# Equity-focused PBIS Approach Reduces Racial Inequities in School Discipline: A Randomized Controlled Trial

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Author Note

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R324A170034 to University of Oregon. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

Citation: McIntosh, K., Girvan, E. J., Fairbanks Falcon, S., McDaniel, S. C., Smolkowski, K., Bastable, E., Santiago-Rosario, M. R., Izzard, S., Austin, S. C., Nese, R. N. T., & Baldy, T. S. (2021). An equity-focused PBIS approach reduces racial inequities in school discipline: A randomized controlled trial. *School Psychology, 36*(6), 433-444.
https://doi.org/10.1037/spq0000466

**Abstract**

We assessed the effects of a whole-school equity intervention implemented within a school-wide positive behavioral interventions and supports (PBIS) framework on racial inequities in school discipline in eight elementary schools with inequitable referrals for Black students. The intervention involved assessing patterns of racial disparities in school discipline decisions and providing professional development on adapting school-wide behavior systems to improve cultural responsiveness through concrete strategies targeting the patterns. After consent and matching on existing levels of racial inequities, half of the schools were randomly assigned to receive the intervention. Analyses showed that schools receiving the intervention had significant decreases in racial disparities in school discipline and rates of office discipline referrals for Black students, while control schools had minimal change. Results are discussed in terms of improving equity in school discipline within multi-tiered systems of support.

*Keywords:* Racial Equity, Social Justice, Data Based Decision Making, Behavior Intervention, School Discipline, Positive Behavioral Interventions and Supports

**Impact and Implications Statement**

This study demonstrates that an equity-focused PBIS approach significantly reduced racial disproportionality in school discipline and was viewed as acceptable, feasible, and fair by implementers.

# Equity-focused PBIS Approach Reduces Racial Inequities in School Discipline: A Randomized Controlled Trial

Since at least the 1970s (Children's Defense Fund, 1975), researchers have known that Black (i.e., African American) students are at significantly increased risk for being excluded from instruction through exclusionary discipline (e.g., office discipline referrals [ODRs]; Girvan et al., 2017; U.S. Government Accountability Office, 2018). Disproportionate rates of ODRs for Black students is especially worrying because they can lead to deleterious education-related outcomes, such as stigmatization, disengagement, and lower academic achievement (Morris & Perry, 2016; Okonofua et al., 2016).

Even with national awareness of the problem, few approaches have shown promise for addressing it (Bottiani, Bradshaw, et al., 2018). As a result, educators sometimes implement interventions that lack evidence of effectiveness. To date, there is little to no research supporting the use of common disproportionality interventions, such as training in cultural responsiveness (Bottiani, Larson, et al., 2018) or sharing racial discipline disparities data with school administrators to increase awareness and accountability (McIntosh et al., 2020).

Compounding the issue, individual educators are often reluctant to take action to address racial inequities (Bastable, McIntosh, Fairbanks Falcon, et al., 2021). School or district-wide equity efforts have been hindered due to perceived misalignment with existing practices, insufficient training and coaching in new techniques, and educators' aversion to discussing race and racism (Augustine et al., 2018; Gregory & Evans, 2020). Such barriers could curtail wider use of equity-focused interventions and diminish positive effects on student outcomes—or even erode educators' motivation to engage in future efforts (Carter et al., 2020; Singleton, 2015).

## Identifying Potential Causes and Intervention Targets

A more comprehensive understanding of the problem may lead to more effective and acceptable solutions. Some have theorized that discipline disparities are the result of structural inequities, such as higher rates of poverty for Black families, or racial differences in base rates of problem behavior. However, evidence shows that neither poverty nor behavior differences by racial group account for the racial inequities seen in school discipline. For example, studies examining risk of exclusionary discipline have found that when accounting for poverty and other structural variables, race remains a significant predictor (Anyon et al., 2014; Fadus et al., in press; Skiba et al., 2014). Other studies have found race remains a powerful predictor of exclusion, even when controlling for prior rates of exclusions, teacher-rated problem behavior, self-reported delinquency, and observed rates of disruptive behavior in the classroom (Bradshaw, Mitchell, O'Brennan, et al., 2010; Huang, 2020; Huang & Cornell, 2017; Scott et al., 2019).

