School climate is a broad, multifaceted concept ... A positive school climate is the product of a school's attention to fostering safety; promoting a supportive academic, disciplinary, and physical environment; and encouraging and maintaining respectful, trusting, and caring relationships throughout the school community no matter the setting." The emphasis in school climate efforts on relationship, safety, and support when needed are all common areas of focus when responding to complex trauma.

Social emotional learning as a core academic skill has been a principal strategy to produce healthier and more supportive school climates. Social emotional learning involves, "... the process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions."<sup>37</sup> Social emotional learning programs like Positive Behavioral Intervention & Supports (PBIS<sup>38</sup>), RULER<sup>39</sup> and Playworks<sup>40</sup> are examples of evidence-based

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<sup>36</sup> <https://safesupportivelearning.ed.gov/safe-and-healthy-students/school-climate>

<sup>37</sup> <https://casel.org/what-is-sel/>

<sup>38</sup> <https://www.pbis.org/>

<sup>39</sup> <http://ei.yale.edu/ruler/>

<sup>40</sup> <https://www.playworks.org/>

programs that address school climate and social emotional skills through shared expectations, direct skills training, and the use of reflection and problem-solving supports.

The increasing emphasis on school culture and social emotional learning are examples of schoolwide efforts to create positive conditions for growth in students. Schools' efforts to address student adjustment challenges, however, have more typically focused on crisis response and single dimension prevention strategies such as anti-bullying and suicide prevention efforts. These are important efforts but may be too focused on the event or most immediate crisis as the concern rather than the underlying drivers for risk. Focusing on adversity exposure and resulting adjustment struggles provides a person-centered definition of risk across multiple aspects of students' lives. The significance of linking adversity exposure and adjustment struggles is that it leads to a framework for action that is different from current practices in most schools.

The growing acceptance of social emotional learning as an academic goal directly integrates with a focus on ACEs as barriers to academic success. However, social emotional learning programs assume typical development in students. Understanding the neurodevelopmental changes that can result from ACEs helps explain why social emotional learning strategies can be helpful for traumatized students, but also why these universal practices can be ineffective when students struggle with trauma. At the biological level, exposure to adversity places at risk the child's ability to master the core skills of being socially and emotionally competent. When present, ACEs typically are established early in life during critical periods of rapid brain development with the result that trauma responses are typically outside of intentional control. Common resulting challenges include hypersensitivity to environmental changes (threat reactions and loss of a core sense of safety); less developed self-regulation of emotions resulting in impulsivity and personal distress; and compromised skills in establishing and maintaining intimate relationships.

We strongly endorse the adoption of well-executed social emotional learning programs as a universal school practice. Such practices help all students and are useful in creating the experiences of predictability and safety that are critical for students with trauma. However, at this time, none of the widely deployed social emotional programs have integrated trauma response as part of their practice. Therefore, with an absence of efforts to address how trauma changes us, there is a disconnection between these schoolwide supports and the types of skills educators need to address trauma.

These biological and social adaptations due to adversity define complex trauma (Spinazzola et al., 2005). Complex trauma involves struggles over time to master: the self-regulation of emotions as a core developmental skill; the smooth integration of feelings and thoughts to guide actions; and struggles to encode and use information when high states of arousal overwhelm the higher cortical structures involved in memory and executive function. In daily activities, students with complex trauma struggle with: attention and persistence in tasks; irritability and heightened reactivity to change; shame and a persisting sense of low self-worth; and struggles with intimacy that compromise healthy relationships (Cook et al., 2005; Courtois, 2004). Each of these characteristics in turn can disrupt the capacity of students to learn and can contribute to persistent disruptions in relationships with peers and staff. Trauma changes us to one degree or another in terms of relationships, perception of safety, and what needs drive behavior. Educators are not routinely trained to recognize and address these problems.

The practical value of adopting a complex trauma focus in education improvement efforts is that an array of specific intervention proposals follow from this perspective. In mental health, attention to complex trauma<sup>41</sup> (also referred to as complex posttraumatic stress disorder or developmental trauma disorder) has resulted in a number of promising or evidence-based treatments now widely deployed in mental health treatment sites<sup>42</sup>. These interventions operate from a common perspective regarding the mitigation of the effects of adversity (Courtois & Ford, 2009; Rutter, 1987):

- Interrupt continuing traumatic experiences;
- Assure consistent, supportive relationships for the child;
- Prioritize maintenance of high-quality continuing relationships as the foundation for change;
- Build the child's skills to interpret their own emotions accurately and address self-regulation capacity as two core skills deficits;
- Build the capacity for anticipation and effective self-management in the face of new developmental challenges and crises.

Although these points of focus for complex trauma emerged from a treatment tradition, all five areas of work are equally well supported through the natural relationships that develop in schools without reliance on a formal diagnosis. Indeed, formal treatment often is indicated because the natural supports systems of family, school, and community have been unable to support developmental repair effectively.

