Fostering Belonging, Transforming Schools

The Impact of Restorative Practices

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LEARNING POLICY INSTITUTE

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Table of Contents

List of Figures and Tables

Executive Summary

Many schools use exclusionary discipline—such as suspensions and expulsions—to deter students from misbehaving and to protect students from the harms associated with exposure to student misbehavior. Research indicates that, while often implemented with good intentions, exclusionary discipline increases (rather than deters) misbehavior and risks of dropout and juvenile and adult incarceration. Moreover, exclusionary discipline exerts secondary harms, negatively impacting school climate among those who see their peers suspended.

Research has also detected racial disparities in how exclusionary discipline is applied. Black students are far more likely to experience exclusionary discipline and its negative side effects. Black students are nearly 4 times more likely than White students to receive an out-of-school suspension, and Black–White disparities in suspensions and expulsions emerge in all student subpopulations—across all demographic groups, educational contexts, and grade levels. Research demonstrates that stark racial disparities in discipline are not a function of racial disparities in student misbehavior, nor of how students sort into schools. Instead, disparities are largely driven by school practices. The harmfulness and unevenness of exclusionary discipline thus present a pressing equity issue: How can schools both reduce exclusionary discipline and ameliorate racial disparities in its use?

In response, schools have implemented restorative practices, which include proactive practices to inculcate conflict resolution skills and strengthen community bonds (for example, through community-building circles) and responsive practices to resolve conflicts and repair relationships (for example, through mediation and harm-repair circles). Proponents argue that because these practices address root causes of student misbehavior while reducing exclusionary approaches, they have the potential to ameliorate racial disparities while enhancing school climates, academic engagement, and academic performance.

However, a review of extant quantitative research surfaces a critical distinction between restorative programs and restorative practices. Restorative *programs* offer various kinds of training to staff to help them learn to use restorative *practices*. Restorative practices are the specific actions in which community members might engage in a restorative school (i.e., a school in which a comprehensive program is being implemented). Restorative programs vary in their design and implementation, and many factors—such as program quality, teacher readiness, and teacher discretion—moderate whether a program results in students being exposed to restorative practices. Ample evidence indicates that programs often fail to shift school practices in a pervasive way; nonetheless, research has focused almost exclusively on evaluating the impact of the adoption of restorative *programs*. Prior research thus leaves unclear the extent to which restorative *practices* can reduce misbehavior and discipline rates, abridge racial disparities, improve school climates, and deepen academic engagement. This research gap is significant given that practices (rather

than programs) are the drivers of outcomes. From a policy perspective, identifying the impacts of restorative practices may inform the shifts in practice and the school conditions that empower sustained implementation. This report thus seeks to answer two paramount questions: (1) Does student exposure to restorative practices drive improvements in academic, disciplinary, mental health, and school climate measures? (2) Can it reduce racial disparities in exclusionary discipline and academic achievement?

This study is unique in its focus on the effects of *practices* rather than *programs*, the range of student outcomes it examines, and its scale. It examines the effects of restorative practices on academic, disciplinary, behavioral, and health outcomes by combining data regarding the practices in place in 485 middle schools with detailed school attendance and student outcome data for approximately 2 million middle school students. It tracks student exposure to these practices over time and analyzes how exposure to restorative practices affects outcomes at the individual and school levels, controlling for student and school characteristics.

Findings

Exposure to restorative practices improved students' academic achievement and reduced suspension rates and duration. The analyses find that increasing exposure to restorative practices during the transition from 5th to 6th grade improved standardized test performance in both English language arts and mathematics, reduced the probability of experiencing a suspension, and decreased the number of days suspended among students receiving suspension.

The effects of restorative practices on academic outcomes were positive for all students while stronger for Black and Latino/a students, thus reducing discipline gaps and achievement gaps. Students of all backgrounds (including White and Asian students) saw a positive association between restorative practice exposure and academic achievement. However, benefits were slightly stronger for Latino/a students and substantially stronger for Black students. For example, a 1-unit increase in restorative practice exposure was associated with a 7-unit increase in English language arts scores for White students and a 17-unit increase for Black students. Because associations were stronger for Black and Latino/a students than for White students, all else being equal, these findings suggest that restorative practices can reduce racial disparities in discipline and academic achievement.

Schools that increased their use of restorative practices saw improved student behavior and school safety. School-level use of restorative practices, caused declines in schoolwide student misbehavior, gang membership, victimization, depressive symptoms, and substance abuse. Schools that increased utilization of restorative practices also saw improvements in average school GPA and school climate. Schools that *reduced* their utilization of restorative practices saw declines in these outcomes.

Access to restorative practices was not equitable across student groups.
Even after controlling for a range of other school-level factors, schools with higher
proportions of Black students and/or economically disadvantaged students evidenced
lower levels of restorative practice utilization.

Taken together, these results present a strong case for the effectiveness of restorative
practices at improving outcomes for students and schools. However, racial and
socioeconomic disparities still exist among students' exposure to restorative practices.

Implications

Prior research articles and implementation guides point the way to how schools and
districts can overcome typical implementation challenges and accelerate the impact of
restorative practices.

Shift from a culture of exclusion to a relational culture. Many researchers
and practitioners argue that to ensure that restorative practices realize their
intended impacts, schools must commit to a cultural transformation. This requires
shifting community members' views about misbehavior and punishment as well as
abandoning practices that are incompatible with restorative practices, such as zero-
tolerance policies in which exclusionary discipline must be applied whenever students
engage in certain conduct. For schools that employ school resource officers (SROs),
these staff are also key players in cultural transformations for restorative schools,
as SRO presence is associated with more exclusionary discipline and can negatively
impact school climate for student groups who experience exclusionary discipline at
higher rates. As with other school staff, trainings for SROs may help mitigate some of
these challenges and better enable SROs to enact restorative practices.

Develop staff mastery. Restorative programming often fails to shift school practices,
in part because staff sometimes express hesitation to adopt restorative practices.
Research suggests that professional development may be more effective if provided
to teachers who opt in to restorative practices training. Staff buy-in may also be
achieved via proactive discussions and early trainings. Social signaling, a psychological
phenomenon in which individuals provided with opportunities to publicly display
their prosocial behavior are more likely to engage in prosocial behavior, also holds
promising potential for restorative practice buy-in. Finally, preparing leaders for
"fallback" moments, when temporary setbacks tempt staff to abandon restorative
practices, can help schools sustain implementation.

Ensure that students of all backgrounds gain access to restorative practices. The
analyses presented in this report indicate that, even within a given school, restorative
practice exposure is lower for Black students and students from low-income families
(two groups that are particularly at risk of exposure to exclusionary discipline).
Disparities in exposure to exclusionary discipline also impact students with learning

differences. Trainings and other interventions may be powerful tools for ensuring that teachers can form positive relationships with students of all backgrounds and, subsequently, leverage restorative practices with them.

Empower sustained implementation. In some studies of restorative implementation, outcomes over time (such as academic performance) are "U-shaped," meaning there are short-term declines followed by long-term gains. Institutions hoping to realize the positive impacts of restorative practices can seek (or provide) funding that is structured to support multiple years of implementation and communicate that funding is not tied to near-term results. Caregivers may also feel concern about the effectiveness of restorative practices, so opportunities for firsthand experience with restorative practices may help mitigate apprehension and garner long-term support.

Recommendations

Findings in this report highlight the positive impact that restorative practices have on students and schools. State, district, and school leaders can consider the following steps as they work to create systems that promote full and equitable access to restorative practices.

Replace zero-tolerance policies and punitive discipline frameworks with relational approaches. To empower schools to realize a restorative culture shift, states, districts, and schools can shift away from zero-tolerance and punitive frameworks so that exclusionary discipline is not a default.

Incorporate indicators of exclusion, restorative practices, and school climate in continuous improvement and accountability systems. A first step for state leaders seeking to ensure that all students have access to restorative practices is to incorporate suspension rates, which are readily available, into state accountability systems. States and districts also can create measures of site climate and restorative practices that they can use as part of continuous improvement and, eventually, accountability systems. Analyses presented here indicate that, even within the same school, Black students and students from low-income families have less access to restorative practices than similarly situated peers. Data regarding differential access to restorative practices could help leaders identify districts and schools in need of support to realize equitable implementation.

Secure buy-in from school staff and community members. Establishing buy-in among staff and community stakeholders is key to the ongoing success of restorative practices. To establish strong buy-in, district and school leaders may consider tapping staff who are already interested in restorative practice as early implementers; adopting social signaling by allowing educators and leaders to publicly celebrate

restorative practice successes; and proactively communicating the value of restorative practices—and continuously communicating progress toward full implementation—to educators, community members, and caregivers.

Invest in ongoing education and support for all staff to develop restorative mastery and to expand access to restorative practices among all students. Comprehensive training provided to all school staff—including teachers, administrators, counselors, support staff, and SROs where they are present—can better equip staff to more equitably and effectively implement restorative practices. To fund training and ongoing support, states and districts can leverage the Every Student Succeeds Act Title IV, Part A—the Student Support and Academic Enrichment Grant Program.

Provide long-term investment and support for restorative practice implementation. Fully implementing restorative practices takes time and continual effort. Districts and schools hoping to realize the positive impacts of restorative practices should plan for multiyear investments in implementation support, communicate that implementation should be sustained to be effective, and provide resources and ongoing training to develop and sustain educators' restorative practices.

Introduction: Exclusion and Restoration

> I dropped out of school—actually they kicked me out—because I didn't want to give them my hat. It was real zero tolerance! I was expelled for defiance for putting a hat in my backpack instead of giving it to them. And I had had bad experiences since preschool, so it was easy for me to be like "[Forget] this." As a teenager, I was thinking, "You don't care about us anyway. You just get paid checks per student in a seat." And they think we don't know, but we know.

This quote comes from Darius Robinson,[1] who was a student in the Oakland Unified School District in California and then a restorative justice trainer (from personal communication, May 9, 2018). Darius was interviewed—along with other experts—as part of a small project to understand how students and staff experienced Oakland schools before and after the district transitioned into using restorative practices. Before the district implemented restorative practices, Darius experienced frequent and dispiriting exclusions from school. His first suspension occurred in preschool, and harsh punishment followed him like a specter throughout elementary school. Not surprisingly, this led him to feel disillusioned and distrusting. When he was expelled in high school for a minor act of defiance, he chose to drop out of school entirely.

Darius's experience is alarmingly common: In 2014, for example, 18% of Black boys across the nation received out-of-school suspensions. As discussed in the following section, students who experience exclusionary discipline are at heightened risk of dropout and other negative outcomes, and Black students across educational contexts experience elevated exposure to exclusionary discipline.

Darius's experience of school changed considerably when Oakland Unified School District implemented restorative practices as an alternative to excluding students from school. This study examines the results of such initiatives throughout California, drawing on student survey data and state administrative data to examine the use of restorative practices in 485 middle schools and the effects of student exposure to these practices on a wide range of student and school academic, social-emotional, and behavioral outcomes.

Harms of Exclusionary Discipline

Research over the past 3 decades has investigated the effects of exclusionary discipline on student outcomes. In a first-of-its kind analysis, Shollenberger (2015) reviewed data from the National Longitudinal Survey of Youth that tracked 9,000 students from 1997 through 2010. She found that, compared to students who were not suspended, students who experienced suspensions were approximately

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1   All student and school names have been replaced with pseudonyms to protect student privacy.

2.5 times more likely to drop out of school. Because she was able to track students through their late 20s, Shollenberger could also evaluate whether suspensions might contribute to a school-to-prison pipeline. The results were staggering: Students who experienced suspensions were 2.6 times more likely to experience an arrest and 4.5 times more likely to be sentenced to serve time in confinement (such as in a juvenile or adult correctional facility). Recent research has looked to the mental health implications of suspension and has found that students who experience suspensions exhibit higher rates of mental health challenges, such as depression (Eyllon et al., 2020). California administrative data regarding Black middle school students reveal, further, that being suspended and seeing Black peers suspended are both related to feeling disconnected from school environments (see Appendix D).

> Students who experienced suspensions were 2.6 times more likely to experience an arrest and 4.5 times more likely to be sentenced to serve time in confinement (such as in a juvenile or adult correctional facility).

Correlation, of course, is not causation. However, Bacher-Hicks et al. (2019) leveraged causal estimation techniques to explore the experiences of students in the Charlotte-Mecklenburg district in North Carolina who were assigned to schools based on new district boundaries. By comparing outcomes for students who were randomly sorted into schools that used more versus less exclusionary discipline, they found that exposure to exclusionary discipline causes steep declines in academic performance and increases in arrest and adult incarceration rates for all students in these schools and in all evaluated subcategories of students (e.g., White, Black, male, female). Thus, whereas prior literature had assumed that suspending some students would improve long-term outcomes for the majority of remaining students, strict schools—that is, those that relied heavily on exclusionary discipline—exerted negative effects for students regardless of demographic subgroup. Finally, they found that exposure to strict schools exerted a uniquely pernicious impact for Black students. Given the particularly harmful impact that exclusionary discipline has on Black students, it is perhaps unsurprising that other research has identified a correlation between racial disparities in discipline and racial disparities in academic achievement (Pearman et al., 2019).

Of course, schools do not employ exclusionary discipline with the aim of harming students; rather, they intend suspensions and other forms of exclusion to deter misbehavior and to prevent the harms that can flow from students engaging in, or experiencing, bullying and violence (Adams, 2014; Bagley, 1914; Casella, 2003; Ewing, 2000; Griffith & Tyner, 2019; Kafka, 2011; Matthews & Agnew, 2008). Studies have shown that students who experience sustained exposure to environments in which

peers frequently misbehave see declines in academic performance (Deming, 2011; Imberman et al., 2012; Kinsler, 2013). Thus, schools seek to curb misbehavior via exclusionary discipline, but does it work?

LiCalsi et al. (2021) recently leveraged detailed data from the New York City Department of Education and found that students who received an out-of-school suspension subsequently misbehaved more than similarly situated students who did not receive an out-of-school suspension. In other words, their analyses suggest that suspensions might actually drive increases in misbehavior. This accords with research that suggests that exposure to exclusionary discipline may lead students to distrust and feel defiant toward adults in their schools (Pesta, 2021; Way, 2011). In addition, research suggests that using more exclusionary discipline can harm school climate, both among students who are suspended and among those who are not (Lacoe & Steinberg, 2019).

While the results of the aforementioned studies may seem shocking to some, Darius might call them common sense. His early and frequent experiences with exclusionary discipline left him jaded and primed him to defy the adults in his school who seemed to be singling him out. This led to a cycle of escalating exclusion and, ultimately, to expulsion and dropout. Like many who experience being labeled a "bad student," Darius joined a gang and eventually was arrested. But was Darius singled out? As a Black student, was he more likely to be disciplined than his peers?

Black–White Disparities in Exclusionary Discipline

Some students are more likely to experience the harms of exclusionary discipline than others. Based on federal data from the 2013–14 school year regarding disparities in K–12 student outcomes, while 3.6% of White students will experience an out-of-school suspension in a given school year, 14.1% of Black students will receive an out-of-school suspension in the same time frame, indicating that Black students are 3.9 times more likely than White students to experience this form of exclusionary discipline (Government Accountability Office [GAO], 2018). Figure 1 depicts the size of the Black–White disparity in various educational contexts. The first bar shows that overall, Black students are 3.9 times more likely to receive an out-of-school suspension than White students. Black–White disparities emerge among subpopulations of students. Among male students, Black students are 3.5 times more likely to receive suspensions than White students. Among female students, Black students are 5.0 times more likely than White students to receive suspensions. Disparities are found in all types of school settings, including preschools, elementary schools, and secondary schools; schools with high and low proportions of students coming from low-income families; and traditional public, charter, magnet, and alternative schools. In every subpopulation, in every context, and at every grade level, Black students are far more likely than their White peers to receive out-of-school suspensions.

Figure 1
Black–White Disparities in Out-of-School Suspensions, 2014

Category	Ratio
All students	3.9
Male students	3.5
Female students	5.0
Students with disabilities	2.8
Students without disabilities	4.2
Students in poor schools	2.3
Students in wealthy schools	4.2
Traditional public school students	3.8
Magnet school students	4.0
Charter school students	4.9
Alternative school students	1.9
Preschool students	3.7
Elementary school students	4.3
Middle/high school students	3.8

Ratio of Black student suspension rate to
White student suspension rate, by school type

Source: Government Accountability Office. (2018). *Discipline disparities for Black students, boys, and students with disabilities*. pp. 71–81.

Black–White disparities appear across contexts for other forms of exclusion as well, including in-school suspensions, expulsions, referrals to law enforcement, and school-related arrests (GAO, 2018). The existence of a Black–White disparity in exclusionary discipline is clear.

But are schools, and school practices, to blame? Perhaps the Black–White discipline gap is caused by Black students misbehaving more often, or by Black students more often attending schools that rely on exclusionary discipline? Phrased another way, do teachers truly treat Black students more harshly when they engage in the same misconduct as White students? In a seminal, randomized controlled trial, Okonofua and Eberhardt (2015) used psychological research methods to answer this question. They asked teachers to read vignettes describing a student who engaged in two consecutive misbehaviors. Some teachers were randomly assigned to read a vignette about a student with a stereotypically White-sounding name, and others were assigned to read a vignette about a student with a stereotypically Black-sounding

name. Aside from the students' names, the vignettes were identical in the two conditions. After reading about the two incidents of misbehavior, teachers were asked to indicate how troubled they felt about the student's behavior and how harshly they felt the student should be disciplined. As depicted in Figure 2, compared to those assigned to read about a White student, teachers randomly assigned to read about a Black student felt significantly more troubled by the student's behavior and suggested harsher discipline. The authors deem this the "two strikes" effect: Even when Black and White students engage in identical behavior, after just two misbehaviors, Black students are more often deemed "troublemakers" and subjected to harsher discipline.

Figure 2
Racially Differential Responses to Identical Student Behavior
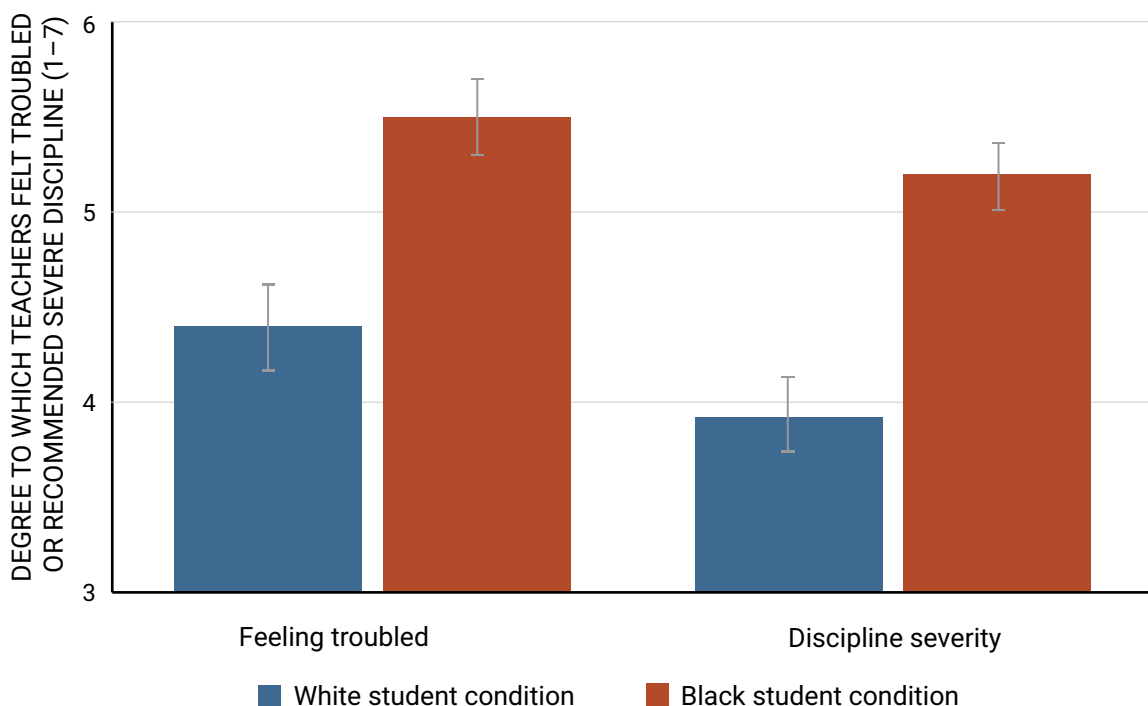
Note: Error bars represent 95% confidence intervals around mean values.

Source: Okunofua, J., & Eberhardt, J. (2015). Two strikes: Race and the disciplining of young students. *Psychological Science, 26*(5), 619.

In my conversations with Darius, he bemoaned the harsh treatment he received from teachers beginning in preschool—treatment that he indicated felt unfair to him. Given the results of Okonofua and Eberhardt's 2015 study, it is clear that teachers can sometimes be unfair. And the 2018 GAO report demonstrates that Black–White disparities in exclusionary discipline emerge in preschool, where Black students are 3.7 times more likely than their White peers to be suspended. Might differential treatment play a role in generating these early and striking racial disparities? A study of preschool teachers by Gilliam et al. (2016) suggests it might. In an eye-tracking

study, the authors asked teachers to watch 6 minutes of video content of young children playing and scan for any "problem behaviors." In reality, all of the children were playing nicely, and no problem behavior was present. However, when asked to find misbehavior, teachers focused significantly more of their attention on Black children, and on Black boys in particular.

Of course, the "two strikes" vignette study and eye-tracking study are one step removed from real-world conditions. However, researchers observe similar results when analyzing data from actual classrooms. Multiple studies have found that Black students are more likely to receive suspensions than White students, even when the students have misbehaved a similar number of times, when they are engaged in the same incident of misbehavior (i.e., in a conflict with one another), when the students have similar prior behavioral tendencies, and when the students are in schools with similar racial compositions (Gregory et al., 2016; Barrett et al., 2021; Shi & Zhu, 2022; Huang & Cornell, 2017; Owens & McLanahan, 2020). In one study, authors considered factors that might contribute to Black–White disparities in exclusionary discipline rates. They concluded that differences in behavior account for 9% of Black–White disparities in discipline, school sorting accounts for 21% of the discipline gap, and differential treatment accounts for 46% (Owens & McLanahan, 2020).

When Darius was expelled in high school—and even long before, when he was treated harshly in preschool—he felt he was being treated unfairly. The previously mentioned studies indicate that it is entirely feasible that he was. But the Black experience is also one of overcoming adversity. So, what happened to Darius after he was expelled?

Darius Discovers a Restorative Alternative

After being expelled, Darius was arrested and given two options: return to school or go to jail. He chose school. And while he had assumed he would eventually drop out again, things did not go as he expected. The new school, Alice Walker Academy, had recently adopted restorative practices. In a restorative paradigm, schools focus on strengthening relationships, proactively teaching students the skills needed to manage conflict, and guiding students through conflict resolution. Darius remembers attending community-building circles in which students would share their emotions, deepen their connection to one another, and surface and resolve conflicts in a healthy manner with the support of the community.

> In a restorative paradigm, schools focus on strengthening relationships, proactively teaching students the skills needed to manage conflict, and guiding students through conflict resolution.

At first, he was deeply skeptical, but in time he found it worked—not just for him, but for the school overall:

> [After 2 weeks of circles at Alice Walker Academy,] I realized it was the first time in my life I ever wanted to be at a school! Like we got circle today, I gotta go! I wanted to be in class, do projects, interact, be one of the first students called on. I felt good being up here! And the school had kids from West Oakland, East Oakland, Richmond, and yet there were two fights in the entire school the whole year. We had kids from south and north Richmond on the same basketball team, and the team went undefeated while beating [well-known] schools. We were kids that the system said couldn't function in the same environment. That's wild! All my friends [from before I went to Alice Walker Academy] are dead or in jail. Without [restorative practices], I'd probably be dead or in jail too. After I graduated, I realized I could bring this to homies to change my community. I was like, "This is what I want to do." I had already lost four friends to the justice system—four sentenced to 10–15 years under the age of 20. I had seen four murdered in the same year. I wanted to save my friends' lives.
>
> —D. Robinson, student
> *Personal communication, May 9, 2018*

Darius eventually became a restorative practitioner and trainer—one who provides training to teachers on how to use restorative practices when engaging with students. A restorative practitioner named Nia experienced a similar trajectory:

> Restorative practices saved my life. It's a lifestyle, not a practice or a program. … It's not something you turn on or turn off. Once you start doing it, you will start having restorative conversations and learn to be a good listener. And you make really lasting relationships because [restorative practices] teach you not to be afraid of opening up to people.
>
> —Nia, student
> *Personal communication, May 9, 2018*

According to Darius and Nia, restorative practices proved transformative for their life trajectories and for the trajectories of many of the students they reached through their trainings. Might these practices have the potential to improve outcomes for students across the country? Some are skeptical (e.g., Pollack et al., 2019), and research on restorative practices has sadly not kept pace with social change. While thousands of schools now implement restorative practices, few researchers have attempted to identify their impacts. Those who have attempted to ascertain the impacts of restorative practices have faced myriad methodological challenges, such as uncertainty about how to categorize these practices, and challenges securing data that allow researchers to track student exposure to restorative practices over time.

While daunting, the task of identifying the impacts of restorative practices is critical. From a policy perspective, it presents a first-order question that precedes inquiry into the kinds of programming that might shift practices or the kinds of school conditions that might empower sustained implementation. Put another way, if restorative practices are truly effective, evidence of their potential impacts could empower schools and districts that adopt these practices to weather caregivers' concerns and pundits' critiques (Pollack et al., 2019) and to explore innovative solutions to implementation challenges (Garnett et al., 2020; Gregory, Ward-Seidel, & Carter, 2021). On the other hand, if restorative practices are ineffective, thousands of schools across the country could leverage new insights to shift away from these practices and to seek other practices better suited to meet students' needs. This report thus seeks to answer two paramount, principal questions: (1) Does student exposure to restorative practices drive improvements in academic, disciplinary, mental health, and school climate measures? (2) Can student exposure to restorative practices reduce racial disparities in exclusionary discipline and academic achievement?

This Study

This study examines the effects of restorative practices on a wide range of student and school outcomes by combining data from student surveys that reveal the experiences of more than 20,000 students in 485 middle schools with administrative data about the students' characteristics and outcomes as well as those of their schools. The study also leverages detailed school attendance and student outcome data for approximately 2 million middle school students to track student exposure to these practices over time and analyze how exposure to restorative practices affects a wide range of student outcomes at the individual and school levels, controlling for student and school characteristics.

The following section of this report explains what restorative practices are. Rooted in relationships, these practices seek to ensure that students are empowered to avoid, navigate, and repair conflict—all in service of building a healthy school climate. The section after that summarizes quantitative research regarding the effectiveness of restorative practices, which has thus far been impeded by what could be termed the program–practice gap. Research has identified the effects of various restorative *programs* (i.e., systems of training designed to encourage teachers to use restorative practices). However, programs often do not result in teachers using restorative practices, and teachers can arrive at these practices via many other means. In short, research on programs may fail to detect the effectiveness of restorative practices—the true target of interest. This study, then, is designed to identify the impacts of student exposure to restorative *practices.* A later section summarizes the study's methods and analyses, which indicate that student exposure to restorative *practices* causes benefits related to a suite of academic, disciplinary, behavioral, school climate, and mental health outcomes and reduces racial disparities. Finally, the report presents practice and policy implications of this research and suggests means of ensuring that restorative practices can achieve their potential.

What Are Restorative Practices?

Restorative practices encompass a wide array of practices designed to repair harm when conflict occurs and to proactively improve relationships, so misbehavior is less common—all in the service of improving outcomes for students, school staff, and communities. Critically, restorative *practices* are distinct from restorative *programs* (see Figure 3).

Figure 3
Relationships Between, and Typologies of, Restorative Programs, Practices, and Outcomes

Source: Darling-Hammond, S. (2023).

Programs, Practices, and Outcomes

Restorative *programs* are systems designed to encourage school community members (staff and students alike) to engage in restorative *practices*. Schools vary substantially in the scope of their restorative programming and can leverage a variety of programmatic approaches to try to increase student exposure to restorative practices. Common approaches include engaging an external organization to provide students with a restorative court; hiring an in-school restorative coordinator to manage conflict repair sessions; training teachers in relationship-building dialogue techniques; providing ongoing coaching and professional development to improve and expand practices; and instituting incentive structures to encourage practitioners to remediate conflicts. There is no established definition regarding which program model or approach must be present for a school to be categorized as "restorative." Due to the lack of clear criteria, schools identified as using "restorative programming" constitute a diverse tapestry. Still, at their core, these schools have invested at least some amount of time and energy into encouraging at least some community members to use restorative practices, ostensibly to avoid conflict, heal harm, improve relationships, foster inclusion, and eschew exclusion.

Restorative programs fall loosely into two models: add-on programs and whole-school programs. In the former, schools add limited restorative functions to their existing disciplinary arrangements. This can take the form of diverting some students who would otherwise be suspended to restorative proceedings or of hiring a single restorative coordinator to oversee selective restorative activities within the school. The whole-school model involves providing instruction in restorative concepts and skills to all school personnel and students so restorative concepts and approaches are infused in as many school interactions as possible. These restorative concepts include the notions that relationships can be repaired with effort, that all community members are valued and should be respected, and that all community members should help foster a healthy school climate. The whole-school model can be augmented with continuous professional development in the form of coaching and/or professional learning communities dedicated to expanding and improving the use of restorative practices. Both add-on and whole-school models are often embedded within other schoolwide initiatives that are designed to improve school climate, such as social and emotional learning (SEL) and positive behavioral interventions and supports.

Restorative *practices* are the specific actions that school community members might engage in at a restorative school and that theoretically can produce certain benefits for students, staff, and community members. Restorative practices can be roughly subdivided into two types: *repair practices* and *community-building practices*.

> Restorative practices can be subdivided into two types: repair practices and community-building practices.

The first restorative practices that were formally introduced into schools were repair practices, often described by the related term "restorative justice." As theorists (e.g., González, 2012; Karp & Breslin, 2001; Zehr, 2002) explain, in the K–12 setting, repair practices are meant to bring together all stakeholders to resolve issues rather than control student misbehavior through punitive exclusionary approaches. Programs for fostering repair practices range from training teachers in conflict-responsive dialogue techniques for the classroom to hiring professional restorative coordinators to guide restorative conferences with students, staff, and other stakeholders. Formal conferences can include victims, misbehaving students (often described as "respondents," as they are asked to respond to, or repair, the harm they've caused), and facilitators, but may also include community members (e.g., witnesses, friends, and family members). The term "victim" is often used broadly and can include school community members who speak to the harm caused by respondents' actions (e.g., in the case of vandalism). Together, all of the conference participants (including the respondent) aim to determine a reasonable and restorative response to the harm done. These can include community service, restitution, apologies, or agreements to change specific behaviors, such as the respondent agreeing to comply with certain conditions, sometimes in exchange for incentives (Stinchcomb et al., 2006).

The second body of restorative practices are community-building practices. These practices are designed to foster an interconnected school community and healthy school climate in which punishable transgressions are less common (Brown, 2017). The best-known community-building practices are community-building circles, which are convenings held on a regular basis (e.g., every Monday morning in homeroom) that are structured to help students and staff deepen relationships and trust so that misbehavior becomes less common. Another common community-building practice is the reentry circle. In these circles, community members gather to help students who have been removed from the school community (for example, due to out-of-school suspensions) to feel reintegrated into the community. These circles are designed to ensure that returning community members have the social support needed to thrive (and to avoid misbehaving).

A final body of community-building practices are practices designed to help students develop their social and emotional capacities to manage conflict when it occurs. These include role-playing conflict situations, reflecting on past conflicts, and discussing sources of stress and anxiety in students' lives. Capacity development activities often occur during community-building circles.

Programs designed to catalyze community-building practices include widespread training in affective communication techniques to bolster social connections, hiring restorative coordinators to lead community-building activities, and providing teachers with training and coaching regarding how to lead community-building and reentry circles.

The Theory of Restoration

> To me, an ideal justice system … would be a problem-solving and a healing system rather than a punitive system. … Think about when you're a kid and you throw a baseball through your neighbor's window and if you're so lucky to have the kind of parents who would take you by the ear to your neighbor, have you apologize, find out how much it costs, and if you're so lucky to have an allowance, redact it until you have paid them back for how they paid to have that window repaired; right? You've learned something and you've redeemed yourself; right? … Whatever it is, those are wake-up moments for us, and I think our justice system should be about those things. I think that would cause the moral change within us. It would be driven by notions of empathy, compassion, repair, atonement, these types of things. That really is what restorative justice is about.

> —sujatha baliga, attorney and restorative justice practitioner
> *Interview with Awakin, November 8, 2014*

> Criminal justice harms people who harm people to show that harming people is wrong. … Restorative justice invites us to be present to one another in ways that bring about healing and wholeness rather than in ways that deepen harm and hostility. And importantly, it gives us the tools to do so. [Restorative justice] is effective … because it responds to human need. It is attuned to people's yearning to be in good relationship with one another.
>
> —Fania Davis, attorney and social justice activist
> *Comments at the Harvard Divinity School, October 3, 2017*

Proponents of restorative practices (e.g., baliga, 2021; Davis, 2019; Tyler, 2006; Zehr, 2002) argue that restorative practices can mitigate reliance on exclusionary discipline by addressing the root causes of misbehavior and giving educators alternative strategies for addressing classroom challenges, all while improving school climate and academic engagement. They argue that while traditional discipline approaches merely manage student behavior, restorative approaches develop students' social and emotional capacities and nurture school relationships so students are less likely to misbehave. They argue further that restorative practices can help students view institutional power as more just by giving students agency and by creating a clearer tie between student behavior and teachers' responses. In this way, restorative practices differ from exclusionary discipline, which theory and research suggest may lead students to feel that school rules are unfair, fracture teacher–student relationships, catalyze an attitude of defiance, and have unintended educational and carceral consequences (Bacher-Hicks et al., 2019; Eyllon et al., 2020; Lacoe & Steinberg, 2019; LiCalsi et al., 2021; Pesta, 2021; Shollenberger, 2015; Way, 2011).

Restorative practices have also gained popularity as a means of addressing disproportionalities in exclusionary discipline. As previously discussed, psychologists have identified that one cause of racial disparities in exclusionary discipline is that teachers are more likely to perceive an act of misbehavior by a Black student as indicating that the student is a "troublemaker" (Okonofua & Eberhardt, 2015), but that enhancing teacher–student relationships can stem this tendency and reduce disparities (Okonofua et al., 2016, 2020). Accordingly, restorative practice advocates (e.g., Gregory et al., 2016) argue that restorative practices can address disproportionalities by facilitating positive teacher–student relationships regardless of student demographics.

Perhaps because restorative practices represent a striking and multifaceted departure from typical disciplinary regimes, some find it difficult to imagine a restorative paradigm. I thus describe what might be a "typical" day for a student in a restorative school.

A Day in a Restorative School

Aaliyah is a 7th-grader at a racially and socioeconomically diverse middle school. On a Monday morning, she walks into her homeroom classroom and sees the chairs arranged in a circle. She sits down next to her peers. After doing a brief check-in, her teacher asks the students what emotional skills they would like to practice that week. Her classmates offer suggestions—one says he wants to practice being empathetic; another says she wants to work on listening without judging. Aaliyah says she likes both of those. After everybody has expressed a commitment, the circle begins. One by one, the students discuss their experiences over the weekend—what they did, how they were challenged, how they responded, how they grew, what they regretted, what they would like to do differently, what they were proud of. … The students share and explore one another's emotional worlds. They offer perspectives and ideas to one another. The students even role-play difficult conversations they had or want to have. By the end of the circle, which takes about an hour, Aaliyah knows new things about her peers and about herself. She has practiced useful communication skills. And she feels more fully seen by her classmates and her teacher.

Later that day, as Aaliyah is walking through the hall, she accidentally bumps into Walden, a student from another classroom. She is surprised when Walden yells at her and curses her out. She feels herself flush, and she yells back, calling Walden a name. As the volume rises, Mr. Macky, a teacher who happens to be nearby, calmly walks over and quietly asks Aaliyah and Walden to take a deep breath and walk outside together. It is a sunny day, and the brief walk gives both students a chance to calm down. As they walk, both students try to imagine the situation from the other student's perspective and start to feel a little guilty about how they acted.

Mr. Macky reassures the students that conflict happens sometimes, reminds them that they can make things right, and asks the students to take turns trying to describe what happened. He also asks them to share any feelings they were having. Walden goes first, and Aaliyah listens as Walden says that he was already having a really bad day because his brother is in the hospital, so when Aaliyah bumped into him, it really set him off. He says he knew it might have been an accident, but in the moment, it really felt like Aaliyah bumped into him on purpose. And then he was really hurt by the name Aaliyah called him. Aaliyah apologizes for calling Walden a name, and tells Walden he did not deserve that. Then, consistent with her Monday commitment, she tries to empathize. She admits that when she is worried about something, it is easier for her to get into misunderstandings. Walden calms. Aaliyah continues that it hurt her feelings when Walden yelled at her even though she did not bump into him on purpose. Walden thinks for a second and says, "Yeah, I don't like when people assume I did bad stuff on purpose either, so I get why you reacted the way you did. Sorry I made an assumption."

The previous scenario stems from reviews of dozens of practitioner guides, my own experiences working in restorative contexts, and five interviews with carefully selected restorative practitioners and students in restorative schools. It features two restorative practices that often emerge in schools using a whole-school model: (1) a community-building circle in which students share deeply and practice conflict resolution skills; and (2) a teacher-guided, impromptu conflict repair conversation. It also shows the virtuous cycle that exposure to restorative practices can elicit. The community-building circle allowed Aaliyah to practice conflict resolution skills, and, with the guidance of a teacher, she was able to employ these skills to resolve a conflict with Walden. Thereafter, the same skills encouraged Aaliyah to deepen her connection with Walden, leading to more community building and potentially reducing the likelihood that either Aaliyah or Walden will have future conflict. All of this was possible, however, because students and teachers throughout the school were empowered (via training and practice) to employ restorative practices when the moment presented.

As noted previously, restorative practices are theorized to reduce exclusionary discipline by enhancing school climate (Brown, 2017). Given ample research documenting the positive psychological, behavioral, and academic correlates of positive school climates (Cohen et al., 2009; McChesney & Aldridge, 2018; Thapa et al., 2013; Wang & Degol, 2016), one might expect restorative practices to not only reduce exclusionary discipline, but also improve student mental health and academic performance. What does extant research say about the impacts of restorative practices across these dimensions?

Quantitative Evaluations of Restorative Programs and Practices

Restorative programs are distinct from restorative practices. Restorative programs are systems of training and support designed to encourage at least some school community members to learn, and engage in, some restorative practices. One might assume the former naturally flows into the latter. However, many researchers have documented the significant challenges districts face when trying to help staff proceed from receiving training to engaging in restorative practices (see, e.g., Blood & Thorsborne, 2005; Gregory & Evans, 2020; Gregory, Ward-Seidel, & Carter, 2021). Despite this distinction, almost all research in this field focuses on evaluating the impacts of the adoption of a restorative program. This research gap is problematic given that practices (rather than programs) are the drivers of outcomes. Yet this gap is also understandable, as it is easier to ascertain which schools have invested in formal restorative programming than it is to determine which students have gained exposure to restorative practices.

The challenge of determining exposure to restorative practices stems from the many factors that determine whether restorative programming results in student exposure to restorative practices. Factors that augment the effect of one variable on another are often called "moderators." In Figure 4, arrows are used to represent moderators that determine whether a restorative program results in student exposure to restorative practices.

Figure 4
Pathways to, and Moderators of, Student Exposure to Restorative Practices
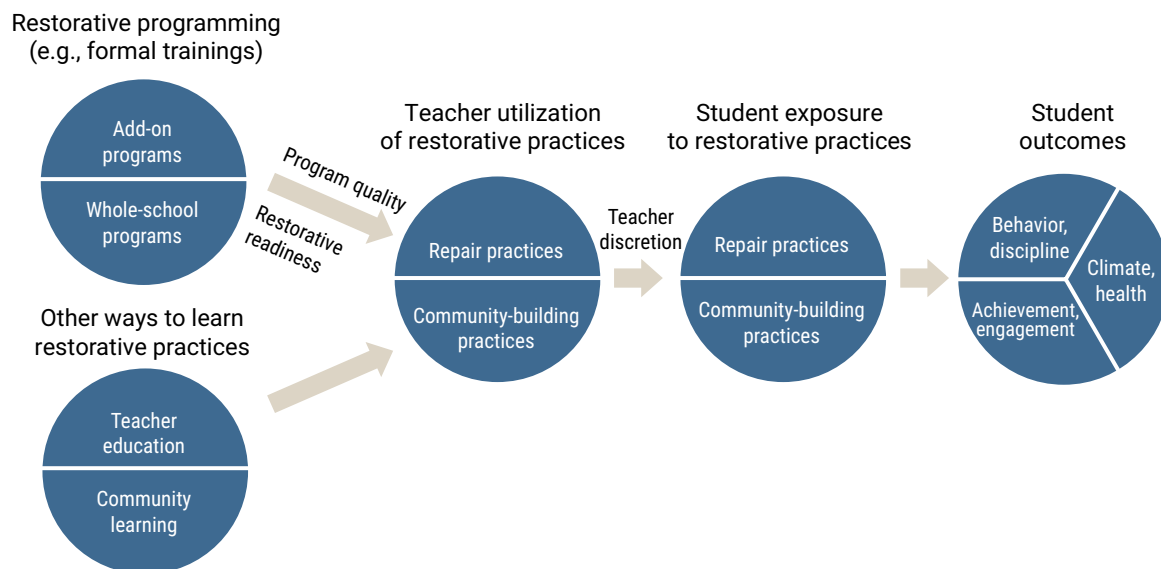
Source: Darling-Hammond, S. (2023).

Moderator One: Program Quality

The first potential moderator is program quality. Reviews of research and practitioner guides related to restorative practices (Darling-Hammond et al., 2020; Fronius et al., 2019) reveal substantial differences not only in what constitutes restorative programming, but also in the extent to which programs provided actual instruction as well as opportunities for practice, coaching, and peer learning. Some restorative programs did not appear designed in such a way that one could reasonably expect that teacher participation in the program would shift teacher practices. In a series of informal interviews with several teachers and restorative practitioners, I found that interviewees often maligned restorative trainings that simply provided a binder to teachers and oriented them to the contents, expecting that teachers' perusal of complex material might change the way teachers relate to students. One can imagine that these kinds of programs would be unlikely to empower teachers to adopt relational mindsets and abandon punitive ones, or to enhance teachers' capacities to build a strong school community, inculcate conflict resolution skills, and facilitate conflict resolution when misbehavior occurs. Interviewees also indicated that these low-touch training approaches are actually quite commonly employed because they cost less and require less time to implement than more robust alternatives. Potentially, if research assumes that programs shift practices, it may overstate the extent to which "treated" schools use restorative practices and, therefore, underestimate the impact of these practices.

Moderator Two: Restorative Readiness

The second potential moderator is readiness. Even when schools select restorative programming that can shift teacher practices, school staff may not be sufficiently receptive to the programming to shift their practices. Staff may be less receptive to restorative programming if they personally adhere to the notion that exclusionary discipline is necessary to manage student behavior. This notion of the cultural fit between the mores of a school and the ethical pillars of restorative practices (e.g., that teachers can elicit prosocial behavior by appealing to students' intrinsic desire for positive relationships rather than relying on exclusion) is often described as "restorative readiness" (Garnett et al., 2020; Gregory & Evans, 2020). Researchers have theorized that schools that are low on restorative readiness will struggle to shift teacher practices (and, relatedly, student exposure to restorative practices). This presents another potential pitfall of existing research on restorative programming: Having a well-run program does not automatically mean restorative practices will be effectively implemented within the school. As a result, the effects of the practices themselves may be underestimated.