Whole school trauma-informed school models using some or all of this framework have proliferated in the past 10 years. For full disclosure, the authors of this report are part of the development team for one of these emerging practices.<sup>43</sup> However, the adoption of trauma informed practices in schools principally is based on local strategies at the school level where a school leader and/or staff become aware and committed to this work. Schools require a three-part integrated strategy that concurrently balances mitigation of poverty, adversity, and adjustment concerns. These three areas of effort include emphasizing concrete removal of barriers to learning resulting from lack of access and resources, active efforts to reduce continuing or new adversity, and strategies to address the social emotional skills needed to succeed, but often compromised, by adversity early in life.

The evidence for effective strategies in schools that can mitigate the risk of new adversities, typically through community-building efforts, is promising but so dependent on quality of implementation that it is too early to make claims of broad-based benefit. In the last 10 years we have been building the program knowledge about what school strategies can support new learning and skills to heal the effects of persistent early life adversity, yet the evidence for what is best to do is still to come. While we require more evidence about the effectiveness of specific programs to address material deprivation and adversity, the components of effective responses in

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<sup>41</sup> Complex trauma, while a widely employed term in the mental health services literature, is not a specific diagnosis but rather a process of struggling to grow in the face of disruptions due to adversity. A benefit of adopting complex trauma is that it identifies a set of developmental challenges that can be described and addressed through remedial learning without the necessary assignment of a specific diagnosis.

<sup>42</sup> <https://www.nctsn.org/what-is-child-trauma/trauma-types/complex-trauma/interventions>

<sup>43</sup> CLEAR, Collaborative Learning for Educational Achievement and Resilience, <https://extension.wsu.edu/clear/>

school are known. The scope of adversity and adjustment concerns demonstrate that coordinated efforts to reduce material deprivation, expand social emotional learning practices, and develop the staff capacity to recognize and address the continuum of trauma expressions are called for in order to increase the overall success of public education.