Moderator Three: Teacher Discretion

A final moderator is teacher discretion in when, and with whom, to employ restorative practices. Research has previously identified the extent to which teachers use, and appreciate having, discretion in when to employ punitive approaches (Skiba et al., 2011) and has shown that—even when student conduct is held constant—this discretion can encourage teachers to leverage more punitive approaches when Black students misbehave than when White students misbehave (Okonofua & Eberhardt, 2015). Clearly, then, individuals may employ discretion in deciding when to use harmful or harsh practices. But research also identifies what are known as "boosting effects"—being more likely to employ *helpful* practices when interacting with White individuals than with individuals of other races (e.g., Kang et al., 2009; Smith et al., 2015). This could indicate that teachers are more likely to employ restorative practices when interacting with White students and employ exclusionary practices when interacting with Black students. One reason White teachers in particular might be more likely to use restorative practices when engaging with White students is that, as Papageorge et al. (2020) recently discovered, White teachers often expect less of Black students than they do of White students. To the extent that teachers' level of motivation to employ relational practices is a function of how much they believe in the capacity of a given student, White teachers may be less likely to leverage restorative practices when interacting with Black students.

Taken together, research suggests that teachers (and particularly White teachers) may be more likely to use restorative practices when engaging with White students than when engaging with Black students. If so, even when a school implements an effective restorative program, and even when teachers are culturally receptive to the programming, they may be more likely to utilize newfound restorative practices when engaging with White students. This can lead to unevenness in student exposure to these practices. Researchers who assume that the program would lead teachers to use restorative practices uniformly in all interactions with students might overestimate the use of these practices and subsequently underestimate their impact (particularly when estimating the impacts of these practices for Black students). In addition, if restorative practices prove effective at reducing exclusionary discipline and improving other student outcomes, and if teachers use these practices with White students but not with Black students, then such uneven implementation could *increase* racial disparities in exclusionary discipline and academic achievement, among other outcomes.

> Taken together, research suggests that teachers (and particularly White teachers) may be more likely to use restorative practices when engaging with White students than when engaging with Black students.

These three moderators—program quality, restorative readiness, and teacher discretion—each present challenges for researchers hoping to tie restorative programming to restorative practices. However, in many cases, researchers hope to not only review student outcomes in schools that receive restorative programming, but also to compare those outcomes to outcomes in schools that do not receive programming. In these cases, researchers also must contend with the possibility that teachers in schools that have not received formal training might nonetheless use restorative practices. This is quite possible for three reasons. First, many teacher-preparation and credentialing programs now provide or require coursework related to restorative practices (e.g., School of Teacher Education, 2020). It is therefore feasible for teachers to have exposure to restorative practices even if those schools do not have formal restorative programming or training. Second, schools frequently hire teachers who have received professional development and worked at other school sites. These lateral hires may have received formal training in restorative practices at their prior schools. Finally, research has documented how teachers share new practices with one another (Rutkowski et al., 2013). Thus, even if a school does not have formal training in restorative practices, any teachers who are familiar with these practices may share their knowledge with peers.

Findings From Quantitative Studies of Restorative Programs and Practices

Perhaps due to challenges that divide restorative programs and restorative practices, most quantitative research has focused on estimating the impact of restorative programming. Studies that evaluate restorative programs fall into two buckets: (1) pre–post studies, which measure how student outcomes shift after schools introduce restorative programming; and (2) randomized controlled trials that evaluate whether students in schools randomly assigned to receive restorative programming see more improvement in student outcomes than students in schools randomly assigned not to receive restorative programming. Notably, a few studies have also attempted to overcome the program–practice gap and have examined correlations between direct student exposure to restorative practices and outcomes, such as exclusionary discipline, discipline disparities, behavior, school climate, and academic performance.

What have these studies found? As depicted in Figure 5, research regarding restorative programs and practices generally indicates that they reduce exclusionary discipline, discipline disparities, and misbehavior as well as improve school climates. However, research related to academic performance is more mixed: The number of studies finding neutral results is nearly equal to the number finding positive ones.

In terms of the methods employed by these studies, most studies have been pre–post assessments of restorative programs (depicted as boxes without outlines in Figure 5). There have been five randomized controlled trials of restorative programs that have generated statistically significant findings (depicted as boxes with solid outlines in

Figure 5). Among these, two provide evidence that restorative programs reduce discipline, two provide evidence that restorative programs reduce misbehavior, four provide evidence that restorative programs improve school climate, and, concerningly, one suggests that these programs *reduce* academic performance. Finally, three studies review correlations between student exposure to restorative *practices* and student outcomes (in dashed boxes in Figure 5). Among these, two show that practices are correlated with better disciplinary outcomes, two indicate that exposure is related to smaller discipline disparities, two show exposure to be correlated with better school climates, and one indicates that exposure is related to better academic performance. A more detailed review of these research studies is provided in the following sections.

Exclusionary discipline

Nearly all studies related to restorative programming report substantial declines in exclusionary discipline. Researchers reviewing school-level data following the introduction of restorative programming have reported an 87% drop in suspensions across 2 years of implementation (Sumner et al., 2010); a 65% drop in suspensions among 6th-graders in a middle school (Armour, 2014); a 55% reduction in office referrals for students in an elementary school (Goldys, 2016); a 57% drop in disciplinary referrals, 77% drop in suspensions, and 35% drop in time spent in in-school suspension (Riestenberg, 2003); and a 42% drop in out-of-school suspensions coupled with a 63% drop in in-school suspensions over a 5-year period (Fowler et al., 2016). District-level analyses report similar findings. Jain et al. (2014) report that Oakland schools that implemented whole-school restorative programming saw students receive significantly fewer suspensions than students in the district overall. Three research teams reviewing outcomes in Denver Public Schools following districtwide implementation of restorative programming have noted marked and sustained declines in exclusionary discipline rates, both overall and for subcategories of students (Baker, 2009; González, 2015; Gregory et al., 2018). From 2006 to 2013, for example, González (2015) reports that overall suspension rates fell from 10.6% to 5.6%, rates for Black students fell from 17.6% to 10.4%, and rates for Latino/a students fell from 10.2% to 4.7%. Hashim et al. (2018) report a similar trend in Los Angeles Unified School District following the implementation of restorative programming in the 2014–15 school year—suspension rates for misconduct dropped for all measured categories of students.

Figure 5
Summary of Studies Regarding Impacts of Restorative Programming and Restorative Practices on Various Student Outcomes

Exclusionary discipline	Discipline disparities	Behavior	School climate	Academic performance
Armour, 2014				
Augustine et al., 2018				
Baker, 2009				
Darling-Hammond et al., 2021			Acosta et al., 2019	
Fowler et al., 2016			Augustine et al., 2018	
Goldys, 2016			Cook et al., 2018	
González, 2015		Cook et al., 2018	Duong et al., 2019	
Gregory et al., 2016	Armour, 2014	Davis, 2014	Goldys, 2016	Armour, 2014
Gregory et al., 2018	Darling-Hammond et al., 2021	Duong et al., 2019	Grant et al., 2022	Darling-Hammond et al., 2021
Gregory et al., 2021	González, 2015	Goldys, 2016	Gregory et al., 2016	Jain et al., 2014
Hashim et al., 2018	Gregory et al., 2016	Lewis, 2009	Jain et al., 2014	Kerstetter, 2016
Jain et al., 2014	Gregory et al., 2018	McCold, 2002	Lansing, 2008	McMorris et al., 2013
Riestenberg, 2003	Hashim et al., 2018	McCold, 2008	McMorris et al., 2013	Norris, 2009
Sumner et al., 2010	Jain et al., 2014	McMorris et al., 2013	Terrill, 2018	Sadler, 2021
	Anyon et al., 2016	Acosta et al., 2019	Grant et al., 2022	Kerstetter, 2016
	Gregory et al., 2021			McMorris et al., 2013
				Norris, 2009
				Sadler, 2021
				Terril, 2018
		Armour et al., 2014		Augustine et al., 2018

■ Positive results　　■ Neutral results　　■ Negative results

Notes: Studies with no box are pre–post assessments of restorative programming. Studies with a dashed box are correlational assessments of relationships between exposure to restorative practices and student outcomes. Studies with a solid box are randomized controlled trials evaluating causal impacts of restorative programming.

Source: Darling-Hammond, S. (2023).

Gregory, Huang, and Ward-Seidel (2021), meanwhile, report on a randomized controlled trial featuring 18 elementary, middle, and high schools and leveraging discipline data from 5,878 students. Nine schools were assigned to receive the treatment (restorative programming) and nine were assigned to the control condition (no restorative programming). The authors reviewed principal and teacher survey data and found that the nine schools assigned to the treatment condition appeared to have implemented the restorative programming with fidelity. They found that students in schools randomly assigned to receive whole-school restorative programming saw significantly larger declines in exclusionary discipline rates than control schools. Augustine et al. (2018) reviewed data from a randomized controlled trial of 44 Pittsburgh, PA, middle schools and found, similarly, that restorative justice implementation caused a 16% reduction in days lost to suspensions.

Gregory et al. (2016) reviewed student survey data from two high schools and found that students who indicated a high degree of exposure to restorative practices received fewer defiance and misconduct referrals, and this held for Black, Latino/a, White, and Asian students. In a similar vein, Darling-Hammond, Trout, et al. (2021) reviewed records from over 800,000 California middle and high school students and found that, across racial groups, students who indicated higher levels of exposure to restorative practices were less likely to have been suspended in the prior 30 days, and that the relationship held after controlling for a suite of student, parent, and district-level factors.

Discipline disparities

Studies of the relationship between program implementation and exclusionary discipline disparities have been largely encouraging. At the school level, Armour (2014) found that both the Black–White and Latino/a–White exclusionary discipline gaps narrowed after implementation in a San Antonio, TX, middle school. And at the district level, Hashim et al. (2018) found that Black–White exclusionary discipline disparities abated in Los Angeles Unified School District schools after implementation; González (2015) and Gregory et al. (2018) reported that Black–White and Latino/a–White disparities diminished after Denver Public Schools implemented restorative programming; and Jain et al. (2014) found that Oakland schools that used a whole-school restorative model saw the Black–White exclusionary discipline gap decline from 12.6% to 9.2% over a 3-year period (during which the Oakland schools that did not implement restorative programming saw the Black–White exclusionary discipline gap *increase*). In their randomized controlled trial, Augustine and colleagues (2018) found that restorative program implementation led to a small but notable reduction in the racial exclusionary discipline gap.

Gregory et al. (2016) reviewed student survey data and found that students who reported a high degree of exposure to restorative practices also experienced a smaller racial exclusionary discipline gap. Similarly, Darling-Hammond, Trout, et al. (2021) found that students with higher levels of exposure to restorative practices evidenced

markedly smaller Black–White and Latino/a–White exclusionary discipline disparities. Specifically, as the authors detail, "Students with the highest levels of exposure to restorative practices experienced Black–White exclusionary discipline disparities that were 5 times smaller than those experienced by students with the lowest levels of exposure to restorative practices" (Darling-Hammond, Trout, et al., 2021, p. 3). While the magnitude was smaller, the authors' models also indicated smaller Latino/a–White exclusionary discipline disparities at higher levels of restorative practice exposure.

In contrast to the previous studies, in a review of administrative data from a large urban district, Anyon et al. (2016) found that, following the introduction of restorative programming, exclusionary discipline rates abated overall, but racial exclusionary discipline gaps persisted. Similarly, Gregory, Huang, and Ward-Seidel's (2021) randomized controlled trial did not find evidence that programming reduced racial disparities in exclusionary discipline. However, the authors noted that while disparities *might* have decreased over a longer time period, they were unable to collect data after the first year of implementation due to the COVID-19 pandemic.

Behavior

Pre–post studies generally suggest that program implementation precedes declines in misbehavior. Davis (2014) reports that Oakland schools implementing restorative programming saw a 77% decrease in discipline referrals for violence after 2 years. Lewis (2009) reports that a West Philadelphia high school saw violent acts and serious incidents drop by 52% in the first year of implementation and drop by an additional 40% in year two. Youth participating in a Pennsylvania restorative program had 58% fewer behavioral offenses over 3 months (McCold, 2002), and by 50% over 2 years (McCold, 2008), and youth who fully completed the program saw the greatest reduction in recidivism rates (McCold, 2002, 2008). McMorris et al. (2013) report similarly positive results from their study of the "Family Group Conferencing" model adopted in Minnesota, reporting decreases in self-reported incidents of physical fighting and skipping school among conference participants in a 6-week follow-up. Goldys (2016) reviews data from an elementary school that saw a 55% decrease in physical aggression after implementing restorative programming.

> Pre–post studies generally suggest program implementation precedes declines in misbehavior.

C. R. Cook et al. (2018) and Duong et al. (2019) report on randomized controlled trials in which elementary and middle school teachers, respectively, were randomly assigned to receive training in the "Establish, Maintain, Restore" (EMR) program and to receive ongoing coaching. EMR encourages teachers to, among other things, appreciate the importance of teacher–student relationships, actively take steps to establish and maintain positive relationships, and affirmatively restore relationships when conflict has occurred. The program thus seeks to encourage teachers to

adopt a restorative mindset and to engage in certain restorative practices related to teacher–student relationships. In both studies, teachers randomly assigned to receive EMR training saw statistically significantly greater declines in student misbehavior. However, the studies did not evaluate impacts on exclusionary discipline, nor did they disaggregate student data to ascertain whether EMR might empower teachers to reduce racial disparities in exclusionary discipline. In addition, outcome data were collected, respectively, only 2 or 3 months after EMR training, leaving the long-term impacts of the EMR training unclear.

In contrast to most studies on the topic, a randomized controlled trial by Acosta et al. (2019) of 14 Maine middle schools found that assignment to restorative programming was not related to improvements in student behavior.

Armour (2014), meanwhile, found that offense frequencies grew over the course of implementation in a San Antonio, TX, middle school, but noted that the implementation period coincided with marked student mobility, with 68% of the student body having moved into or out of the school during the study year.

School climate

The introduction of restorative programming typically precedes improvements in school climate measures, including improvements in conflict resolution skills. McMorris et al. (2013) found that participants in a restorative program reported increased fondness toward school, an augmented sense of connection to school, and improved problem-solving behavior after the 6-week program. The Lansing School District (2008) examined outcomes reported by students (and parents of students) who had participated in conflict resolution circles and completed a 6-week follow-up survey. The district found that 91% of students and 89% of parents indicated that students had learned conflict resolution skills; 92% of students and 85% of parents indicated that conflict had been resolved through restorative processes; and 90% of students indicated using their newfound conflict resolution skills to resolve subsequent disputes. Jain et al. (2014) found that 69% of staff in Oakland schools implementing restorative programming believed that the programming had improved school climate, 67% indicated that it helped students improve their social and emotional skills, and 64% believed that it helped facilitate caring relationships between teachers and students. However, Jain et al. also found discrepancies between staff and parental opinions: Whereas 100% of principals believed that the programming had improved school climate, only 40% of parents agreed; and whereas 92% of principals believed programming had improved teacher–student relationships, only 28% of parents did. Goldys (2016) reports that 97.7% of students in an elementary school implementing restorative programming indicated feeling safe in school after implementation. Focusing on three diverse, rural, West Coast schools, Terrill (2018) reported that teachers felt that implementing the programming resulted in greater respect between students.

The two randomized controlled trial studies on EMR programming by C. R. Cook et al. (2018) and Duong et al. (2019) found that implementing the program caused statistically significant improvements in teacher-reported teacher–student relationships and researcher-observed student engagement. In another randomized controlled trial, Grant et al. (2022) evaluated the impact of the synergy of restorative programming (the SaferSanerSchools program provided by the International Institute of Restorative Practices) and Diplomas Now (a whole-school reform model of curriculum reform, staff support, and early student detection designed to avoid early dropout). From a sample of 33 elementary, middle, and high schools drawn from various cities across the country, they randomly assigned 17 schools to receive the synergy of programs and 16 schools to serve as controls. After adjustments for differential attrition, they recovered an analytic sample of 25 schools—13 in treatment and 12 in control. Results indicated that students in treatment schools saw significant gains in measures of school climate. In yet another randomized controlled trial, Augustine and colleagues (2018) found that restorative programming led to improvements in school climate based on teacher surveys.

In Gregory and colleagues' (2016) review of student survey data, students with more restorative practice exposure also were more likely to indicate feeling respected by their teachers. While Acosta et al. (2019) sought to conduct a randomized controlled trial of restorative programming, they also collected student surveys, which allowed them to track students' levels of exposure to restorative *practices.* They found that— regardless of treatment condition—students who reported having more exposure to restorative practices reported higher school connectedness, better school climate, more positive peer relationships, better developmental outcomes, less physical victimization, and less cyberbullying.

One study reported null findings related to school climate. While Grant and colleagues' (2022) randomized controlled trial found that restorative programming improved school climate for students, their analyses also indicated that the programming had no effect on teachers' views of school climate and had no effect on teacher turnover.

Academic performance

On the topic of academic outcomes of restorative programming, pre–post studies have reported mixed results. Two studies report positive findings. Armour (2014) found that 6th-grade students in a restorative program for a year saw an 11% improvement in their statewide reading passage rates and a 13% improvement in mathematics, and that Black, Latino/a, and economically disadvantaged students—and students receiving special education services—all saw strong improvements. Jain et al. (2014) compared 3-year academic growth in Oakland schools implementing restorative programming to growth in schools not implementing restorative programming. They found that students in implementing schools saw reading levels increase by 128% (compared to 11% in non-implementing schools), 4-year graduation rates increase

by 60% (versus 7%), and high school dropout rates decrease by 56% (versus 17%). Darling-Hammond, Trout, et al. (2021) found that, across racial groups, students with higher levels of exposure to restorative practices also had higher GPAs.

Meanwhile, five studies report what could be termed ambiguous findings. Kerstetter (2016) compared outcomes at a charter elementary school implementing restorative programming to a comparable charter school implementing "no excuses" policies, and found that in the study year, 60% of "restorative charter" students were proficient on statewide tests, compared to 36% of students in the comparison charter. However, in the following year, the proportion of "restorative charter" students who were proficient had dropped from 60% to 47%. McMorris et al. (2013) noted that students who participated in restorative programming in Minnesota schools saw increases in GPA and credit attainment but declines in chances of being on track to graduate (although on-track markers rebounded the year after initial implementation). Sadler (2021) found that academic performance for Black students in a large charter network diminished in the first year after adoption of restorative programming but rose again in subsequent years. Norris (2009) reported no significant change in GPA for participants in a restorative program (compared to non-participants). Reviewing data from a school implementing programming, Terrill (2018) reported that while GPAs of students overall fell after implementation, GPAs increased among students who had received office referrals and were most likely to interface with programming. Augustine and colleagues' (2018) randomized controlled trial found that Black students in treatment schools experienced lower academic performance than their counterparts in control schools.

The Distinction Between Programming and Exposure to Practices

The vast majority of studies previously reviewed seek to ascertain the impacts of restorative *practices* by reviewing outcomes in schools that receive restorative *programming.* They thus assume that students in schools that receive restorative programming will be more likely to be exposed to restorative practices than students in schools that do not receive restorative programming. However, as previously noted, programs are distinct from practices, and many factors moderate whether a program results in student exposure to restorative practices. Moreover, students can gain exposure to restorative practices via means other than formal restorative programming. Still, if programs generally shift exposure to practices, then perhaps research on restorative programs serves as a fair proxy for research on restorative practices. However, when Acosta et al. (2019) conducted their randomized controlled trial, they tracked information about the extent to which students were exposed to restorative practices. They anticipated (and hoped) that students in schools randomly selected to receive restorative programming (treatment schools) would indicate higher exposure to restorative practices than students in schools randomly selected not to receive restorative programming (control schools). Contrarily, as depicted in Figure 6, students in treatment and control schools evidenced *nearly identical* levels of exposure to restorative practices.

Figure 6
Exposure to Restorative Practices Among Students in Treatment Versus Control Schools in a Randomized Controlled Trial of Restorative Programming
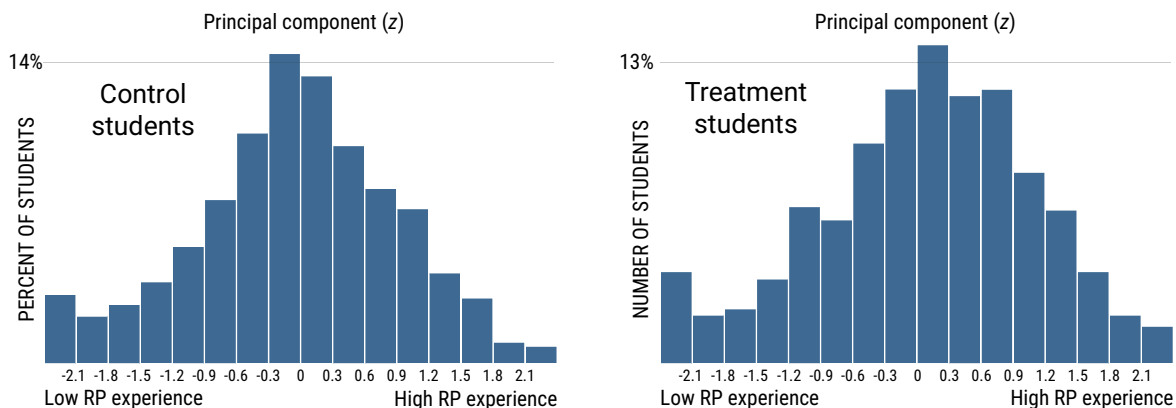
Note: RP = Restorative practices.

Source: Acosta, J., Chinman, M., Ebener, P., Malone, P. S., Phillips, A., & Wilks, A. (2019). Evaluation of a whole-school change intervention: Findings from a two-year cluster-randomized trial of the restorative practices intervention. *Journal of Youth and Adolescence, 48*, 886.

The distinction between restorative programming and restorative practices is not merely theoretical. It is potent and practical. Thus, those seeking to understand the impact of student exposure to restorative practices can leverage other methods beyond evaluating restorative programs. As previously noted, three studies *have* reviewed correlations between student exposure to restorative practices and outcomes. However, these studies should, at best, be seen as documenting the co-occurrence of restorative practices and student outcomes. It may be that students with certain demographic characteristics (e.g., students from high-income families) are more commonly exposed to restorative practices, and the relationship between exposure to restorative practices and positive outcomes is merely a function of the characteristics of students who tend to be exposed. Or it may be that schools that use restorative practices tend to exhibit certain characteristics (e.g., employ more experienced teachers), and the relationship between school-level restorative practice utilization and school-level outcomes is merely a reflection of the kinds of schools that tend to use these practices.