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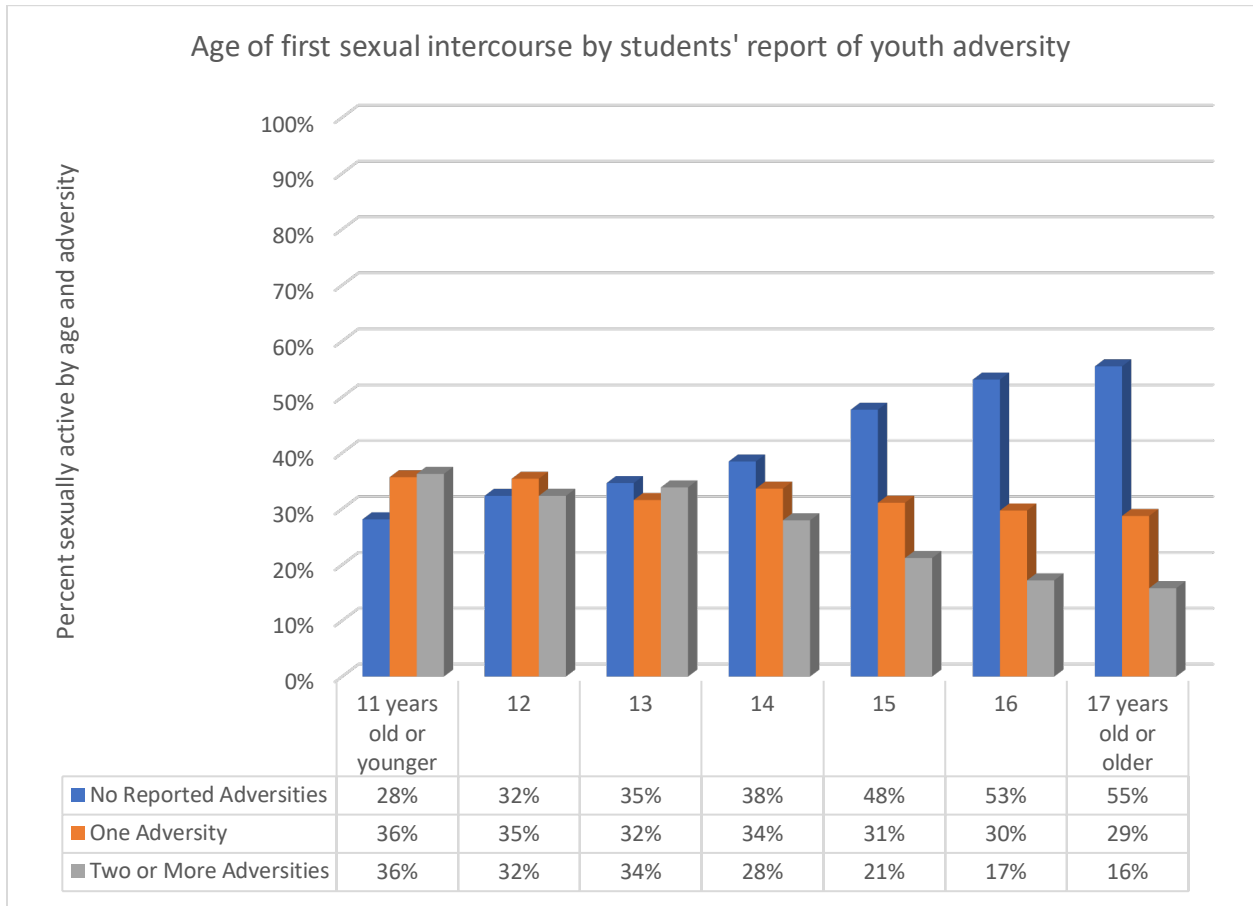
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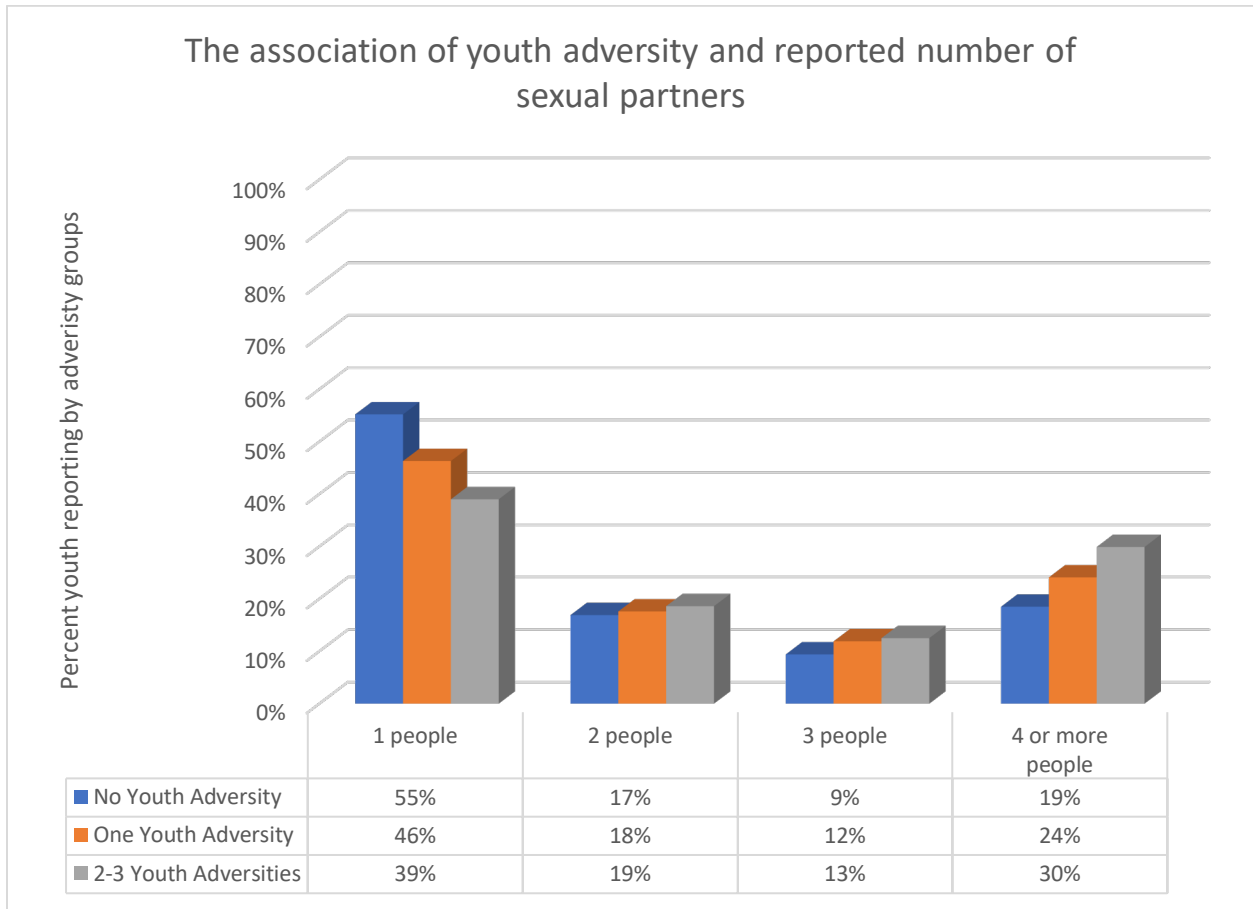
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APPENDIX