Extant literature thus leaves unclear the impact of restorative *practices* on critical student outcomes. What is needed, then, is a means of estimating the causal impact of student exposure to restorative practices. The next section reviews analyses designed to ascertain the impact of exposure to restorative practices for students and the impact of adopting restorative practices for schools.

The Effects of Exposure to Restorative Practices

Data and Methods

To estimate the causal effect of restorative practices, I follow a three-step approach that is similar to that taken by scholars estimating the causal effects of juvenile detention and school discipline (Aizer & Doyle, 2015; Bacher-Hicks et al., 2019; Hinze-Pifer & Sartain, 2018; Perry & Morris, 2014). I first use student surveys to determine the extent to which each California school in the data set used restorative practices in the 2017–18 and 2018–19 school years. Next, I track student enrollment over time to determine how much each *student* was exposed to restorative practices at each point in time. Finally, I ascertain the relationship between changes in exposure to restorative practices and changes in outcomes. This approach controls for all stable student characteristics and therefore can be used to generate a causal estimate of the effects of restorative practices on disciplinary and academic outcomes. I use a similar approach to estimate the impact of school-level adoption of restorative practices, identifying the relationship between school-level changes in restorative practice utilization and school-level outcomes to generate causal estimates of the effects of restorative practice utilization on schoolwide measures of misbehavior, victimization, mental health, school climate, attendance, and academic performance.

A school-level measure of restorative practice utilization is calculated by averaging student scores on an eight-item scale constructed using survey questions in the California Healthy Kids Survey (CHKS). This eight-item scale was constructed based on a review of quantitative evidence of restorative practices, hundreds of pages of implementation guidance, and interviews with expert researchers. As depicted in Table 1, the items, measured on a 5-point Likert scale, cover three core areas of restorative practices: (1) practices designed to inculcate social and emotional skills necessary to resolve conflicts and deepen connections; (2) practices designed to facilitate students' processes of conflict resolution; and (3) practices designed to ensure a cohesive school community. Appendix A provides additional detail about the development of this measure.

Table 1
California Healthy Kids Survey Items Used to Measure Restorative Practice Utilization in Schools, Subdivided by Practice Type

Practice type	Survey items
Community building	1. This school encourages students to feel responsible for how they act. 2. This school encourages students to understand how others think and feel. 3. This school encourages students to care about how others feel. 4. Students are taught that they can control their own behavior.
Repair	5. This school helps students resolve conflicts with one another. 6. If I tell a teacher that someone is bullying me, the teacher will do something.
Cohesion	7. Teachers show it is important for students of different races to get along. 8. The adults in this school respect differences in students.

Source: California Department of Education. (2013–2021). *California Healthy Kids Survey* [Data set].

The study focuses on middle school students (6th- to 8th-graders) and students who are entering middle school (i.e., transitioning from 5th to 6th grade) because middle school presents a moment of escalated risk of exposure to discipline, and the transition from 5th to 6th grade can be a defining moment for students' disciplinary trajectories. P. J. Cook et al. (2008) have found that 6th-grade students quasi-randomly placed in middle schools experience significantly more exclusionary discipline than those quasi-randomly placed in elementary schools. I find further evidence—via a review of 2018–19 California Longitudinal Pupil Achievement Data System (CALPADS) data—that the transition from elementary to middle school marks a critical moment in the disciplinary trajectories of students. As depicted in Figure 7, the out-of-school suspension rate more than doubles between elementary and middle schools and is higher in middle school than in high school.

Figure 7
Percentage of Students Experiencing Out-of-School Suspensions in a School Year by School Grade Level

Percentage of students experiencing suspensions
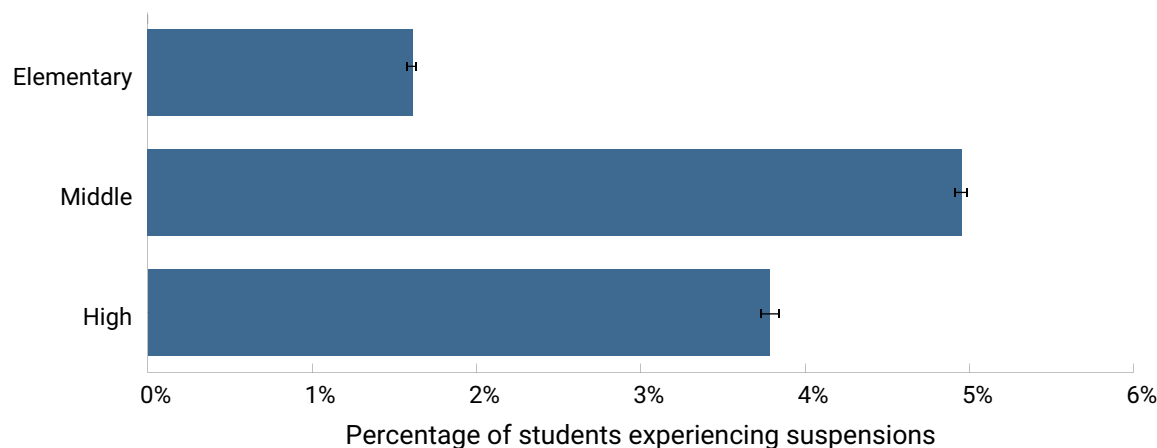
Notes: Because the California Longitudinal Pupil Achievement Data System (CALPADS) has data for only certain grades, the elementary out-of-school suspension rate was calculated using data from grades 3–5, the middle school rate was calculated using data from grades 6–8, and the high school rate was calculated using data from grade 11. Error bars represent 95% confidence intervals. Data were compiled from n = 3,254,662 students from the 2018–19 school year.

Source: California Department of Education. (2018–19). *California Longitudinal Pupil Achievement Data System* [Data set].

Researchers have also found that relational interventions implemented with middle school teachers can have outsize impacts on exclusionary discipline (e.g., Okonofua et al., 2016, 2020). Identifying whether restorative practices can help reduce exposure to discipline and discipline disparities during this sensitive period can help ascertain whether these practices can serve as an early vaccine that can protect against the harms of discipline.

To maximize the precision of the estimates of restorative practice utilization, I average restorative practice scores for each school over multiyear time periods. Most models utilize the 6-year time period from 2013–14 through 2018–19 and restrict analyses to schools whose averages stem from scores from 100 or more students. Applying these criteria, I generate restorative practice utilization scores for 485 schools. Figure 8 depicts the distribution of these school-level restorative practice utilization scores and demonstrates that schools evidenced substantial variation in their use of restorative practices.

Figure 8
Distribution of School-Level Restorative Practice Utilization Scores
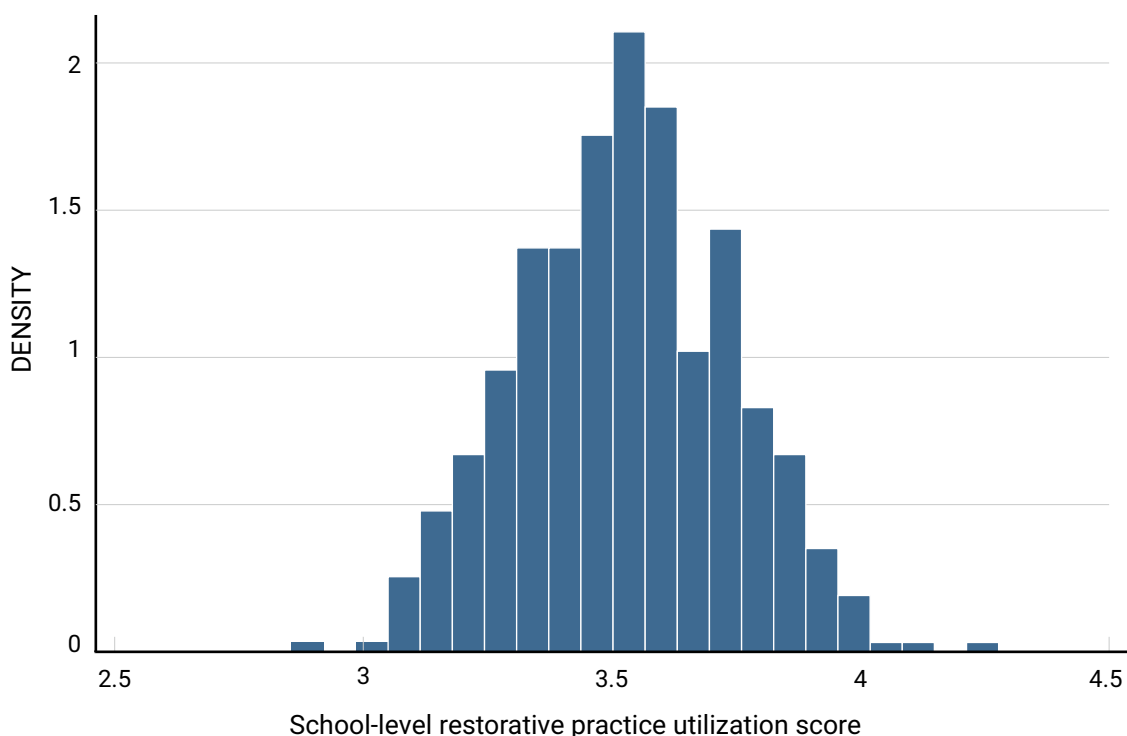
Notes: The distribution shows school-level mean restorative practice utilization scores (potentially ranging from 1 to 5) for the 485 schools for which there were 100 or more student-level restorative justice exposure scores to average over the 6-year period from 2013–14 to 2018–19. The 485 school-level scores are built on 219,568 student-level surveys over the 6-year time frame.

Source: California Department of Education. (2013–2019). *California Healthy Kids Survey* [Data set].

I relate student exposure to restorative practices to seven classes of outcomes that prior research suggests may be related to restorative practice exposure: discipline, academic achievement, attendance, misbehavior, school climate, health, and victimization (Darling-Hammond et al., 2020; Todic et al., 2020). To track students' disciplinary and academic experience over time, I turn to California's administrative data. These data track every California public school student, capturing the school they attended; their demographic information; their disciplinary experiences (whether they experienced an out-of-school suspension in a given school year, as well as how many days they were out-of-school suspended in a given year); and, in grades 3–8 and 11, their scores on standardized tests for English language arts and mathematics (also known as California Assessment of Student Performance and Progress, or CAASPP, scores). Because CAASPP scores are both standardized and normalized within grade level, they are in many respects ideal for comparing students across school environments and for tracking students' growth over time.

Merging the CHKS data with California administrative data, I create a data set that captures both longitudinal student experiences and school-level restorative practice exposure for approximately 350,000 middle school students in each year. Appendix A provides more details regarding the processes utilized to merge these data sources, and the results of analyses demonstrating that the data generated via this merger appear generalizable to public middle school students throughout the state.

The merger of these data can relate exposure to restorative practices with student outcomes. However, prior work has already established that restorative practices are correlated with less exclusionary discipline, better academic performance, and reductions in racial disparities (Acosta et al., 2019; Darling-Hammond, Trout, et al., 2021; Gregory et al., 2016). Moreover, scholars (e.g., Darling-Hammond, Lee et al., 2021; Darling-Hammond, Trout, et al., 2021) have warned that while these correlations *might* reflect a causal relationship, they also could reflect a spurious relationship. In short, given these correlations, it is possible that restorative practices cause improvements in student outcomes; but it is also possible that students who are more often exposed to restorative practices also tend to have better outcomes for reasons unrelated to their exposure to restorative practices. This phenomenon is often termed "selection bias" and, in this case, could be described as a student selection effect.

To overcome student selection effects and generate a causal estimate of the impact of restorative practices on student outcomes, I measure how students' levels of exposure to restorative practices shift when they move from one grade to another, measure how their outcomes shift during the same time period, and calculate the relationship between *changes in restorative practice exposure* and *changes in student outcomes*. Because this approach explores changes over time within a given student, it adjusts for any stable student selection effects. As discussed more thoroughly in Appendix B, I limit the analyses to students who were in 5th grade in 2017–18, attended an elementary school that did not offer 6th grade, and therefore switched schools when they transitioned from 5th to 6th grade in 2018–19. This limitation ensures that I review students who saw shifts in their levels of exposure to restorative practices due to a natural transition (aging out of a school), rather than because they specifically sought a restorative school. Due to data limitations, these models use a measure of restorative practice utilization that focuses exclusively on whether the school engages in conflict resolution practices.

To *precisely* estimate how much each school utilized conflict resolution practices with its 5th-grade students in 2017–18, I average CHKS data on the conflict resolution measure for all 5th-grade students who attended a given school between 2014–15 and 2017–18 (a 4-year period, and the largest period for which CHKS data are available). To estimate how much schools utilized conflict resolution practices with their 6th-grade students in 2018–19, I average CHKS data on the conflict resolution measure for 6th- to 8th-grade students who attended a given school between 2015–16 and 2018–19

(also a 4-year period). To further ensure precise estimates of restorative practice exposure, I limit analyses to students who attended schools with 100 or more surveys in both periods.

This approach can be understood as generating an estimate of the effect of *changes* in exposure to *conflict resolution* practices. However, one may wonder what the effect of *stable exposure* to *restorative practices* may be. I thus use cross-sectional regression analyses with adjustment for student, school, and staff characteristics to ascertain whether students who had more exposure to restorative practices in 2018–19 also tended to experience better outcomes in 2018–19. A cross-sectional regression approach has one further advantage over an approach that reviews changes over time. Because it does not review relationships between changes in exposure and outcome, it is not limited to students who experience changes in their levels of exposure to restorative practices. As a result, the sample of students in cross-sectional regression models will be substantially larger than the sample in change-based models. Indeed, each of the models using cross-sectional regressions with adjustment includes at least 5 times more middle school students than related models using the "within-student" estimation approach.

I next estimate the causal effect of school *adoption* of restorative practices by ascertaining whether school-level changes in restorative practice utilization are related to school-level changes in outcomes. This approach overcomes school-selection effects. In other words, it controls for stable features in schools that might drive some schools, but not others, to adopt restorative practices. As with prior analyses, to ensure precise estimates of restorative practice utilization, I examine multiple years of data, measuring each school's use of restorative practices in the first time period using 3 years of data (2013–14 through 2015–16) and in the second time period using three separate, nonoverlapping years of data (2016–17 through 2018–19). To further enhance precision, I limit analyses to the 220 schools with 50 or more surveys in *both* time periods. To address the possibility that changes in restorative practice utilization might tend to coincide with other changes in the school, these analyses control for changes to student body compositions. (See Appendix C.) They also measure a gamut of outcomes, including some that have not been reviewed in prior work. Table 2 summarizes the outcomes that I review in student-level and school-level analyses.

Table 2
Outcome Measures at the Individual Level and School Level

Outcome	Student level	School level
Discipline	Whether received an out-of-school suspension in the prior school year Days of out-of-school suspension in the prior school year	
Academic achievement	CAASPP mathematics score and English language arts score	Student GPA over the past 12 months (self-report)
Attendance		Whether missed school for any reason in the past 30 days
Misbehavior		Whether engaged in various acts of misbehavior in the prior 12 months: fought, destroyed school property, carried a gun to school, carried another weapon to school
School climate		A scale score based on six school climate module responses: feel like part of school, feel close to people at school, feel happy at school, feel safe at school, feel that an adult at school cares, feel that an adult at school listens
Health		Whether missed school in the past 30 days due to various health challenges: depressive symptoms, sleep deprivation, illness, substance use
Victimization		Whether experienced various kinds of victimization in the past 12 months: beat up; threatened harm; threatened or injured with weapon; stolen from; called names; had rumors told about; had sexual jokes told about; harassed based on race, religion, gender, orientation, disability, or anything else

Sources: Student-level outcomes were compiled from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019. School-level outcomes were compiled from CDE's *California Healthy Kids Survey* for 2013–2019.

I conclude with an analysis to determine whether student characteristics (e.g., race, economic status) predict students' levels of exposure to restorative practices. Using school-level data for 482 middle schools in 192 districts, I regress schools' restorative practice utilization scores (based on 6-year pooled averages from the California Healthy Kids Survey for schools with 100 or more student surveys) on schoolwide student composition variables. I predict schools' levels of restorative practice utilization as a function of the percentage of students who were: economically disadvantaged; in grades 6, 7, or 8; female; Black, Latino/a, Asian, or White; of migrant status; designated English language learners; or receiving special education services.

Student Impacts of Exposure to Restorative Practices

I estimate that increasing exposure to restorative practices (and, specifically, conflict resolution practices) during the transition from 5th to 6th grade causes improvements in standardized test performance in both English language arts and mathematics, decreases in days suspended, and declines in the probability of experiencing a suspension in a given school year (Table 3). Effects are generally stronger for Black and Latino/a students than for White students, suggesting that exposure to these practices can help reduce racial disparities in discipline and academic achievement.

These estimates focus on how changes in conflict resolution practices might shift outcomes. These estimates thus may fail to detect the impact of stable exposure on a fuller gamut of restorative practices (including those that inculcate conflict resolution practices and build community).

To estimate the effect of stable exposure to restorative practices, I regress outcomes on students' levels of exposure to restorative practices while controlling for a richer set of confounders than have been available in prior research. As depicted in Table 4, I control for each student's prior year outcomes, their demographic characteristics, and their school's characteristics (including student body and staff characteristics).

Table 3
Estimated Relationship Between Changes in Exposure to Conflict Resolution Practices and Changes in Outcomes

	Coefficient (Robust Standard Error)				
Δ outcome	All students	White	Black	Latino/a	Asian
CAASPP ELA score	13.13***	9.76***	8.39	15.14***	1.33
	(1.17)	(2.36)	(5.86)	(1.72)	(3.46)
n	34,015	8,155	1,208	17,996	3,737
CAASPP mathematics score	21.57***	6.53**	21.40***	21.91***	2.52
	(1.15)	(2.23)	(5.79)	(1.72)	(3.20)
n	34,049	8,150	1,212	18,018	3,750
Days OSS	−0.10***	0.09	−0.52**	−0.11***	−0.02
	(0.02)	(0.07)	(0.19)	(0.03)	(0.03)
n	34,706	8,418	1,235	18,292	3,787
Received OSS	−0.027***	0.003	−0.08**	−0.030***	−0.005
	(0.004)	(0.009)	(0.03)	(0.007)	(0.007)
n	34,706	8,418	1,235	18,292	3,787

Notes: Models are limited to students whose schools, in both 2017–18 and 2018–19, fielded at least 100 surveys capturing students' levels of exposure to conflict resolution practices. ELA = English language arts; OSS = out-of-school suspension.

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2014–2019.

Table 4
Student- and School-Level Characteristics Included in
Multivariate Regressions

Student-level characteristics	School-level characteristics
• Economic status • Migrant status • English language learner status • Special education status • Race • Gender • Grade level • Prior year outcome values: whether received an out-of-school suspension, days of out-of-school suspension received, CAASPP ELA score, CAASPP mathematics score	• Mean student characteristics • Proportion of students with low economic status • Proportion of students with migrant status • Proportion of students designated as English language learners • Proportion of students receiving special education • Proportion of students who are White, Black, Asian, Latino/a • Proportion of students who are female • Proportion of students in 6th grade, 7th grade, 8th grade • Number of middle school students in a given school • Mean teacher characteristics • Mean years of experience for teachers • Proportion of teachers with a credential • Proportion of teachers who are female • Proportion of teachers who are White • Proportion of teachers who are Black • Mean administrator characteristics • Mean years of experience for administrators • Proportion of administrators with a credential • Proportion of administrators who are female • Proportion of administrators who are White • Proportion of administrators who are Black

Source: Darling-Hammond, S. (2023).

As depicted in Figures 9 and 10 (and the related table in Appendix B), the adjusted regression models indicate that stable exposure to a fuller gamut of restorative practices is related to better academic achievement, less exposure to exclusionary discipline, and smaller racial disparities in both measures. In Appendix B, I also demonstrate that these results are robust to alternative exposure classifications and mode specifications.

Before moving on to what these models indicate about racial disparities in exclusionary discipline and achievement, it is important to note what they do *not* indicate. Some skeptics have expressed concern that by keeping unruly students in classrooms, restorative practices may actually harm outcomes for certain subcategories of students (Eden, 2020). As previously discussed, while Acosta and colleagues' (2019) randomized controlled trial found that implementation of restorative programming caused declines in academic achievement, it also found that programming failed to shift student exposure to restorative practices. My models, which overcome the conflation of restorative programming and restorative practices and focus on exposure to restorative *practices*, show no evidence of these negative externalities. Instead, students of all backgrounds (including White and Asian students) saw a positive association between restorative practice exposure and academic achievement.

Models also indicate that, relative to White students, the benefits are slightly more pronounced for Latino/a students and substantially more pronounced for Black students. For example, a 1-unit increase in restorative practice exposure is associated with a 7-unit increase in English language arts scores for White students and a 17-unit increase for Black students. Most notably, a 1-unit increase in restorative practice exposure is related to 0.04 fewer days of out-of-school suspension for White students, but 0.6 fewer days for Black students. The association is thus 15 times stronger for Black students than for White students.

Because associations are stronger for Black and Latino/a students than for White students, all else being equal, these models indicate that racial gaps in achievement and discipline are smaller at higher levels of restorative practice exposure. These models estimate that as one moves from the lowest to the highest levels of restorative practice exposure, Black–White disparities in all four measures decline: by 9% in mathematics scores, by 22% in English language arts scores, by 82% for out-of-school suspension rates, and by more than 100% for days suspended (meaning that at the highest levels of exposure, the Black–White disparity in days suspended disappears). While Latino/a–White disparities on these measures are generally smaller than Black–White disparities, results on Latino/a–White gaps are

> All else being equal, these models indicate that racial gaps in achievement and discipline are smaller at higher levels of restorative practice exposure.

also notable and encouraging. Reviewing Latino/a–White disparities moving from the lowest to the highest levels of exposure to restorative practices, the models suggest a 7% decline for mathematics score gaps, a 6% decline for English language arts score gaps, a 90% reduction for suspension rate gaps, and a more than 100% reduction for gaps in days suspended. It is important to note that it is unlikely that any given student would move from the lowest to the highest levels of restorative practice exposure. Thus, the aforementioned percentages are not meant to suggest what is likely to occur if restorative practices are expanded, but merely to provide a lens into what may be possible.