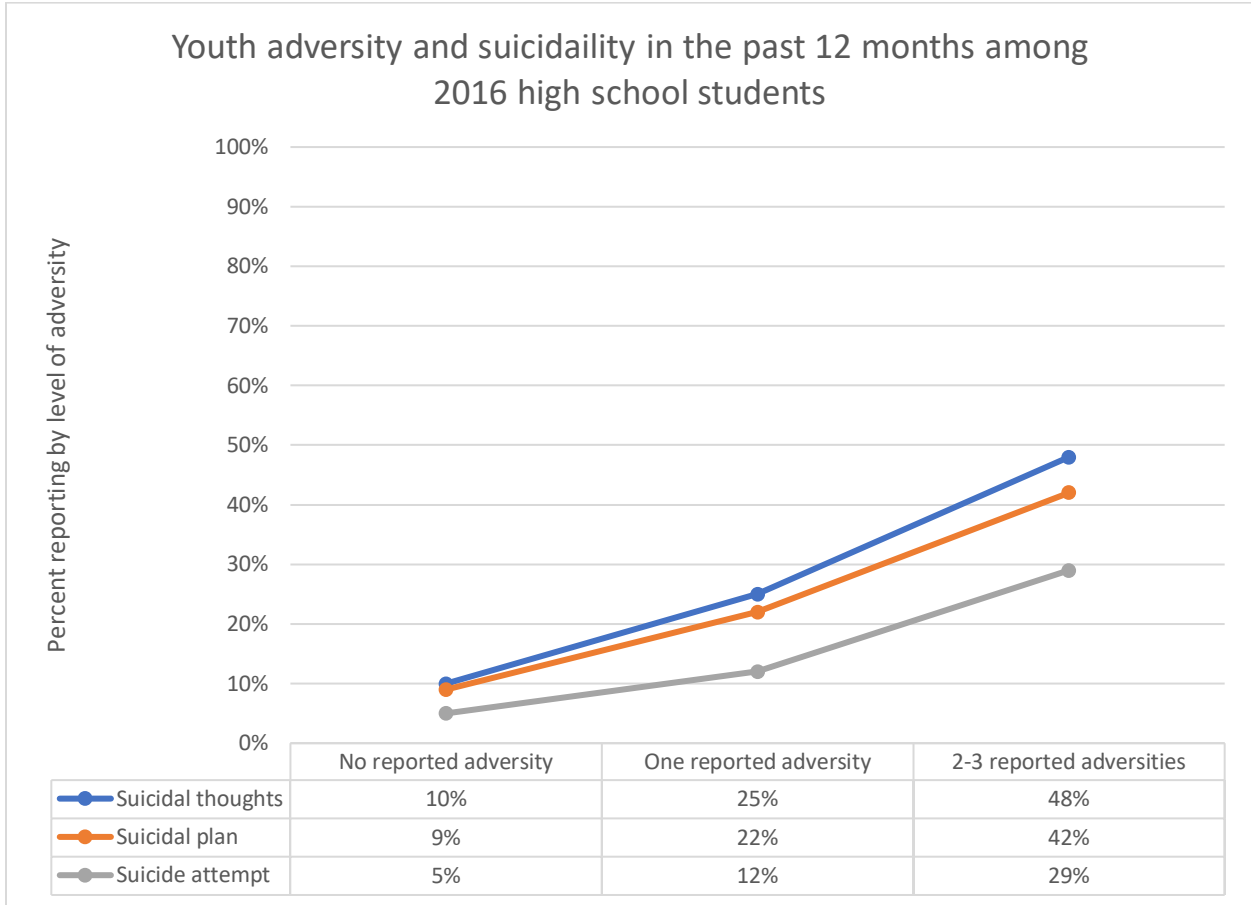
Chi Square (12)= 509.7,  $p < .001$



Chi Square (10) = 255.3,  $p < .001$

\*\* Categories with four or more sexual partners were collapsed in this display

**Suicidal thoughts, suicide plans, and suicide attempts by youth adversity**

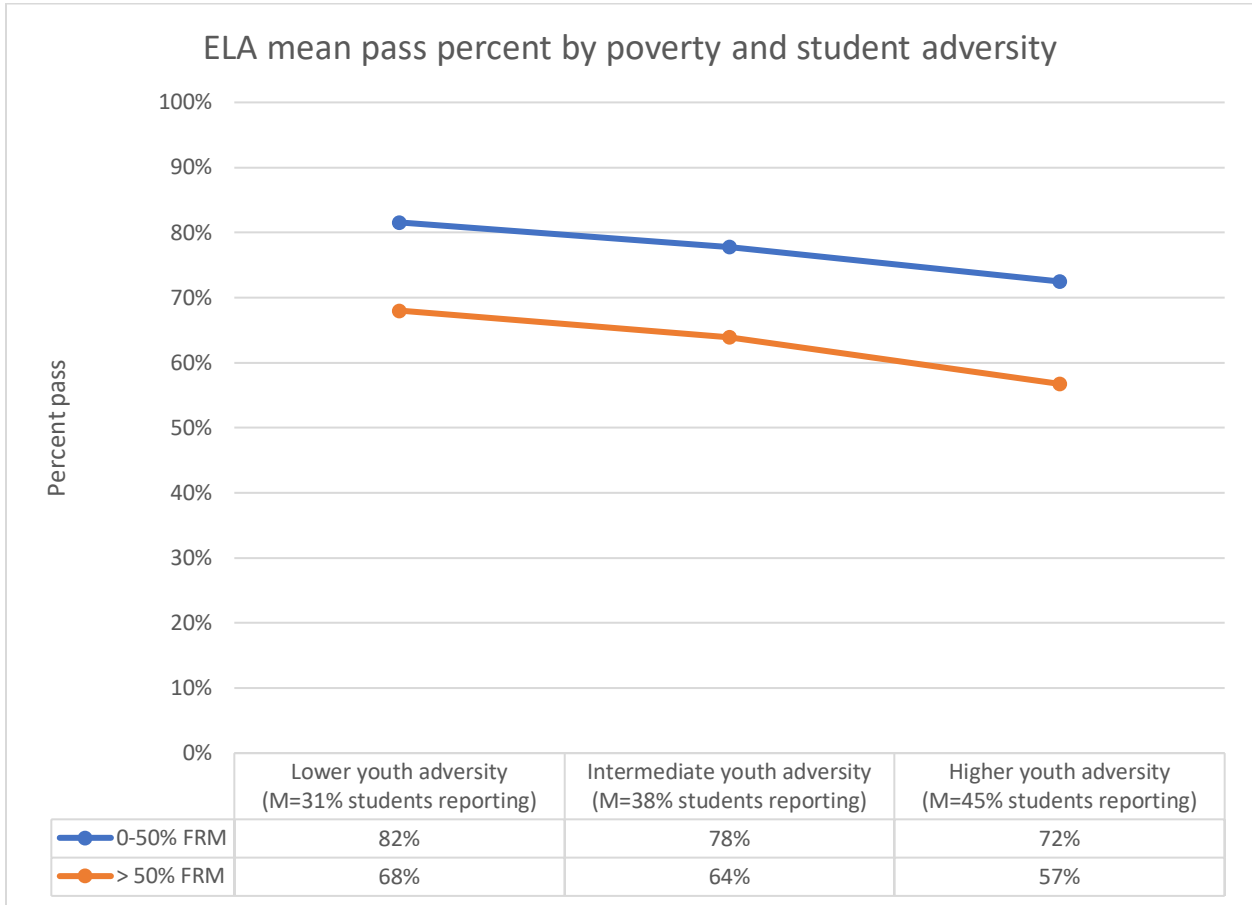


Suicidal thoughts: Chi Square (2)= 5790.9, p<.001  
 Suicide plan: Chi Square (2)= 4,756.8, p<.001  
 Suicide attempt: Chi Square (8)= 4,204.2, p<.001

**Poverty and youth adversity on ELA Pass Percent**

School youth adversity groups	N of schools	Mean ELA Pass Percent
Lower youth adversity (M=31% students reporting)	51	76%
Intermediate youth adversity (M=38% students reporting)	59	73%
Higher youth adversity (M=45% students reporting)	75	68%