Student-level analyses provide evidence that both changes in exposure to conflict resolution practices and stable exposure to restorative practices improve academic performance, reduce exposure to exclusionary discipline, and diminish Black–White and Latino/a–White disparities. Given these results, one might expect that schools that adopt restorative practices will see improvements in these and other outcomes. I explore this possibility in the following section.

Figure 9
Relationship Between Exposure to Restorative Practices and Disciplinary Outcomes
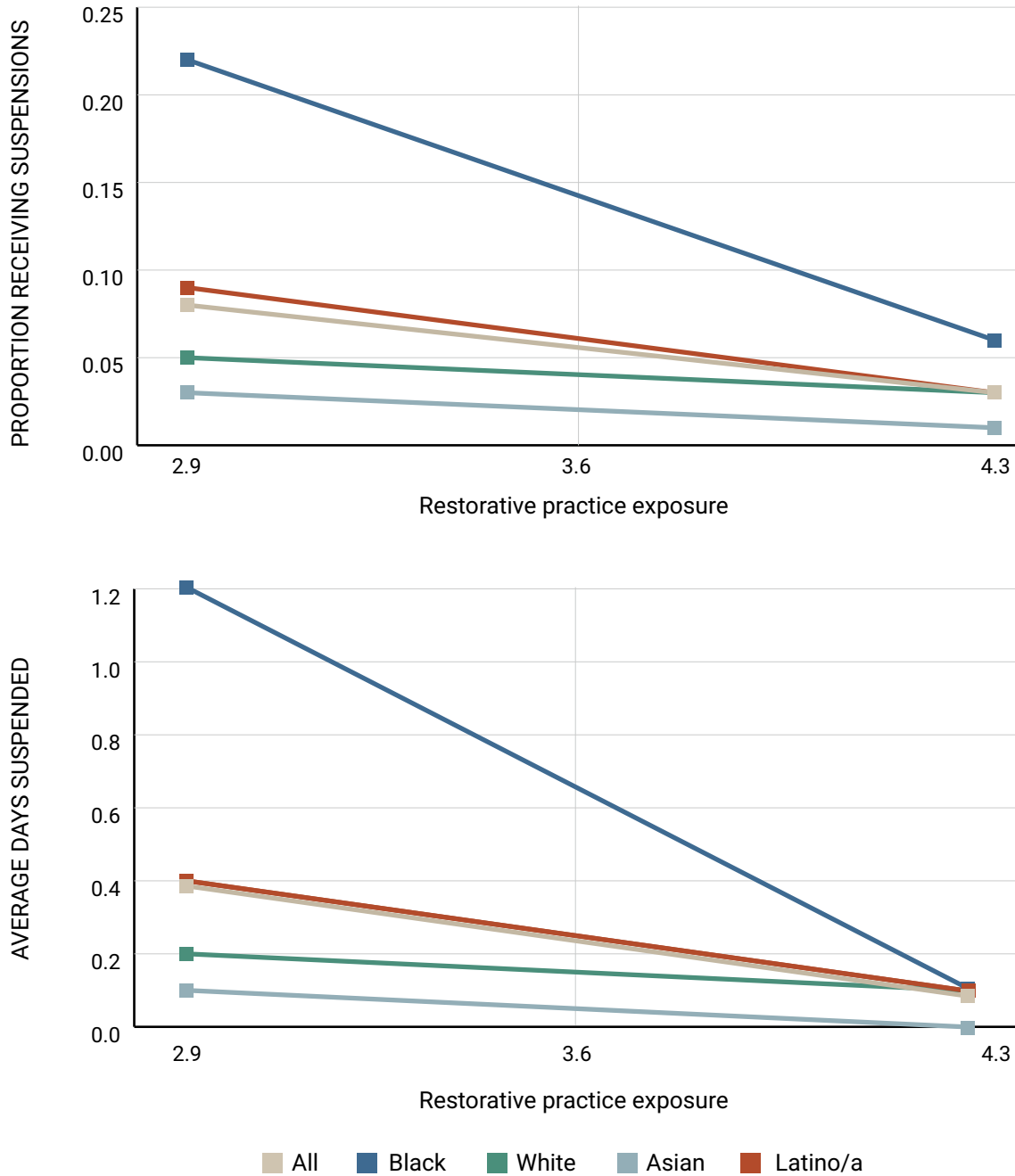
Notes: Models adjust for students' prior year outcomes and characteristics and their school's student body characteristics and staff characteristics. X axis represents a student's level of exposure to restorative practices on a scale of 1 to 5.

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2014–2019.
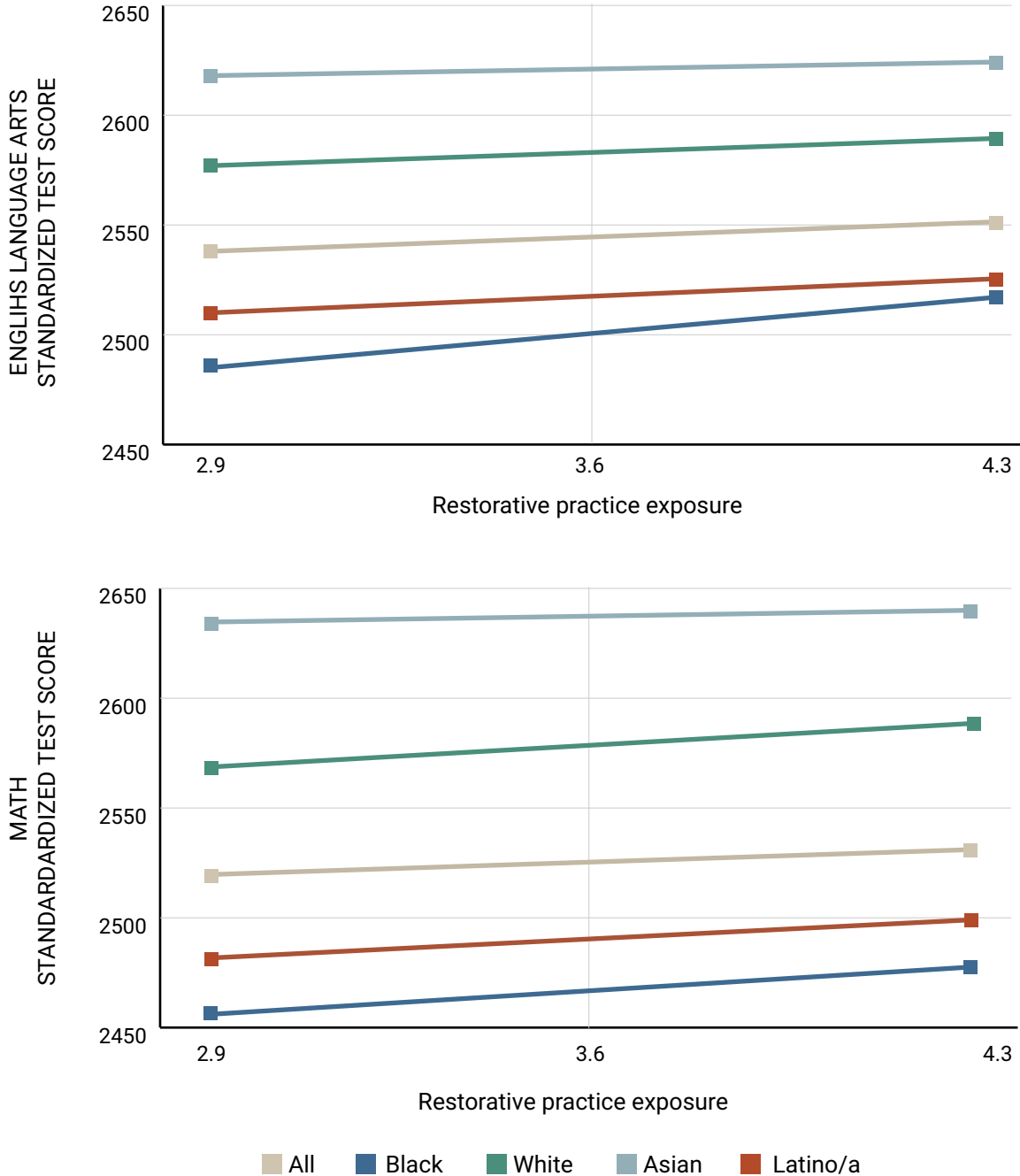
Figure 10
Relationship Between Exposure to Restorative Practices and Academic Outcomes

Note: Models adjust for students' prior year outcomes and characteristics and their school's student body characteristics and staff characteristics.

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2013–2019.

School Impacts of Restorative Practice Utilization

To estimate the impact of school-level adoption of restorative practices, I calculate the relationship between changes in school-level restorative practice utilization and changes in school-level outcomes (see Appendix C for further technical details). Using this approach, as depicted in Figure 11, I find that school-level adoption of restorative practices causes reductions in schoolwide misbehavior, gang membership, victimization, depressive symptoms, sleep deprivation, illness, and substance abuse; and improvements in GPA and school climate. For example, a school that increases its level of restorative practice utilization by 1 standard deviation will see a 0.42 standard deviation decline in schoolwide misbehavior and a 0.73 standard deviation improvement in school climate. These results hold when I adjust for changes in student body composition. (See Appendix C.)

Figure 11
Relationship Between School-Level Changes in Restorative Practice Utilization and School-Level Changes in Student Outcomes
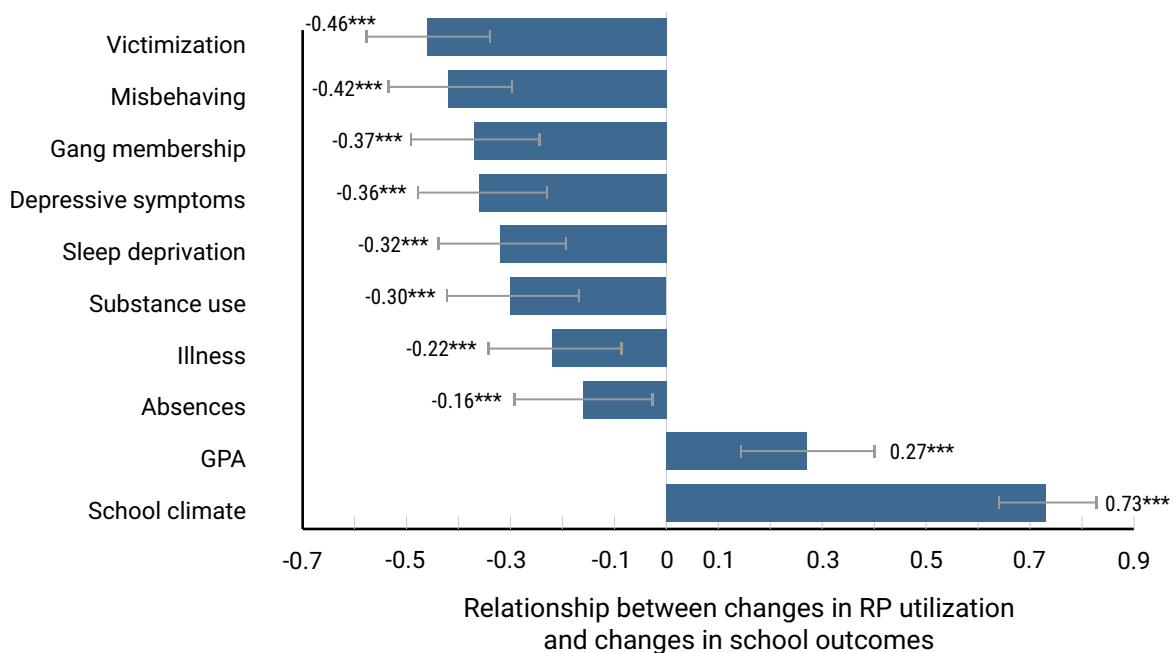
Notes: Bars depict changes in outcomes (in standard deviation units) per a 1 standard deviation increase in restorative practice utilization. RP = restorative practices

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.
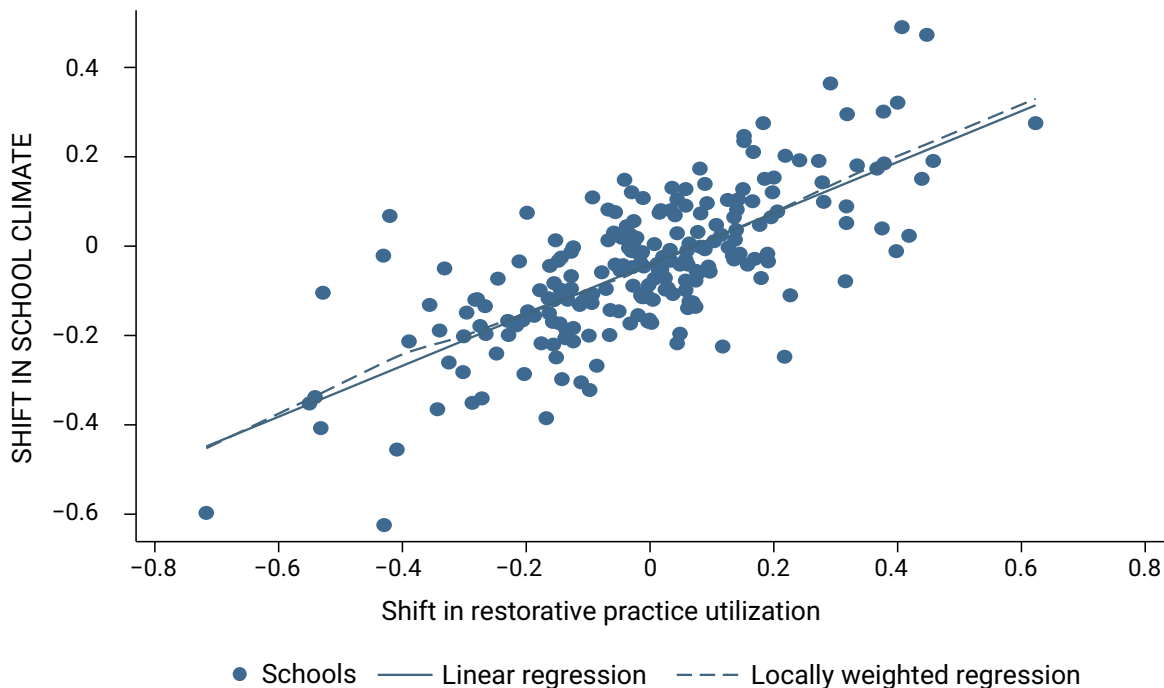
Source: California Department of Education. (2013–2019). *California Healthy Kids Survey* [Data set].

Figure 12 depicts the relationship between shifts in restorative practice utilization and school climate (a scale of six CHKS items such as "I feel like a part of this school" and "I feel safe at this school"—see Table 2). As the figure illustrates, schools that increased

their restorative practice utilization generally saw improvements in school climate. Equally important, schools that *reduced* their utilization of restorative practices generally saw school climate diminish.

Figure 12
Relationship Between Shifts in Restorative Practice Utilization and Shifts in School Climate

Note: Figure depicts data for the 220 schools that had adequate data (50 or more student surveys) in the first (2013–14 through 2015–16) and second (2016–17 through 2018–19) time waves to precisely identify shifts over time.

Source: California Department of Education. (2013–2019). *California Healthy Kids Survey* [Data set].

Access to Restorative Practices

Confirming these relationships between restorative practices and positive outcomes begs the question: *Who* is gaining exposure to these beneficial practices? As depicted in Figure 13, even after controlling for a range of other school-level factors, schools with higher proportions of Black students and/or economically disadvantaged students evidenced lower levels of restorative practice utilization. Students in schools in which 0% of students are economically disadvantaged have restorative practice exposure scores of 3.8 (out of 5), but students in schools in which 100% of students are economically disadvantaged have exposure scores of 3.4.

Figure 13
Relationship Between Schoolwide Demographics and Restorative Practice Utilization
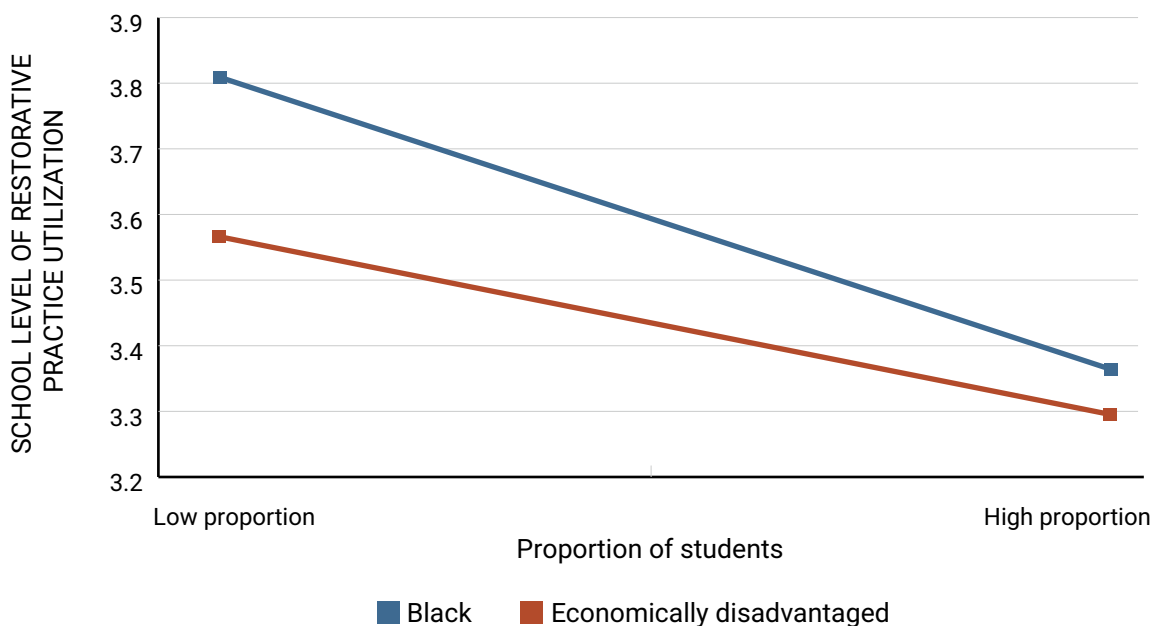
Note: Proportion Black ranges from 0 (low) to 0.33 (high); proportion economically disadvantaged ranges from 0 (low) to 1 (high).

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2013–2019.

If exposure to restorative practices reduces the likelihood that a student will experience exclusionary discipline, then in a sense, it is not surprising that the students who are most overrepresented among those experiencing exclusionary discipline also have the lowest levels of exposure to restorative practices. While unsurprising, these inequities in exposure to restorative practices are problematic given the benefits these practices may carry. In the next two sections, I discuss research implications of the aforementioned analyses and share policy recommendations for ensuring students of all backgrounds gain exposure to restorative practices.

Findings and Implications

Analysis of the data resulted in the following findings.

Exposure to restorative practices improved students' academic achievement and reduced suspension rates and duration. The analyses find that increasing exposure to restorative practices during the transition from 5th to 6th grade improved standardized test performance in both English language arts and mathematics, reduced the probability of experiencing a suspension, and decreased the number of days suspended among students receiving suspension.

The effects of restorative practices on academic outcomes were positive for all students while stronger for Black and Latino/a students, thus reducing discipline gaps and achievement gaps. Students of all backgrounds (including White and Asian students) saw a positive association between restorative practice exposure and academic achievement. However, benefits were slightly stronger for Latino/a students and substantially stronger for Black students. For example, a 1-unit increase in restorative practice exposure was associated with a 7-unit increase in English language arts scores for White students and a 17-unit increase for Black students. Because associations were stronger for Black and Latino/a students than for White students, all else being equal, these findings suggest that restorative practices can reduce racial disparities in discipline and academic achievement.

Schools that increased their use of restorative practices saw improved student behavior and safety. School-level use of restorative practices, caused declines in schoolwide student misbehavior, gang membership, victimization, depressive symptoms, and substance abuse. Schools that increased utilization of restorative practices also saw improvements in average school GPA and school climate. Schools that reduced their utilization of restorative practices saw declines in these outcomes.

Access to restorative practices was not equitable across student groups. Even after controlling for a range of other school-level factors, schools with higher proportions of Black students and/or economically disadvantaged students evidenced lower levels of restorative practice utilization.

Taken together, these results present a strong case for the effectiveness of restorative practices at improving outcomes for students and schools. However, racial and socioeconomic disparities still exist among students' exposure to restorative practices.

The models in a previous section also indicate that restorative practices can be employed to drive a range of positive academic, disciplinary, and health impacts and to bridge racial disparities. Accordingly, schools and school districts may seek means of both overcoming typical implementation challenges and of accelerating and accentuating the reach and impact of restorative practices. Prior research and best practice guidance point to implications for supporting strong implementation over time.

Shift From a Culture of Exclusion to a Relational Culture

"Restorative practices are a lifestyle, not just a program or something you can learn from reading a binder." That was the lesson provided by one of the expert interviewees when I asked how schools can ensure successful implementation of restorative practices. Many researchers and practitioners (e.g., Brown, 2017; Garnett et al., 2020; Thorsborne et al., 2019) argue similarly that to ensure that these practices realize intended impacts, schools must commit to a cultural transformation, shifting community members' views about the sources of misbehavior; the effects of punishment; the potential of relationships to improve, with effort, the feasibility of inclusive communities; and even the morality of restitution as an alternative to exclusion.

This transformation may be difficult if schools maintain their adherence to punitive regimes while attempting to implement restorative practices. Many schools, districts, and states rely on regulatory and statutory guidance that *requires* exclusionary discipline to be employed whenever students engage in certain conduct (i.e., they require a zero-tolerance approach to bullying or vandalism). When applied overly broadly, this approach may be incompatible with a restorative paradigm. In one study, Sadler (2021) concluded that the cultural incongruence between a punitive discipline regime and a new restorative program led to deleterious outcomes for Black students in one school. To empower schools to realize a restorative culture shift, leaders at all levels can reevaluate their disciplinary policies to ensure that exclusionary discipline is not a default or a guarantee when it need not be.

Therefore, educational institutions seeking to implement restorative practices would benefit from encouraging schools and community members to make real shifts in their discipline frameworks (e.g., abating the use of exclusionary discipline) and provide a context that enables staff to shift their teaching philosophies (e.g., relaxing reliance on punitive mechanisms to manage classrooms and encouraging the use of relational approaches). This could be achieved by communicating the negative impacts of exclusionary discipline, modeling relational alternatives for managing common tricky classroom situations, demonstrating the potential of relationships to grow with effort, and providing ample support and time for staff to practice relational approaches before they face classroom conflict.

School resource officers (SROs) should be part of a school's cultural transformation as well. According to the most recent data available, 45% of public K–12 schools employ an SRO (Diliberti et al., 2019). While schools ostensibly employ SROs to enhance student safety, research regarding the impacts of SROs has been discouraging. Fisher and Hennessy (2016) found that SRO presence is associated with more exclusionary discipline, and Finn and Servoss (2014) found that schools that adopt more security measures (such as employing SROs) also have larger Black–White exclusionary discipline disparities. Relatedly, research indicates that Black students have more

negative views of school police than do their peers (Nakamoto et al., 2019). And qualitative research by Fisher et al. (2022) suggests that SROs may sometimes perceive Black, but not White, students as threats.

Rosiak (2021) argues that SROs can indeed leverage restorative practices—and should. For SROs to utilize restorative practices successfully, educational institutions can garner SRO buy-in by involving them in pre-implementation discussions and by helping SROs understand that a restorative regime actually requires more accountability for misbehavior than an exclusionary regime—as only in the former, misbehaving students must take steps to "make things right." Rosiak (2021) also recommends providing universal training for SROs and taking steps to build student trust in SROs' abilities to facilitate relational repair. On this latter point, Rosiak quotes Keith Hickman, Executive Director of Collective Impact at the International Institute of Restorative Practices, as saying that the essential ingredient of good implementation of restorative practices among SROs is "strong hiring practices that look at the officer's disposition, competencies, and skills" (Rosiak, 2021, p. 17).

In addition, to ensure that SROs can implement restorative practices, trainings can help them transform their view of their job. Traditionally, SROs address student safety in large part by identifying and responding to "dangerous" students, whereas in a restorative regime, SROs must shift their philosophical orientation and expand their work to include nurturing and repairing relationships to proactively enhance student safety. If SROs are unable to make this cognitive shift, implementing restorative practices may prove at least challenging and potentially damaging, not just for SROs, but also for the students and school communities they serve.

A final consideration is that schools that employ SROs and hope to implement restorative practices should also be mindful of the impact SRO activities can have on school culture. As noted previously, practitioners often argue that restorative practices are most successful when a school has created a restorative culture characterized by trust and respect. When SROs respond to everyday incidents of misbehavior, it may sap students' sense of trust and make them feel disrespected. Thus, educational institutions implementing restorative practices may want to limit SRO functions to proactive community building and reactions to severe incidents of violence or threat.

Develop Staff Mastery

The review of research presented in this report demonstrates that schools that implement restorative programming often fail to shift school practices (e.g., Acosta et al., 2019). However, my own models indicate that *student exposure* to restorative practices can drive marked improvements in students' academic, disciplinary, and health outcomes and can bridge stubborn racial disparities. Collectively, research thus demonstrates a program–practice gap. While exposure to restorative practices can have huge benefits, restorative programs that provide trainings to staff (e.g., teachers) may not always result in staff actually using (and students getting exposed

to) restorative practices. So, what can be done to close the program–practice gap and ensure that students get exposure to these practices? Phrased another way, how can district and school leaders provide training and support that helps teachers develop the skills and confidence needed to implement restorative practices?

One potential solution is to ensure that staff actually want training in restorative practices when they receive it. Via sophisticated, randomized controlled trials, C. R. Cook et al. (2018) and Duong et al. (2019) find that training for a cohort of willing teachers not only improved teacher–student relationships, but also reduced student misbehavior and improved student attention in class. Unlike the randomized controlled trials of Acosta et al. (2019) and Augustine et al. (2018)—which randomized at the level of the school and required that all educators in the treatment schools participate in multiple trainings—C. R. Cook et al. and Duong et al. began their research processes with the recruitment of a group of teachers who had opted in to trainings. The teams then randomized from a subset of entirely willing staff to determine who would actually receive the training. One explanation for their positive results is that their research design ensured staff buy-in, and staff buy-in is a precondition to program success. Indeed, Evans and Lester's (2013) review of implementation guidance surfaces the importance of securing staff buy-in before implementing restorative practice, and specifically "recommended spending the necessary time for discussion and dialogue about school practices, as opposed to unilaterally deciding to implement" (p. 62). And research regarding other forms of trainings indicates the importance of voluntary participation (Gegenfurtner et al., 2016).

In this light, schools might take one of two approaches. The first is to provide restorative practice training initially to staff who would like to volunteer to receive it. This can avoid the drawbacks of requiring unwilling staff to use restorative practices. Schools can build on the efforts of early implementers to demonstrate success and offer supports to later implementers. However, restorative practitioners (Kidde, 2017) and researchers (González et al., 2019) have argued that a whole-school restorative practice model (in which all staff receive restorative practice training and support at once) is more effective. Relatedly, the second option is to prepare staff for a whole-school model by proactively facilitating discussions about school practices before choosing restorative practices (let alone implementing them) to help staff feel they have chosen restorative practices for their schools (and for themselves).

Educational institutions may also try leveraging insights from behavioral science and attempt to "nudge" the use of restorative practices (such as community-building circles). In one of the more famous nudge experiments, Ashraf et al. (2014) found that social signaling was a powerful driver of prosocial behavior. HIV is a major public health issue in Zambia, and condoms are considered a low-cost, effective strategy for slowing the spread of the disease. However, encouraging condom purchases is an enduring challenge. The authors recruited Zambian hairdressers to sell condoms, and randomly assigned them to various conditions. In one, hairdressers were simply

encouraged to sell condoms; in two others, they were given small or large financial incentives per condom sold; and in a final condition, hairdressers were given "a 'thermometer' display, showing condom sales and stamps on it, one star for each sale" (Ashraf et al., 2014, p. 3). The thermometer provided hairdressers with a mechanism for signaling to customers and peers that they were committed to doing their part to slow and stop the spread of HIV. The hairdressers in the thermometer condition sold more than twice as many condoms as those in any other condition. A similar social signaling approach could prove effective for nudging the use of restorative practices in schools.

Even if school and district leaders ensure staff buy-in before providing training, and even if the training does, indeed, provide teachers with everything they need to implement restorative practices, habits are stubborn, and it is unrealistic to expect trainings to shift teachers' practices overnight. When faced with challenging relational dynamics or classroom conflicts, teachers may feel tempted to abandon restorative practices and revert to prior punitive practices. Research (e.g., Evans & Lester, 2013) shows that staff sometimes worry that restorative practices are "too soft" and can encourage students to misbehave. This preconception (while out of step with extant research) could lead staff to abandon restorative practices when the going gets tough.

> When faced with challenging relational dynamics or classroom conflicts, teachers may feel tempted to abandon restorative practices and revert to prior punitive practices.

To address these issues, educational institutions can help staff shift their preconceptions by presenting relatable case studies and examples showing declines in misbehavior following *sustained* restorative practice implementation. The key is to emphasize that implementation should be sustained to be effective. Thus, another approach may be to demonstrate how shifting from restorative to punitive approaches could harm students' sense of trust and cause undue harm. Finally, school and district leaders can provide continuous professional development, coaching, and partner learning so teachers can weather the temptation to abandon restorative practice and can—slowly but surely—make restorative practices their new modus operandi.

Ensure That Students of All Backgrounds Gain Access to Restorative Practices

There's little likelihood of restorative programs achieving their maximal impact if they do not reach all students in a school. Thus, schools and districts can take steps to ensure that students of *all* backgrounds (and particularly those most often subjected to harsh discipline) are not only exposed to restorative practices but experience restorative practices in a manner that deepens their connection to the school.

Overcome barriers that create racial disparities in restorative practice exposure. My models (and those of Payne & Welch, 2015) indicate that, even within a given school, restorative practice exposure is lower for Black students and students from low-income families (two groups that are particularly at risk of exposure to exclusionary discipline). Teachers may more readily label Black students as "troublemakers," expect less of Black students, and subsequently feel less inclined to engage in restorative practices when interacting with Black students (Kang et al., 2009; Okonofua & Eberhardt, 2015; Okonofua et al. 2020; Papageorge, 2020; Smith et al., 2015). To ensure that teachers can leverage restorative practices in their interactions with Black students, schools may want to help stem this "troublemaker labeling" process and empower teachers to improve relationships with Black students. On this topic, Okonofua et al. (2020) report on a randomized controlled trial of an intervention that encouraged teachers to (1) view teacher–student relationships as capable of improving over time, (2) view students as being capable of growing in their social and emotional skills, and (3) hear students' perspectives. Teachers who received the intervention evidenced smaller Black–White disparities in their disciplinary responses to misbehavior. Interventions akin to that implemented by Okonofua et al. (2020) may thus be a powerful tool for ensuring that teachers can form positive relationships with, and subsequently leverage restorative practices when interacting with, students of all backgrounds.

Indeed, Kervick et al. (2019) argue that a critical step in achieving widespread and productive exposure to restorative practices is to ensure that teachers receive training in equity literacy, critical consciousness, bias awareness, and culturally responsive teaching. These practices can help teachers communicate with students of varied backgrounds in ways that make them *want* to engage in restorative activities. But these practices can also achieve another, perhaps deeper, end. Teachers who gain a deeper appreciation of the experiences of students of various backgrounds may grow better able to identify and overcome structural barriers that discourage certain student groups from participating in restorative activities.

Overcome barriers experienced by students with learning differences. Exclusionary discipline disparities also impact students with learning differences, and educational institutions may therefore seek to ensure that teachers leverage restorative practices when interacting with students receiving special education

services. Kervick et al. (2019) provide the following guidance that could inform educator training in schools hoping to overcome accessibility issues and ensure that restorative practices reach students with learning differences:

> Many common [essential restorative practices], such as sitting quietly in a circle, taking turns, and using perspective taking and affective statements, must be presented in optioned ways for all students to be able to participate in a restorative classroom. For example, circle facilitators could represent the circle prompts in multiple formats (projecting the circle prompts on a screen so all students have a visual prompt rather than delivering the question only in an auditory format). Circle facilitators could consider the size of the circle itself and consider flexible grouping to maximize student engagement and limit the amount of time needed to wait one's turn. Circle facilitators might also provide response options so that students with communication challenges can still respond to the prompts. For example, framing a question so that students can respond gesturally (e.g., thumb up, thumb down) ensures that all students can participate regardless of language ability. (p. 601)

The first step in identifying challenges to full participation in circles is to create opportunities for students to reflect on their circle experiences and ensure that school practices are flexible enough to respond to students' expressed needs. For example, after a community-building circle, a teacher could allow students to provide anonymous feedback about challenges they had with the circle, or ideas for improving it. They might find that a student with ADHD feels the hour-long format makes it difficult for the student to maintain their focus and actively listen. The teacher then might suggest that the class build a 5-minute break into their community-building time to ensure full and focused participation. After making the change, the teacher (and students) might find that students with ADHD are better able to participate.

Empower Sustained Implementation

"This work is not for the timid. It takes time, and patience, for these practices to work." That was the message one of the expert interviewees wanted to convey to school and district leaders hoping to implement restorative programming. In some studies of restorative implementation, changes over time to outcomes (such as academic performance) are "U-shaped," meaning there are short-term declines followed by long-term gains (e.g., Sadler, 2021). This trajectory may indicate growing pains that must be weathered before positive impacts can be realized. Schools may be tempted to abandon restorative practices during this early period of implementation if they fear that district funds will subside if immediate results (e.g., on exclusionary discipline rates or exclusionary discipline disparities) are not positive, or if they experience potentially short-lived declines in academic performance. How, then, can leaders empower sustained implementation of restorative practices?

Plan for long-term investment in implementation. Institutions hoping to realize the positive impacts of restorative practices may seek (or provide) funding that is structured to support multiple years of implementation. They can also consider providing clear guidance that funding is not tied to near-term results and communicating to stakeholders that it is important to persevere through growing pains. This may require updating accountability systems, which often require that drastic action be taken if a school or district experiences what could be a temporary academic setback. New accountability systems could build in flexibility for schools and districts to maintain current school practices for sufficient durations to weather potential growing pains and reap downstream benefits.

Proactively respond to caregiver, educator, and community concerns. Another major threat to restorative program perseverance and effectiveness is the concern that when schools adopt restorative practices, students will experience negative outcomes (such as more bullying and classroom disruptions, or declines in academic performance). In an article for the International Institute of Restorative Practices, Phillips (2017) provides five tips for ensuring parent and caregiver buy-in for restorative practices. These are also appropriate for gaining buy-in from educators, school boards, and community members, who often harbor similar concerns. They are: (1) hosting sessions to introduce caregivers to restorative practices; (2) providing ongoing information online; (3) inviting caregivers to serve on restorative practice leadership committees; (4) having students bring home information packets about restorative practices; and (5) recruiting a restorative practice consultant to facilitate communication with caregivers. In another guide on this topic, Community Organizing and Family Issues (2015) suggests that schools recruit parents to join "Parent Peace Centers," providing caregivers with training in restorative practices and recruiting them to conduct restorative circles and provide intensive tutoring and mentoring to students exhibiting disruptive behavior as an alternative to suspension. The key insight from both pieces is that leaders may proactively overcome caregivers' reservations by heading off misunderstandings; by communicating the value of restorative practices for achieving goals that are important to them (e.g., a positive school climate, less student misbehavior, and social and emotional growth); and, if possible, by providing parents with opportunities to experience restorative practices in action by inviting them to participate in restorative activities.

Recommendations

Accelerating and accentuating the reach and impact of restorative practices requires systemic support. In this section, I describe policy and practice approaches that states, districts, and schools can use to incentivize and facilitate the adoption of restorative practices.

Replace zero-tolerance policies and punitive discipline frameworks with relational approaches. Many states, districts, and schools rely on regulatory and statutory guidance that requires exclusionary discipline to be utilized whenever students engage in certain conduct (i.e., they require a zero-tolerance approach to bullying or vandalism). To empower schools to shift away from zero-tolerance and punitive frameworks, states, districts, and schools can reevaluate their disciplinary policies to ensure that exclusionary discipline is not a default. Instead, policies can guide teachers in shifting their teaching philosophies and using a relational approach. This shift can be supported by communicating the negative impacts of exclusionary discipline, modeling relational alternatives for managing common tricky classroom situations, demonstrating the potential of relationships to grow with effort, and providing ample support and time for staff to practice relational approaches before they face classroom conflict.

Incorporate indicators of exclusion, restorative practices, and school climate in continuous improvement and accountability systems. Under the federal Every Student Succeeds Act (2015), states must set "ambitious," "long-term" goals for students and subgroups of students. To demonstrate progress toward these goals, states' accountability systems must annually measure at least one metric of school quality or student success, which can include school climate. States must use these systems to identify, and inform districts about, schools deemed in need of "comprehensive support" due to their low performance on state accountability tests. Once a school is identified as needing comprehensive support, the district and school must take steps to help the school improve. States have substantial leeway in determining their goals for student subgroups and for setting their measures of school quality.

A first step for state leaders seeking to ensure that all students have access to restorative practices is to incorporate suspension rates, which are readily available, into state accountability systems. States and districts also can create measures of site climate and restorative practices that they can use as part of continuous improvement and,

> A first step for state leaders seeking to ensure all students have access to restorative practices is to incorporate suspension rates, which are readily available, into state accountability systems.

eventually, accountability systems. Data regarding differential access to restorative practices could help leaders identify districts and schools in need of support to realize equitable implementation.

Secure buy-in from school staff and community members. Establishing buy-in among staff and community stakeholders is key to the ongoing success of restorative practices. District and school leaders can take the following steps to build support among school staff and caregivers:

- **Involve school staff who are already interested in restorative practices as early implementers.** While whole-school adoption is the ultimate goal, initially schools might provide training in restorative practices to staff who volunteer to receive it. This can avoid the drawbacks of requiring unwilling staff to use restorative practices. Schools can build on the efforts of early implementers to demonstrate success and offer supports to later implementers.

- **Adopt social signaling to garner wider support among school staff.** School leaders can attempt to "nudge" the use of restorative practices by providing staff with means of publicly celebrating their successes in implementing restorative practices. For instance, schools could provide thermometer displays to be placed outside of teachers' doors so others can see the number of community-building circles they have held or other metrics illustrating engagement in restorative practices.

- **Proactively communicate with caregivers and school staff about the value of restorative practices.** School and district leaders can seek to understand caregiver and staff reservations; communicate the value of restorative practices for achieving positive school and student outcomes (e.g., a positive school climate, less student misbehavior, stronger academic achievement, and social and emotional growth); and, if possible, provide caregivers with opportunities to experience restorative practices in action by inviting them to participate in restorative activities. Relatedly, school leaders can prepare staff for a whole-school model by proactively facilitating discussions about school practices before choosing restorative practices (let alone implementing them) to help staff feel that they have chosen restorative practices for their schools (and for themselves).

Invest in ongoing education and support for all staff to develop restorative mastery and to expand access to restorative practices among all students. My research finds that restorative practices are effective; however, they are underutilized and do not reach all students. Ongoing training and support are needed to help develop staff mindsets and knowledge around restorative practice. To fund training and ongoing support, states and districts can leverage the Every Student Succeeds Act Title IV, Part A—the Student Support and Academic Enrichment Grant Program.

I highlight areas in which states, districts, and schools may want to pay particular attention as they build their professional development and support plans for restorative practices:

- **Reducing bias and fostering positive adult–student relationships.** Schools and districts can take steps to ensure that students of *all* backgrounds, and particularly Black students and students from low-income families (who are more frequently subjected to exclusionary discipline and less frequently provided access to restorative practices), not only are exposed to restorative practices, but experience restorative practices in a manner that deepens their connection to the school. Providing teachers training in equity literacy, critical consciousness, bias awareness, and culturally responsive teaching can support positive adult–student relationships.

- **Using restorative practices when working with students with learning differences.** As students with learning differences are also likely to disproportionately experience exclusionary discipline, educational institutions may emphasize preparing teachers to leverage restorative practices in such student interactions.

- **Preparing school resource officers to leverage restorative practices.** To support school resource officers (SROs) in utilizing restorative practices successfully, educational institutions can garner their buy-in; provide them with training in using restorative practices, building students' trust, and facilitating relational repair; and help them transform their views of their job.

Provide long-term investment and support for restorative practice implementation.

It takes time and continual effort to fully implement restorative practices. Districts and schools hoping to realize the positive impacts of restorative practices should plan for implementation and support over multiple years. To that end, they can:

- **Seek (or provide) funding for multiple years of implementation.** Provide clear guidance showing that funding is not tied to near-term results.

- **Provide continuous professional development, coaching, and partner learning** so school staff can persist with use of practices, and can—slowly but surely—make restorative practices their new modus operandi.

- **Communicate to school staff and caregivers about the need for continued implementation**, presenting relatable case studies and examples showing declines in misbehavior following *sustained* restorative practice implementation.

The Future of Restorative Practices

This research aimed to identify the relationship between exposure to restorative practices and student outcomes. To achieve this goal, I developed a consistent definition of restorative practice exposure, measured school-level restorative practice utilization over time, and merged school practice data with longitudinal student outcome data. I then recruited models designed to overcome student- and school-level selection effects. While the results presented here are encouraging, readers should bear in mind the following research limitations, as well as new considerations for today's context.

Directions for Future Research

Three limitations of this study highlight directions for future research. First, the models are able to glean the effect of student exposure only to the specific restorative practices included in the scale measure. Notably lacking from the scale is a direct measure of whether staff are engaging in various kinds of restorative circles (e.g., community building, harm repair, and reintroduction). Future work could seek to develop and field surveys designed to ascertain student exposure to more specifically defined restorative practices and identify the impacts of exposure to these practices.

A second limitation relates to the timing of California Healthy Kids Survey (CHKS) data collection. As noted, this study leverages CHKS data to identify schools' levels of restorative practice utilization over time. However, CHKS data are collected relatively infrequently (biannually in most cases), and only for students in certain grades (mainly 5th, 7th, 9th, and 11th grades). As such, the data cannot be leveraged to understand, with temporal granularity, how or when schools shift their practices. Therefore, many sophisticated modeling approaches (such as event study designs) are impractical or inappropriate for these data. Future research could seek to identify data that can track school practices over time with sufficient granularity to empower models such as event studies. Future research could also seek to ascertain whether the findings previously discussed extend to other grade levels, such as elementary and high school grades.

A final limitation is that the results presented here focus on how student outcomes shift when students gain exposure to restorative practices, but the results do not provide guidance regarding *how* students might gain exposure to these practices. However, this work illuminates a key finding: Exposure to restorative practices appears to cause positive student outcomes, and utilizing restorative practices appears to cause schoolwide improvements. Having provided an initial answer to the question of whether restorative practices are effective, I hope this work will empower school leaders to sustain their investments in restorative practices so they can identify professional development that drives widespread utilization and innovate solutions to implementation challenges. Future research could evaluate whether certain

professional development and programming approaches are more successful at shifting student exposure to restorative practices, and whether other policies and practices (such as professional development related to cultural sensitivity or increases in workforce diversity) can work synergistically with restorative practices to generate even greater benefits for students.

Restorative Practices to Weather Unprecedented Times

While this report is largely written without reference to the COVID-19 pandemic, it is important to acknowledge how the pandemic has changed the contexts of students' lives in and out of school. Though most schools have resumed fully in-person learning, some students have remained in entirely remote learning contexts, and many schools now offer supplemental remote instruction. With due care, restorative practices can be utilized in these unprecedented times.

A defining characteristic of school in the age of COVID-19 is the use of online learning platforms and the shift to remote instruction. How can schools continue to leverage restorative practices in a remote framework? Das et al. (2019) discuss the potential of "virtualized" restorative practices as a tool for reducing cyberbullying and creating a more inclusive and engaging online learning environment for K–12 students. They conceptualize restorative coordinators creating "virtual peace rooms" when a conflict arises. Facilitators could virtually invite students to the room to help them address any conflicts and repair relationships. They note that because conflict often surrounds students' use of social media, students should be able to add content from popular social media platforms to the peace rooms. And they argue that virtual restorative practices would provide students with new and exciting ways to become active participants in enhancing their school climate, such as participating in collective moderation and curation.