Wald Chi Square (2)= 6.5, p<.04

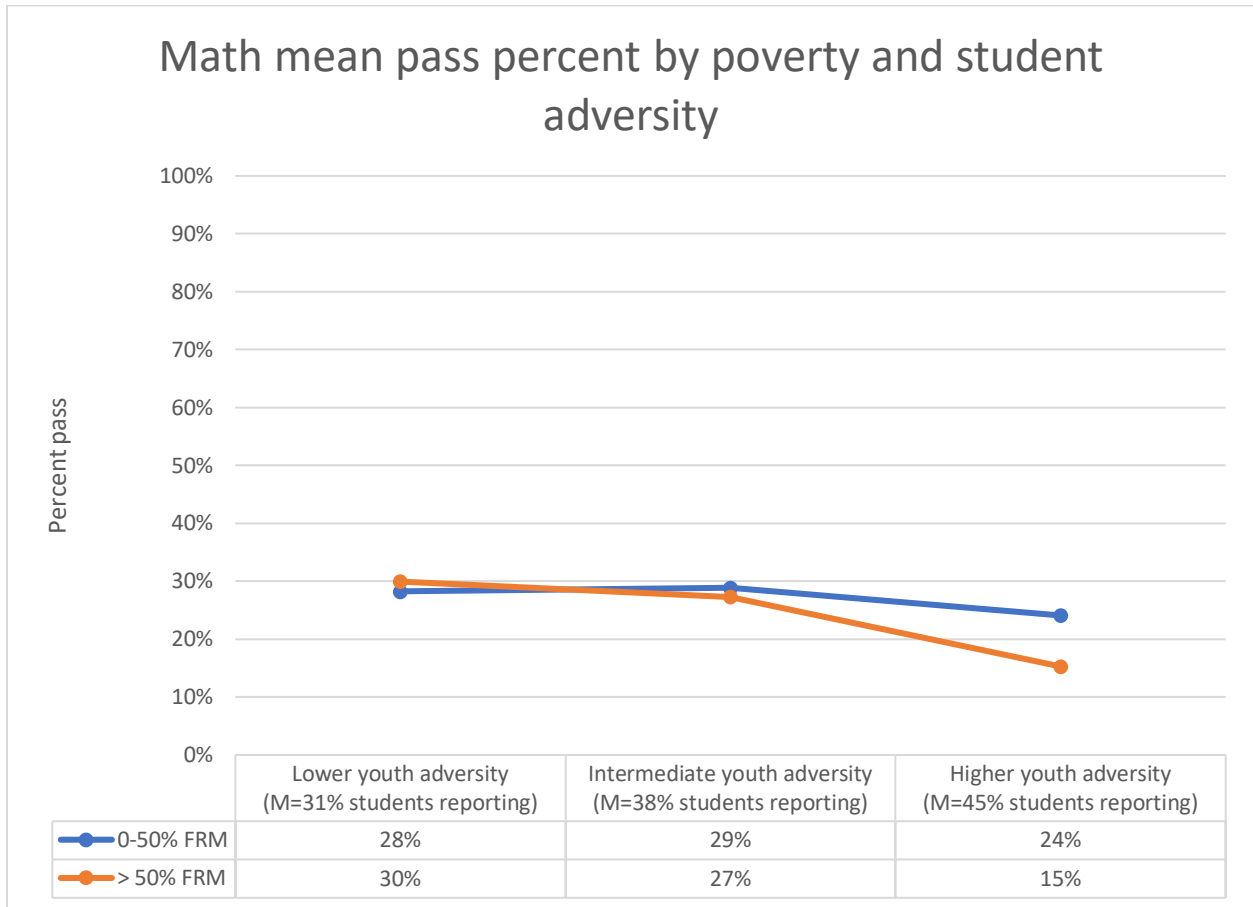


School poverty (FRM): Wald Chi Square (2)= 23.3, p<.001

Youth adversity: Wald Chi Square (2)= 10.3, p<.006

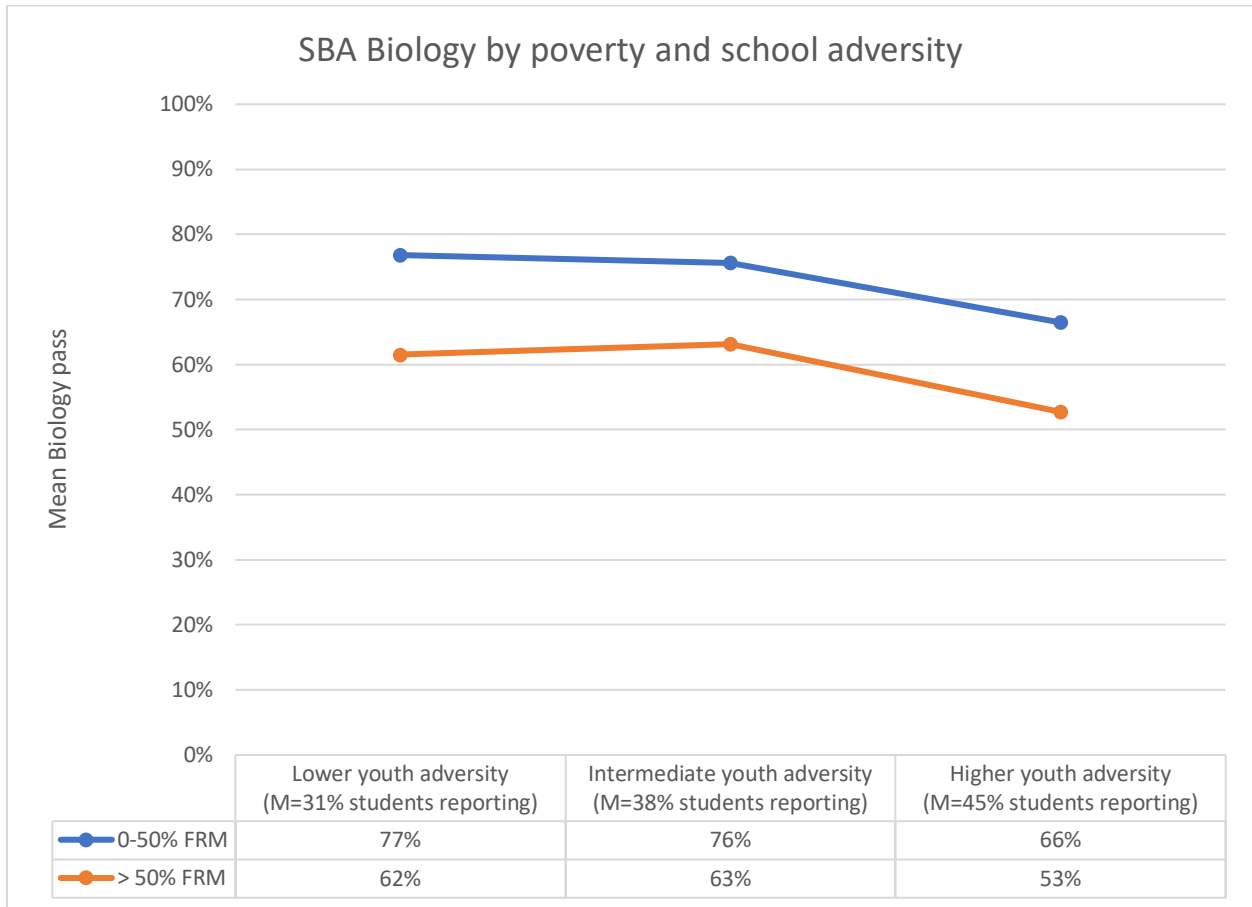
Interaction is nonsignificant

**Poverty and youth adversity on Math**



Poverty X Youth Adversity Interaction: Wald Chi-Square (2)= 6.0, p<.05

**Poverty and youth adversity on Biology**



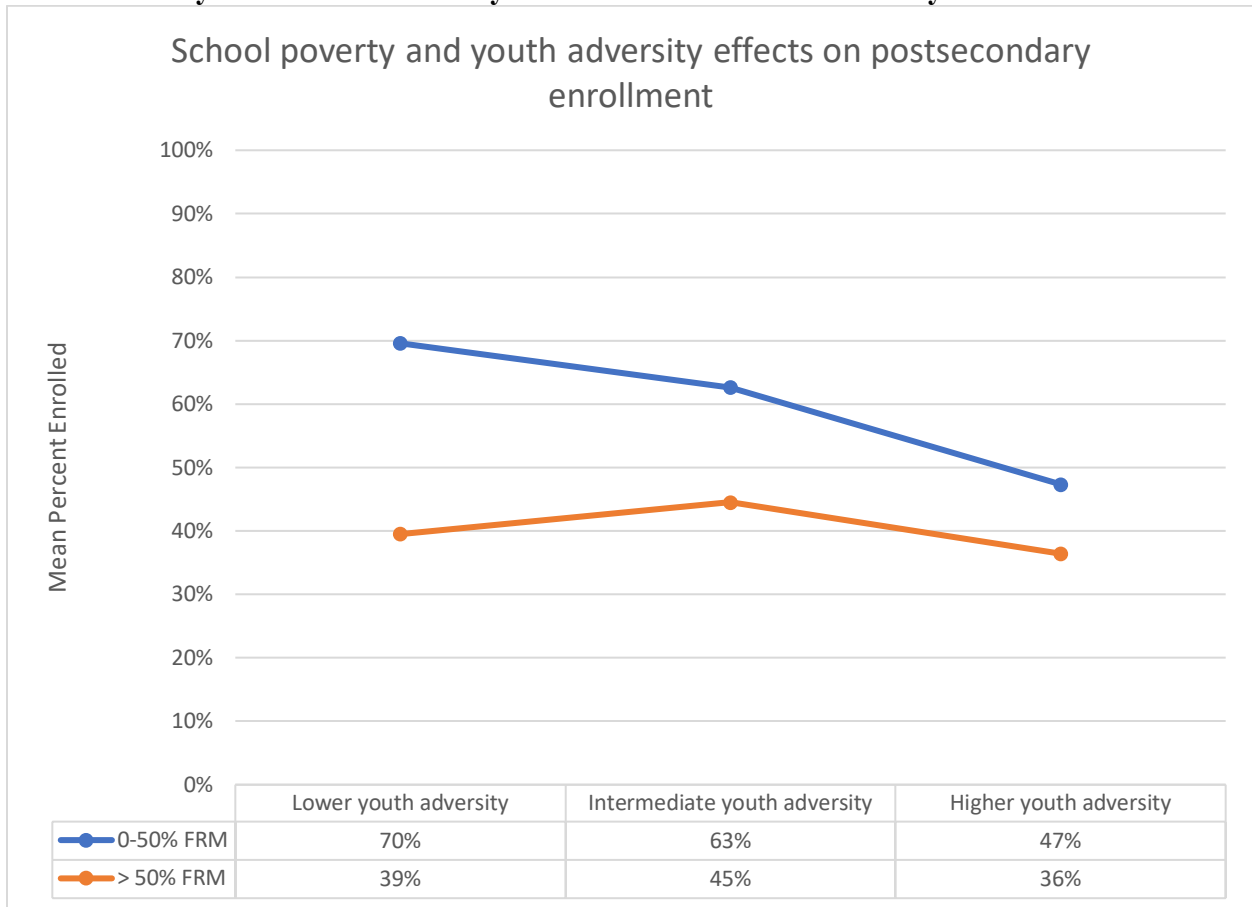
School poverty (FRM): Wald Chi Square (1)= 12.1, p<.001