Another uncertainty in these times is how best to support students as they return to school after lengthy closures. Many schools have seen marked increases in behavioral problems as students resume in-person learning. This may indicate that students feel anxiety—perhaps due to concerns of contracting (or spreading) the virus, uncertainty around their abilities to interact with peers after long months of isolation, or fears of the kind of social and political unrest that led to a riot at the U.S. Capitol. Community-building circles are tailor-made to provide students with opportunities to share feelings about these big issues while learning (through teacher guidance) how to empathize with, and reassure, one another. Educational institutions that have already trained staff in restorative practices may therefore want to offer refreshers and coaching on how to use proactive restorative approaches, and institutions that have not provided staff with training in restorative practices may, time permitting, want to provide training to empower them to meet students' unique needs in this historic moment.

Conclusion

The analyses in this report indicate that exposure to restorative practices can enhance academic performance, reduce exclusionary discipline, and abridge racial disparities in both measures. They also indicate that as schools grow more restorative, their student populations see improvements in behavior, victimization, mental health, substance use, and academic performance.

Accelerating and accentuating the reach and impact of restorative practices requires systemic support, and thousands of schools have taken on this brave work. If the review of research and practitioner guidance has demonstrated anything, it is that while many schools face common challenges and roadblocks, each school's implementation journey is unique. Thus, the aforementioned recommendations are by no means a panacea. Instead, the suite of solutions any given school must identify is unique to the set of challenges that school faces. Nonetheless, my hope is that many of these recommendations will prove useful in avoiding common pitfalls and in catalyzing iterative processes designed to identify and improve solutions.

Culture change is deliberative work. It can be daunting and can seem Sisyphean. But, as Nelson Mandela once said, "It always seems impossible until it is done." I hope that these recommendations, paired with the results of the analyses in the prior sections, will be like wind in the sails for administrators, schools, students, caregivers, and communities navigating their unique path to creating a truly restorative community.

Appendix A: Data and Variable Creation

Determining School Utilization of Restorative Practices

A review of evidence on restorative practices (Darling-Hammond et al., 2020) reveals a set of key restorative practices that fall largely into three categories: (1) practices designed to inculcate social and emotional skills necessary to resolve conflicts and deepen connections; (2) practices designed to facilitate students' processes of conflict resolution; and (3) practices designed to ensure a cohesive school community.

The California Healthy Kids Survey (CHKS) provides a means of quantifying student exposure to these kinds of practices. These surveys are completed by hundreds of thousands of California students across more than 1,000 schools every year. Schools participate biannually, meaning the set of schools that participate switches from year to year. However, in each biannual survey year, CHKS aims to survey 70% of all 5th-, 6th-, 7th-, 9th-, and 11th-graders in each participating school. My review of CHKS data indicates that they largely achieve this goal. CHKS includes a school climate module that is used annually to ask over 100,000 students in over 300 schools to indicate the extent to which adults in their schools engage in a range of practices.

From this module, I created a scale comprising eight CHKS items, as shown in Table A1.

Table A1
California Healthy Kids Survey Items Used to Measure Restorative Practice Utilization in Schools, Subdivided by Practice Type

Practice type	Survey items
Community building	1. This school encourages students to feel responsible for how they act. 2. This school encourages students to understand how others think and feel. 3. This school encourages students to care about how others feel. 4. Students are taught that they can control their own behavior.
Repair	5. This school helps students resolve conflicts with one another. 6. If I tell a teacher that someone is bullying me, the teacher will do something.
Cohesion	7. Teachers show it is important for students of different races to get along. 8. The adults in this school respect differences in students.

Source: California Department of Education. (2013–2021). *California Healthy Kids Survey* [Data set].

These survey items can be combined to create scale measures of restorative practice exposure. The eight-item exposure measure has a high scale reliability coefficient (Cronbach's alpha) with a score of 0.910, indicating excellent internal consistency. The average inter-item correlation of 0.636 (with correlations ranging from 0.361 to 0.762) further indicates that while items are related, they are not duplicative.

Both the single and eight-item scales proved related to real-world signals of restorative practice utilization. I reviewed practice guides for large districts that appear in the CHKS data and found that those that scored highest on the single-item and eight-item measures also had written documentation of their utilization of school-based restorative practices. Both approaches thus passed a litmus test of real-world validity.

Notably, in reviewing middle school (grades 6–8) student surveys from 2013–14 through 2018–19, the single and eight-item measures proved strongly correlated at both the student level (r(234,575) = 0.82) and the school level (r(1,189) = 0.91). When both measures were available, results converged regardless of whether I used the single or eight-item scale as the exposure measure. For the sake of brevity, I therefore presented findings based on the eight-item scale whenever it was available.

Generalizability of the Data

The data for this study capture both longitudinal student experiences and school-level restorative practice exposure for approximately 350,000 middle school students in each year. Analyses based on these students appear generalizable to students throughout the state. California administrative data include approximately 1.4 million middle school students each year. CHKS data, meanwhile, can be used to generate restorative practice exposure scores for a subset of schools, and therefore for a subset of students. The data set used for analyses regarding the effects of restorative practice exposure on academic and disciplinary outcomes is thus limited to the set of students who have scores on both the restorative practice exposure measure (from CHKS) and academic and disciplinary measures (from California administrative data)—a total of about 320,000 middle school students per year. One may thus worry that the set of students included in our analysis data set (because they have CHKS data) is distinct from the set of students that is excluded from our analysis data set (because they lack CHKS data). However, 2018–19 data (Table A2) indicate that the students for whom I have both CHKS and California administrative data look demographically quite similar to the students for whom I have California administrative data but lack CHKS data. This suggests that the sample is representative of the full universe of California middle school students.

Table A2
Comparison of 2018–19 California Administrative Data for Which Restorative Practice (RP) Information Was and Was Not Available

Category	% with RP data available (*N* ~ 320,000)	% with RP data missing (*N* ~ 1,100,000)
Race		
White	22.4	23.1
Black	4.4	5.6
Latino/a	56.6	55.1
Asian	9.0	9.3
Male	51.1	51.2
Economically disadvantaged	60.0	61.2
English language learner	14.8	14.1
Special education	11.6	12.0
Migrant	1.1	0.7

Notes: In 2018–19, the subset of students for whom California administrative and restorative practice data are considered to be available are those students who appear in California administrative data and who attended schools in 2018–19 that administered 100 or more California Healthy Kids Surveys regarding restorative practice exposure (taken between 2013–14 and 2018–19). These students attended schools with sufficient California Healthy Kids Survey data to generate a precise estimate of their schools' levels of restorative practice utilization. Approximate sample sizes are provided, as the exact sample size for the number of students for whom data are available or unavailable varies marginally for each student characteristic.

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2013–2019.

Appendix B: Student-Level Analyses

Using a Change-Based Model to Generate a Causal Effect

How can one ascertain if student exposure to restorative practices causes improvements in student outcomes? This inquiry boils down to two questions: Can one exploit exogenous variation? And if not, can they limit the influence of endogenous variation?

The purest form of exogenous variation is random assignment. For example, to ascertain the impact of restorative conferencing in juvenile courts, Shem-Tov et al. (2021) randomly assigned juvenile defendants to either go through a restorative justice process or to go through a typical juvenile proceeding. It is worth noting that juvenile courts represent a near-perfect venue for randomized controlled evaluations. For Shem-Tov et al., assignment to treatment all but guaranteed youth would be exposed to the restorative justice intervention and assignment to the control condition guaranteed youth would not be exposed. The ability to tightly control exposure to the treatment allowed the authors to generate exogenous variation in exposure to treatment, which empowered them to ascertain a causal effect: Restorative proceedings markedly reduced recidivism.

In contrast, generating exogenous variation in student exposure to restorative practices in *schools* is substantially more complex. Unlike youth randomly assigned to restorative juvenile proceedings, youth in schools randomly assigned to teachers who receive training in restorative practices do not reliably experience exposure to restorative practices (e.g., Acosta et al., 2019), as many conditions must be met to ensure that training accrues to exposure. These include the implementation of high-quality training that changes teaching practices; a high degree of training uptake among teachers; a cultural fit between the training and the school culture; structural conditions in the school that allow teachers to implement restorative practices; and teachers exercising their discretion in ways that do not engender inequities in exposure.

In addition, while teachers in control schools do not receive professional development in restorative practices via the *experiment*, these teachers may nonetheless have prior training (e.g., received as part of their certification process, or received at another school before lateraling to their current school site). Thus, in the context of evaluating the impacts of restorative practice exposure, students in schools randomly assigned to *not* receive restorative programming may prove to be poor controls.

Given the drawbacks inherent in generating artificial exogenous variation, how might one identify and exploit *naturally* occurring exogenous variation in student exposure to restorative practices, or at least take steps to ensure that estimates are not biased by a failure to account for naturally occurring endogenous variation? A clue can be found in work by Aizer and Doyle (2015), who rely on the random process that determines

which juvenile judge will hear a given child's case to identify the impact of being placed in juvenile confinement. A similar approach could be leveraged in the context of evaluating school practices if assignment to various kinds of schools could be seen as random. Of course, under typical circumstances, students do not sort randomly into school environments. Indeed, research by Owens and McLanahan (2020) documents that Black students are more likely to be sorted into more punitive schools, and that this sorting explains 21% of the Black–White exclusionary discipline gap. One thus cannot treat selection into schools that use varying degrees of restorative practices as a random process.

But can one imagine that student sorting is more random (or at least less intentional) in certain circumstances? Relatedly, to estimate the impacts of school suspension, Bacher-Hicks et al. (2019) first typified schools in terms of their punitiveness, but then exploited plausibly exogenous variation in exposure to more punitive schools—the rezoning of schools within a district, which forced students who lived in the same neighborhoods and previously attended the same school to suddenly and unexpectedly attend different schools. While researchers do not always have such an exogenous source of variation in student exposure to restorative practices (such as a radical rezoning), they can focus on moments in students' educational trajectories when students shift educational environments not because they choose to sort, but because they are forced to switch schools.

One example of such a moment is the situation in which a student is completing a given grade while attending a school that does not serve the next grade level—for example, a 5th-grade student whose current school does not offer 6th grade. Thus, with this transition as the focus, one can ascertain the causal impact of exposure to restorative practices by calculating the relationship between changes in exposure and changes in outcome. Functionally, one can first calculate changes in outcome, then calculate changes in exposure, and finally ascertain whether changes in exposure are related to changes in outcome. Applying that approach, one can first calculate each student's change in outcome values between 2 school years ("delta outcome"), and then calculate each student's change in restorative practice exposure during the same time frame ("delta exposure"). They can then regress delta outcome on delta exposure. The resulting coefficient would represent an estimate of the impact of changes in restorative practice exposure on changes in outcomes and would be an unbiased causal estimate so long as there are no time-*varying* confounders omitted from the model.

Why Focus on the Transition From 5th to 6th Grade?

While this approach can theoretically be used to measure the impact of changes in exposure to restorative practices occurring between any two grade levels, one may be wary about changes in restorative practice exposure that occur at "unnatural" times in a student's educational journey. For example, imagine a student who is finishing 7th grade and is currently attending a school that also offers 8th grade. If that

student decides to switch schools between 7th and 8th grade, one may worry that the decision itself was motivated by a change in their feelings occasioned by exposure to school practices in use at their old school, as well as those in use at the new school. If there are many students for whom this pattern holds, then when one calculates the relationship between changes in outcomes and changes in restorative practice exposure, the detected relationship may be a function of the *kinds* of students who opt to switch schools (and therefore end up experiencing changes in restorative practice exposure) rather than a reflection of the impact that more exposure to restorative practices had on their outcomes.

One means of overcoming this issue is to restrict analysis to students experiencing "natural" school switches. Imagine, instead, 5th-grade students attending schools that do *not* offer 6th grade. They switch from one school to another in part due to natural necessity. Thus, if one measures the relationship between changes in outcomes and changes in restorative practice exposure for this subset of students, they can be less concerned that the detected relationship is a reflection of the kinds of students who make school switches, as, in this case, all students will be making switches at least in part because they have to. We will thus be more persuaded that the detected relationship reflects the effect of exposure to restorative practices on student outcomes.

One other benefit of focusing on the transition from 5th to 6th grade is that this transition is, research suggests, a precarious one for many students. P. J. Cook et al. (2008) have found that students who attend 6th grade in a middle school experience substantially more exclusionary discipline than similarly situated students who attend 6th grade in an elementary school. One interpretation of these results is that middle schools are more disciplinarian environments than elementary schools—a finding that accords with our review of California administrative data. However, another reading is that much can change for students as they enter 6th grade, and that 6th grade can reshape students' disciplinary trajectories. It is thus fitting to analyze the impact of shifts in exposure to restorative practices as students traverse the delicate and potent transition from 5th to 6th grade.

Regression Formula for Change-Based Models

Formally, I ran the following model:

$$\Delta\ \mathrm{OUTCOME}_{17-18/18-19} = \alpha + \beta_1(\Delta\ \mathrm{SRPE}_{17-18/18-19}) + \varepsilon\ (2)$$

Here, OUTCOME represents the four outcome measures (CAASPP mathematics and English language arts [ELA] scores; whether suspended and days of suspension), and β_1 represents the causal estimate of the relationship between changes in restorative practice exposure and changes in outcomes. Because this approach looks at variation within students over time, it "fixes" the student, and in so doing, deftly adjusts for all time-invariant student characteristics.

Visualization of Change-Based Models Using Local Polynomial Functions

Figure B1 visually depicts the relationship between shifts in exposure to conflict resolution practices and shifts in student outcomes, for all students. As the figure illustrates, students who saw increases in their level of exposure to conflict resolution practices generally saw improvements in academic performance and reductions in exposure to exclusionary discipline. The visual demonstrates that students who saw year-on-year declines in exposure to conflict resolution practices generally saw worsening in academic and disciplinary outcomes; and students who saw year-on-year increases in exposure to conflict resolution practices generally saw improvements in these outcomes.

Figure B1
Relationship Between Changes in Exposure to Conflict Resolution Practices and Changes in Academic and Disciplinary Outcomes for Students Transitioning From 5th to 6th Grade
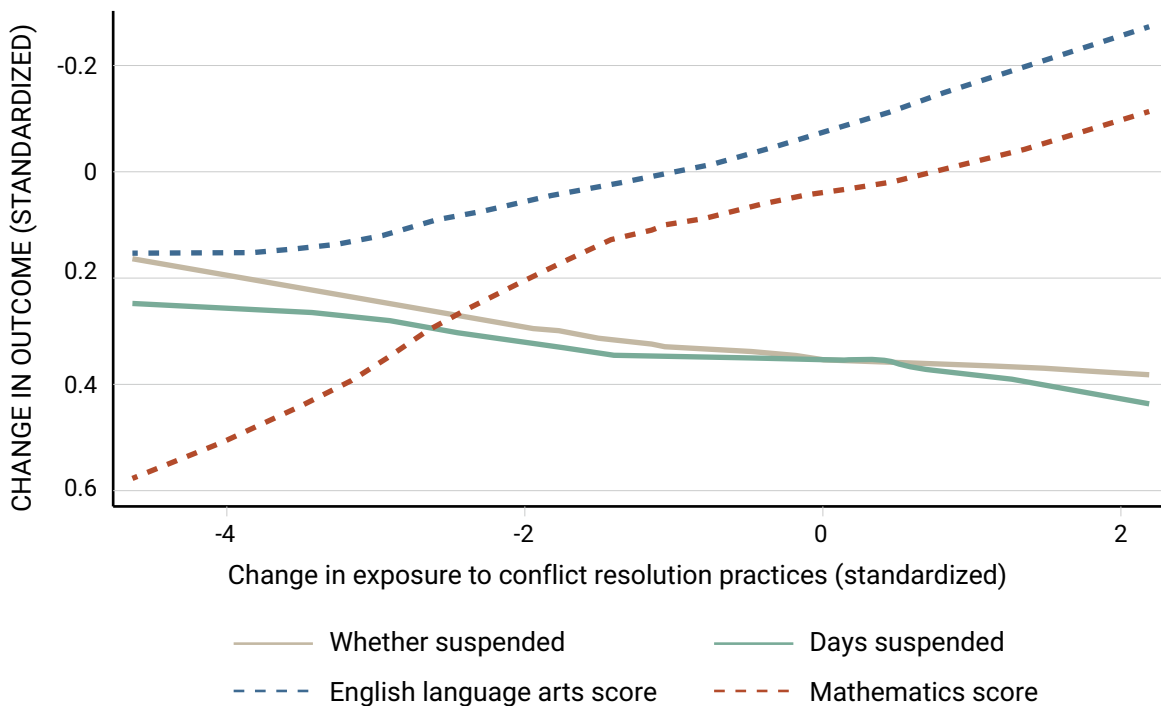
Notes: Figure depicts locally weighted regressions predicting year-on-year changes in student outcomes based on year-on-year changes in student exposure to restorative practices. The measure related to year-on-year changes in conflict resolution practices is standardized by dividing by the standard deviation of the measure. The measures related to year-on-year changes in outcomes are standardized using the same approach.

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2014–2019.

Regression Formula for Cross-Sectional Models

Formally, the model is

$$\text{OUTCOME}_{18-19} = \alpha + \beta_1(\text{SRPE}_{18-19}) + X_i + \varepsilon, \quad (1)$$

where

OUTCOME_{18-19} is the 2018–19 outcome of interest in a given model (received an out-of-school suspension in 2018–19; CAASPP ELA score in 2018–19; CAASPP math score in 2018–19);

SRPE_{18-19} is the restorative practice exposure score for the school a student was in in 2018–19; and

X_i is vector of covariates, including all 2017–18 outcomes, all student characteristics, and all school characteristics.

Here, β_1 is the coefficient of interest and, presuming the identifying assumptions related to regression are met, β_1 represents an unbiased estimate of the causal effect of exposure to restorative practices.

Cross-Sectional Regression Results Table

Table B1
Relationship Between 2018–19 Outcomes and 2018–19 Restorative Practice Exposure, Based on Multivariate Regression With Adjustment for Student- and School-Level Factors

	Coefficient (robust standard error)				
Outcome	All students	White	Black	Latino/a	Asian
ELA score	9.31***	8.24*	22.14***	10.86**	4.54
	(2.77)	(3.39)	(6.10)	(3.41)	(3.08)
n	266,223	56,339	11,892	155,211	23,276
Mathematics score	8.57*	8.35	15.29	12.63**	4.23
	(3.59)	(4.31)	(5.94)	(4.50)	(4.18)
n	265,816	56,224	11,856	154,983	23,266
Received OSS	−0.037***	−0.018*	−0.113***	−0.040***	−0.011
	(0.008)	(0.009)	(0.036)	(0.010)	(0.007)
n	269,210	57,354	12,116	156,594	23,384
Days in OSS	−0.17***	−0.04	−0.77***	−0.17***	−0.09
	(0.04)	(0.06)	(0.21)	(0.05)	(0.06)
n	269,210	57,354	12,116	156,594	23,384

Notes: All models adjust for 2017–18 outcomes (ELA score, mathematics score, whether suspended, days suspended), student-level characteristics (economic status, migrant status, English language learner status, special-education status, race, gender, and grade level), school-level student body characteristics (percent economically disadvantaged, percent with migrant status, percent with English language learner status, percent with special-education status, percent female, percent in 6th grade, percent in 7th grade, percent in 8th grade, and middle school student population size), and school-level teacher and administrator characteristics (mean years of experience, percent with a credential, percent female, percent White, and percent Black). Models focusing on all students also adjust for percent Black, percent White, percent Asian, and percent Latino/a. Models focusing on racial subsamples do not include these student racial composition variables due to concerns regarding overcontrolling. Standard errors are clustered at the school level. ELA = English language arts; OSS = out-of-school suspension.

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2013–2019.

Results Using a Propensity Score Matching Approach

As noted earlier, multivariate regression will return an unbiased estimate of the relationship between exposure and outcome only if certain conditions are met. Chief among these is a properly specified functional form. While there are many diagnostic tests to ensure that a linear model is appropriate, one means of ascertaining whether

functional form issues might be generating spurious relationships is to utilize propensity score matching. Propensity score matching designs are not reliant on functional form assumptions. Thus, when propensity score matching and multivariate regression approaches converge, one may be less worried that results are an artifact of functional form decisions. As discussed later, results do converge. I provide some explication of the propensity score matching approach and present results generated using this approach.

To operationalize this propensity score matching approach, I first calculate a logistic regression model in which I use nearly all of the adjustment variables from the linear regression to predict whether or not a student was in a top quartile restorative school in 2018–19. Notably, the logistic regression model does *not* include workforce variables, as these variables proved poor predictors of both restorative practice exposure and student outcomes. Also, as with the multivariate regressions, I include individual and school-level race variables in models predicting relationships for all students, and I omit race variables in models predicting relationships for subgroups of students.

I then use the propensity score models to predict each student's unique probability of being in a top quartile school (their "*p*-score" or "probability of treatment"). Finally, I match each student who was in a top quartile restorative school to the student with the closest *p*-score who was not in a top quartile restorative school. While there are other means of matching students, because there is a great deal of data to draw from here, I have chosen to execute matching "without replacement," meaning each student can be matched only one time. Unlike with matching with replacement, with this method, one need not worry that the model estimates an artifact of a single student being matched many times.

This approach has two benefits. First, it reduces our covariate matrix to a single dimension, allowing for easy pairing of "treated" and "control" cases. As such, this approach does not rely as heavily on functional form assumptions. Second, because the treated and control cases are more similar on covariates than the full sample of treated and control individuals, the approach also improves balance on covariates between treated and control groups. Critically, propensity score matching can only be executed when there is a sufficient "region of common support," meaning that for any given treated individual, there is a control individual with a sufficiently similar propensity score to find a match. As depicted in Figure B2, there is a strong region of common support in the full model and in subsample models.

Using a propensity-score matching approach, I generate relatively similar estimates to those generated via multivariate regression with adjustment (Table B2). The propensity score matching–based estimates suggest that exposure to restorative practices improves academic performance and reduces exposure to discipline for all students; and that effects on discipline measures are more pronounced for Latino/a and Black students, suggesting that increasing exposure to these practices could facilitate reductions in Black–White and Latino/a–White discipline disparities.