Youth adversity: Wald Chi Square (2)= 8.5, p<.01

Interaction is nonsignificant



**School Poverty and Youth Adversity Association with Postsecondary Enrollment**



Poverty by youth adversity interaction: Wald Chi Square (2) = 8.4, p<.02

**Poverty by youth adversity on GPA**

	Mean GPA	S.E.
Lower Youth Adversity	2.86	0.08
Intermediate Youth Adversity	2.82	0.06
Higher Youth Adversity	2.62	0.04

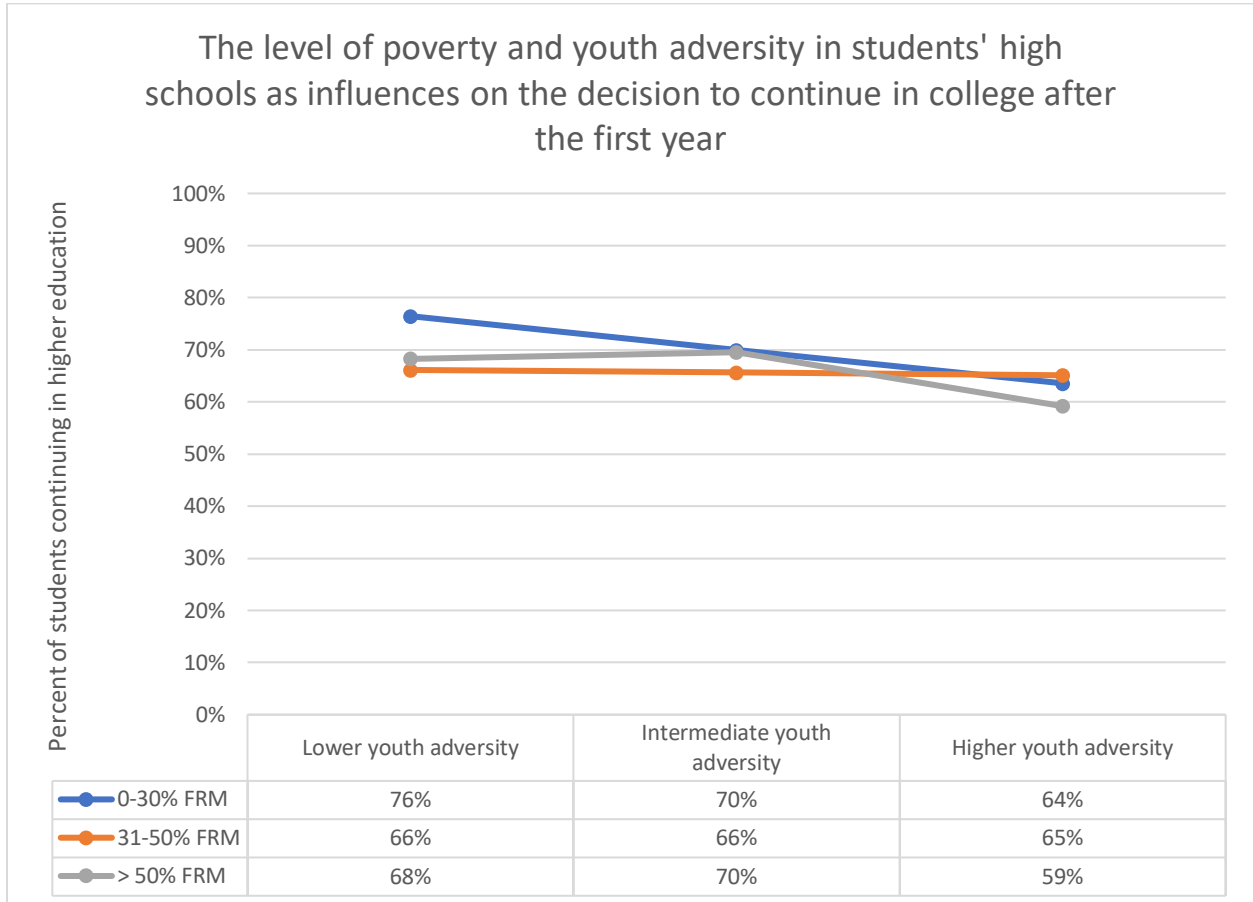
Wald Chi Square (1)= 8.0,  $p < .02$

**Demographics by credits attempted**

Race	Mean Credits Attempted	N	Std. Deviation
American Indian/Alaskan Native	27.0	864	6.5
Asian	26.4	5710	8.3
Black/African American	25.4	2988	6.6
Hispanic/Latino of any race(s)	26.3	12450	7.5
White	25.9	42390	6.6
Native Hawaiian/Other Pacific Islander	26.8	542	5.7
Two or More Races	26.2	4060	6.4
Not Provided	32.0	5	4.1
Total	26.1	69009	6.9

$F(7, 69,008) = 15.5, p < .001$

**Poverty by level of student adversity on postsecondary continuation**



Poverty by adversity concerns: Wald Chi Square (2) = 17.9,  $p < .001$