Figure B2
Regions of Common Support for Propensity Score Models
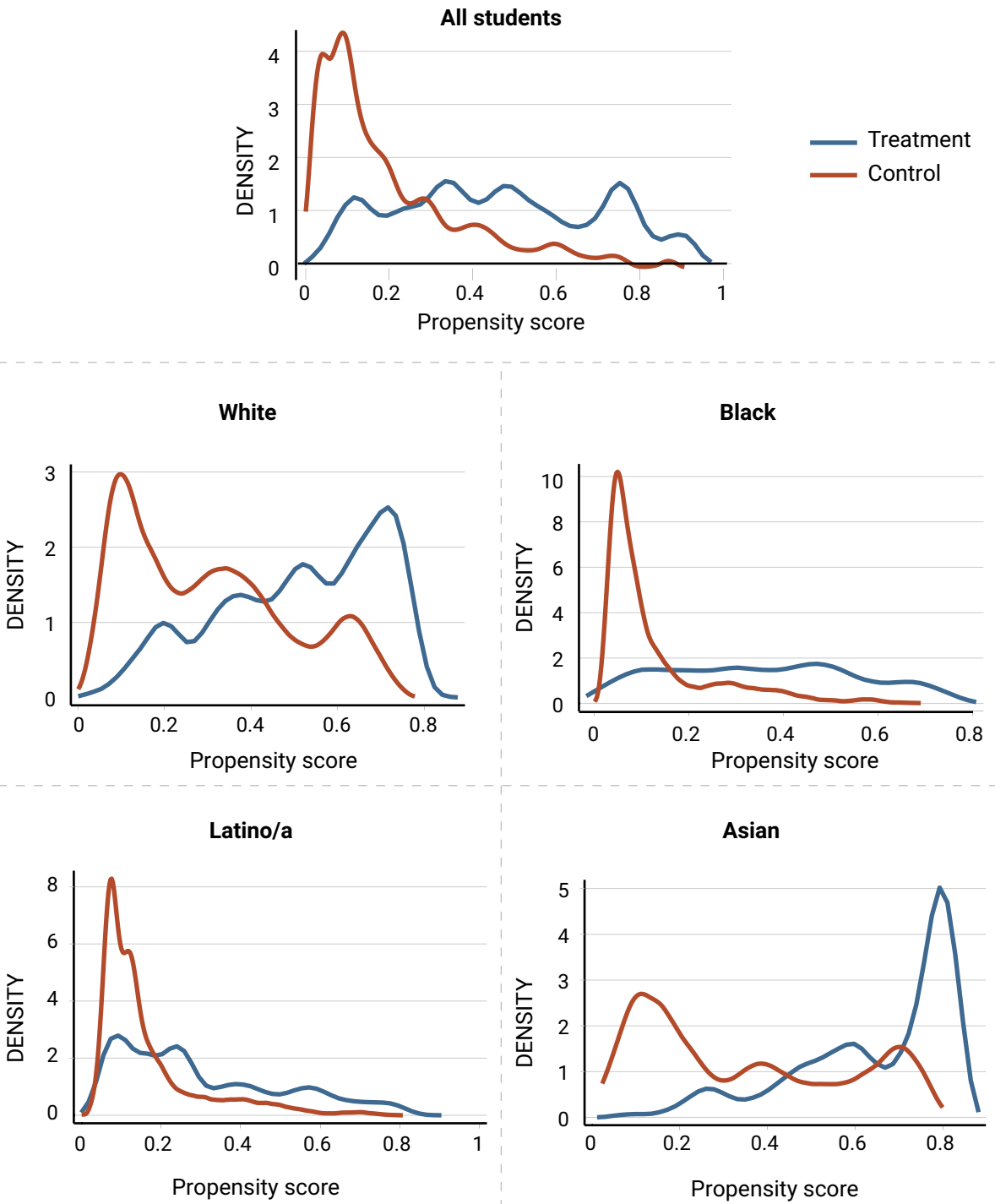
All students

White

Black

Latino/a

Asian

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2013–2019.

Table B2
Estimates, Based on Propensity Score Matching, of the Relationship Between 2018–19 Outcomes and 2018–19 Restorative Practice Exposure

Outcome	All students	White	Black	Latino/a	Asian
ELA score	16.94***	16.01***	10.36***	4.95***	39.02***
	(0.50)	(0.81)	(3.05)	(0.77)	(1.12)
n	162,400	50,712	4,330	65,240	26,820
Mathematics score	21.96***	16.39***	15.05***	6.25***	55.51***
	(0.59)	(0.93)	(3.38)	(0.85)	(1.34)
n	162,154	50,606	4,312	65,164	26,808
Whether suspended	−0.01***	−0.007***	−0.02*	−0.01***	−0.015***
	(0.001)	(0.002)	(0.009)	(0.002)	(0.002)
n	163,972	51,492	4,394	65,702	26,930
Days suspended	−0.04***	−0.02*	−0.07	−0.04***	−0.06***
	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)
n	163,972	51,492	4,394	65,702	26,930

Notes: First row depicts average treatment effect on the treated (ATT). Second row (in parentheses) depicts standard error on estimate. Propensity scores are calculated based on estimated values for logistic regressions predicting exposure to restorative practices via a suite of student- and school-level variables. ELA = English language arts.

*p < 0.05. **p < 0.01. ***p < 0.001.

Sources: Data are from the California Department of Education's (CDE) *California Longitudinal Pupil Achievement Data System* (CALPADS) and *California Assessment of Student Performance and Progress* (CAASPP) for 2017–2019 and *California Healthy Kids Survey* for 2013–2019.

Appendix C: School-Level Analyses

Within-school regression models are operationalized by determining how much schools grow in their use of restorative practices between two time waves. Here, I fix the first wave to be the first 3 school years in our data: 2013–14 through 2015–16. I fix the second wave to be the last 3 school years in the data: 2016–17 through 2018–19. As before, I limit analyses to 6th- through 8th-graders. This again respects the sensitivity of middle school years, but it also reflects another issue: double counting. By limiting analyses to 6th- through 8th-graders, I limit the likelihood that a given student shows up in both the first wave and the second wave. To ensure that estimates of restorative practice utilization are precise for all schools in both time periods, I limit analyses to schools with 50 or more surveys in each time wave.

The benefit of a within-school approach is that it accounts for all time-invariant endogeneity. By "time-invariant endogeneity," I mean stable school characteristics that systemically drive certain schools to adopt restorative practices *and* are related to school-level outcomes of interest. These can also be termed stable confounders. For example, given the relationship between student demographics and student exposure to restorative practices, one might expect that school demographics (e.g., the percentage of students within a school who are Black) are related both to schools' levels of restorative practice utilization *and* to relevant school-level outcomes. In a typical regression framework, one would worry that failing to account for these stable characteristics might bias the estimate (which is why the student-level models adjusted for student demographics).

However, when I analyze the relationship between changes in restorative practice utilization and changes in outcomes, I fix the analyses to occur within schools and over time. Because stable characteristics do not change over time, shifts in these characteristics over time are consistently zero and thus cannot be correlated with changes in restorative practice utilization, nor with changes in outcomes. With a within-school estimator, one does not need to worry about the possibility that stable characteristics operate as confounders. Put another way, with a "within-school" analysis, the failure to account for stable characteristics mathematically cannot bias the estimate (Angrist & Pischke, 2009).

However, a within-school estimator does not account for time-variant confounders. By time-variant confounders, I mean school characteristics that vary over time, and whose variation is correlated with variation in schools' utilization of restorative practices and with variation in schools' outcomes. Because student composition *can* change over time, and changes in student composition could theoretically be related to changes in restorative practice utilization and changes in outcomes, one might include terms in the regression that adjust for compositional changes schools experience over time.

The resulting regression coefficient presents an unbiased estimate of the causal relationship between restorative practices and outcomes, so long as there are no unmeasured time-variant confounders. It produces a conservative causal estimate because it detects only the impact of *changes* in restorative practice utilization (rather than the impact of differential exposure within a single time point).

Regression Formula

To operationalize this manner of within-school analysis (known as differencing regression with adjustment), my formal model is:

$$\Delta \text{ OUTCOME} = \alpha + \beta_1(\Delta \text{ RPU}) + \beta_i(\Delta X_i) + \varepsilon \ (3)$$

where

Δ OUTCOME represents a given school's shift in mean outcome values between the two time points;

Δ RPU represents a given school's shift in its level of utilization of restorative practices during the same time frame; and

ΔX_i represents a given school's shift in other school-level characteristics, specifically average racial demographics, average gender demographics, average parental education, and proportion of students receiving free or reduced-price lunch.

β_1 is the measure of interest. It represents an unbiased estimate of the causal relationship between restorative practices and outcomes, so long as there are no unmeasured time-variant confounders. It produces a conservative causal estimate because it detects only the impact of *changes* in restorative practice utilization (rather than the impact of differential exposure within a single time point).

Model Diagnostics

As depicted in Figures C1 and C2, schools evidenced meaningful variation in terms of how much they shifted in their use of restorative practices and how much they shifted in aggregate outcomes (e.g., the depressive symptom rate).
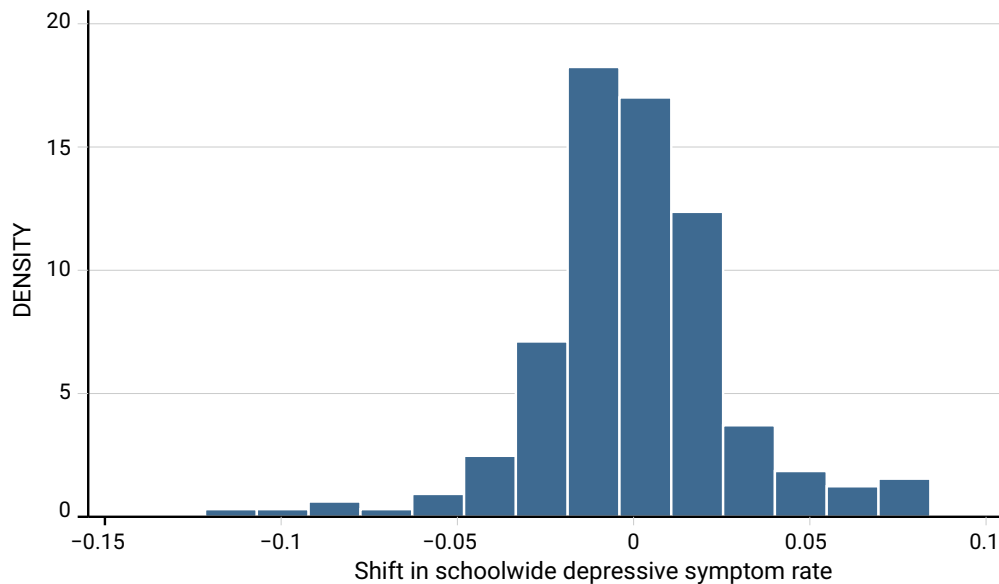
Figure C1
Distribution of School-Level Shifts in Restorative Practice Utilization
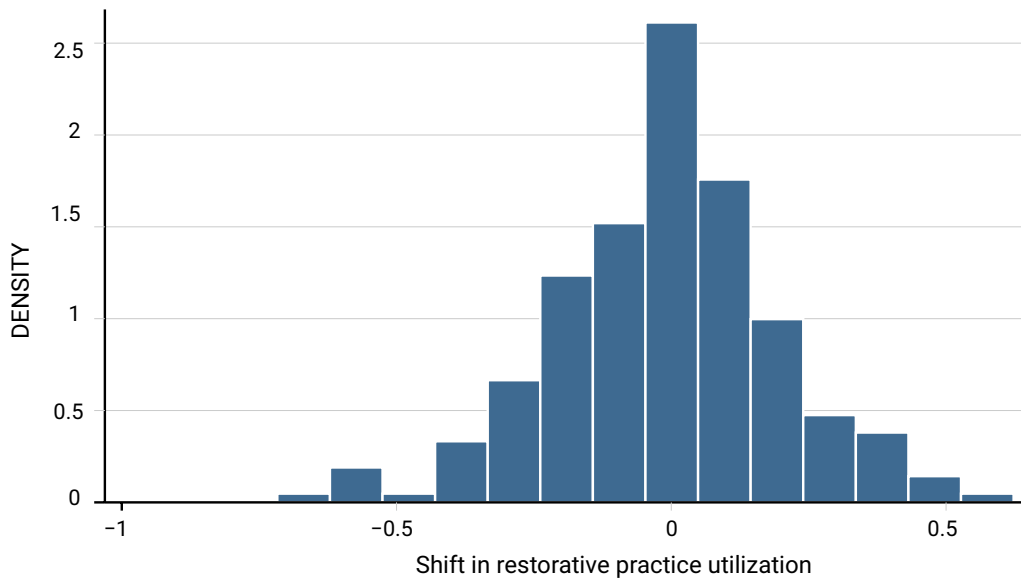

Note: For 220 schools that had adequate data (50 or more student surveys) in the first (2013–14 through 2015–16) and second (2016–17 through 2018–19) time waves to precisely identify shifts over time.

Source: California Department of Education. (2013–2019). *California Healthy Kids Survey* [Data set].

Figure C2
Distribution of School-Level Shifts in Depressive Symptom Rate

Note: For 220 schools that had adequate data (50 or more student surveys) in the first (2013–14 through 2015–16) and second (2016–17 through 2018–19) time waves to precisely identify shifts over time.

Source: California Department of Education. (2013–2019). *California Healthy Kids Survey* [Data set].

As noted earlier, schools evidenced considerable stability in their use of restorative practices over time. As depicted in Figure C3, 47% of schools saw their scores shift by less than 0.5 of 1 standard deviation, and 78% of schools saw scores shift by less than 1 standard deviation. Only 3% of schools saw their scores shift by 2 or more standard deviations.

Figure C3
Percentage of Schools Seeing Varying Degrees of Change in Restorative Practice Utilization (in Standard Deviations)

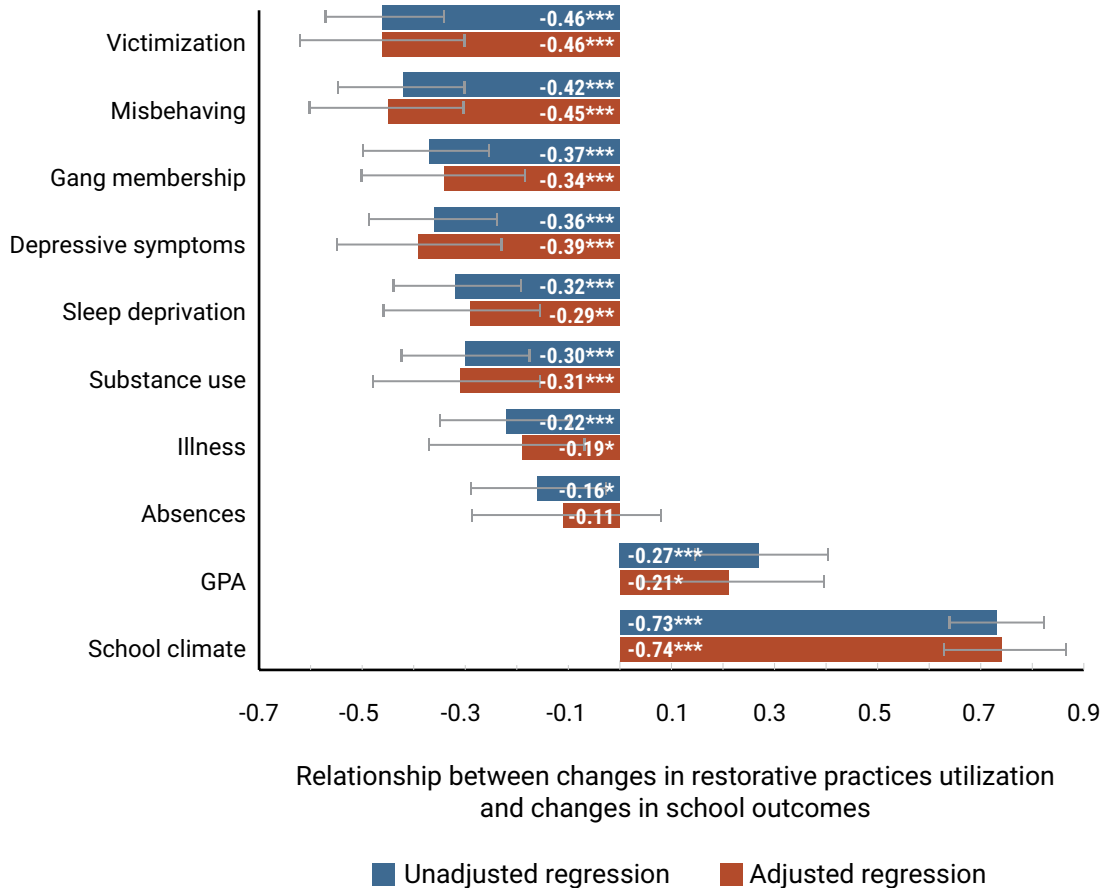Change in restorative practice utilization (in standard deviations)
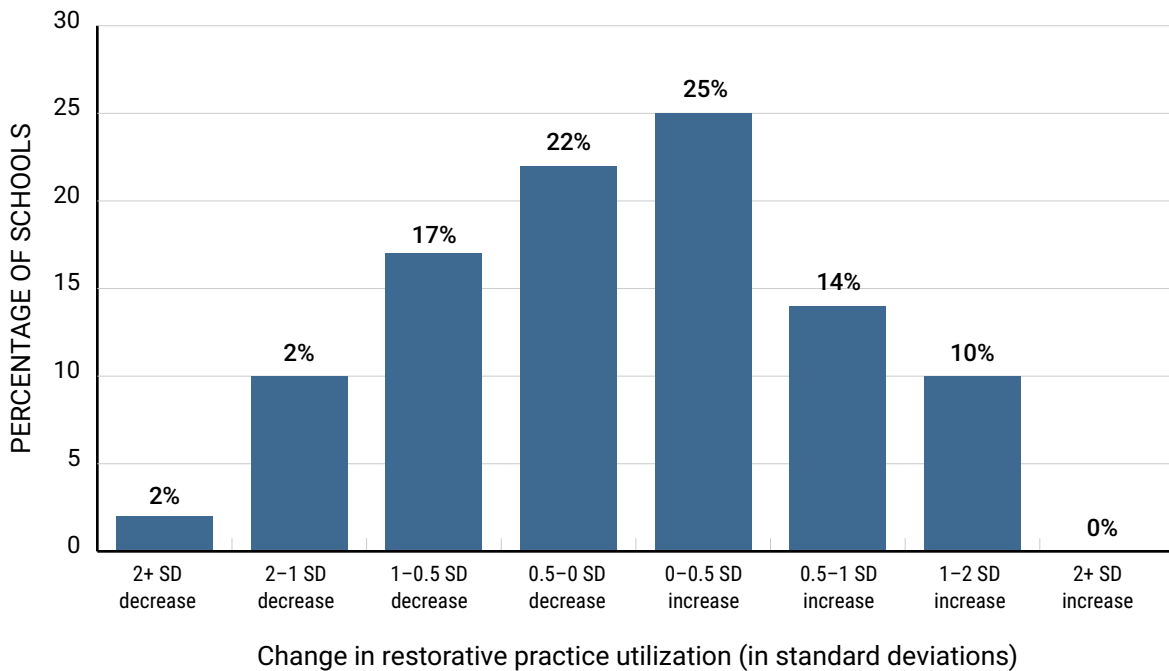
Note: Standard deviations were calculated based on the standard deviation of schools' restorative practice utilization scores in the early time period. Schools were included in this analysis if they had 50 student surveys in both the early and late time periods. These restrictions ensured precise measurement of the early, late, and delta restorative practice utilization scores. The restrictions also yielded a sample of 220 schools. SD = Standard deviations.

Source: California Department of Education. (2013–2019). *California Healthy Kids Survey* [Data set].

That there is generally a small amount of temporal variation indicates that using within-school modeling strategies may yield particularly conservative estimates of the impact of restorative practice utilization on schoolwide outcomes.

Another consideration with these models is that schools' student compositions may change over time, and failure to account for these demographic changes could bias our estimates of the causal effects of restorative practice implementation. I thus rerun all analyses while controlling for student body shifts. As depicted in Figure C4, I find that when I rerun the analyses with these controls, the results are functionally identical.

Figure C4
Unadjusted and Adjusted Relationship Between School-Level Changes in Restorative Practice Utilization and School-Level Changes in Various Outcomes

Relationship between changes in restorative practices utilization and changes in school outcomes

■ Unadjusted regression ■ Adjusted regression

Notes: Bars depict changes in outcomes (in standard deviation units) per a 1 standard deviation increase in restorative practice utilization. Red bars represent adjusted relationships between changes in utilization and changes in outcomes controlling for changes in student body composition variables: percent non-White, percent Latino/a, percent female, percent of students with parents who graduated college, and percent receiving free or reduced-price lunch.

*p < 0.05. **p < 0.01. ***p < 0.001.

Source: California Department of Education. (2013–2019). *California Healthy Kids Survey* [Data set].

Appendix D: Analyses Regarding the Relationship Between Belongingness and Discipline for Black Students

In the main report, I discussed novel regression analyses conducted using California Healthy Kids Survey data to ascertain if Black students who were disciplined (or were in schools that discipline Black students more harshly) tended to feel a diminished sense of belonging. I find that they do, and we report the findings of these analyses in Table D1.

Table D1
Regression Models Predicting Black Students' Sense of Belonging (1−5) as a Function of Their Own Disciplinary Experiences and the Black Discipline Rate in Their Schools

	Model			
Variable	**1**	**2**	**3**	**4**
Suspended in past 12 months	−0.37*** (0.05)		−0.33*** (0.05)	−−
Black discipline rate		−0.89*** (0.17)	−0.57** (0.18)	−0.54** (0.20)
Constant	3.09	3.15	3.16	3.19
n	6,550	6,550	6,550	5,775

Notes: Models generated by author using California Healthy Kids Survey data for 2017–18 and 2018–19. All models control for student sex, whether students identify as Hispanic or Latino/a, parental education, and free- or reduced price-lunch status.

Model 4 is limited to Black students who were not suspended in the past 12 months.

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Source: California Department of Education. (2017–2019). *California Healthy Kids Survey* [Data set].

References

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