A closer examination of patterns of racial discipline disparities suggest that structural racism, specifically educators' implicit racial biases, may be key drivers of school discipline disproportionality, such as through differential processing of events or increased surveillance of Black students. A recent study found that K-12 teachers have levels of implicit racial biases that are just as strong as the general population (Starck et al., 2020). These biases affect teachers' perceptions of students, including perceiving the faces of Black children as angrier than those of White children (Halberstadt et al., 2020), watching Black students more closely when asked to observe for problem behavior (Gilliam et al., 2016), and perceiving behavioral patterns of Black students more troublesome than White students with identical discipline records (Okonofua & Eberhardt, 2015).

Regarding actual discipline disparities, levels of implicit racial bias in a school's surrounding neighborhood are associated with discipline inequities in that school (Girvan et al.,

in press; Riddle & Sinclair, 2019). More specifically, teachers have been shown to issue Black students disproportionately more ODRs for subjective behaviors such as defiance, disruption, and disrespect, which involve subjective interpretation and require a value judgment in what is acceptable and not acceptable (Girvan et al., 2017). These situations in which discipline decisions are more likely to be influenced by implicit biases are called vulnerable decision points (VDPs; Smolkowski et al., 2016). Identifying building-specific vulnerable decision points can help teams go beyond documenting disparities to pinpointing their root causes (McIntosh, Ellwood, et al., 2018). Unfortunately, implicit bias itself is not an effective target for intervention because decreasing individuals' levels of implicit bias has not been shown to change actual behavior (Forscher et al., 2019).

**PBIS as a Promising Framework for Equity**

A widely-used approach used to decrease the use of exclusionary discipline and improve school climate is school-wide positive behavioral interventions and supports (PBIS; Lewis et al., 2017). PBIS has been shown in multiple randomized controlled trials to decrease educators' use of ODRs (Bradshaw, Mitchell, & Leaf, 2010; Bradshaw et al., in press; Nelson et al., 2002). In addition to overall reductions in rates of discipline, there is descriptive evidence from two evaluations that PBIS is associated with reduced racial disproportionality in exclusionary discipline (McIntosh, Gion, et al., 2018; Vincent et al., 2011). However, neither of these studies was an experimental trial.

Some additional correlational studies have identified specific features of PBIS that are most strongly related to racial equity in school discipline. Across two studies with different samples, stronger fidelity of the following PBIS elements were shown to be associated with increased racial equity in school discipline: using data for decision making (Tobin & Vincent,

2011), implementation of classroom PBIS systems (Tobin & Vincent, 2011), and school-wide acknowledgement or reward systems (Barclay, 2017; Tobin & Vincent, 2011).

**An Equity-Focused PBIS Approach**

Because it is a framework for intervention, there is promise in embedding equity interventions within PBIS, to increase motivation, fidelity of implementation, and sustainability (McIntosh, Mercer, et al., 2018). We developed a multicomponent intervention approach based on (a) elements of PBIS that are most strongly related to racial equity in school discipline, (b) a theory of the operation of implicit bias in school discipline decision making, and (c) research on increasing fidelity of school-based interventions (McIntosh, Girvan, et al., 2018).

ReACT (Racial equity through Assessing data for vulnerable decision points, Culturally responsive behavior strategies, and Teaching about implicit bias and how to neutralize it) is a universal professional development intervention for all school staff to leverage the PBIS framework for increasing racial equity in school discipline (McIntosh, Barnes, et al., 2014). The intervention includes whole-school professional development sessions delivered throughout the year that focus on understanding discipline decision making and the effects of bias, a root cause analysis of discipline data, and creation of a tailored intervention plan with strategies selected to address these root causes.

The training approach included a number of strategies to increase motivation to implement. These strategies included explicit statements from administrators regarding commitment (McIntosh et al., 2016; McIntosh, Predy, et al., 2014), trainer disclosure of examples of their own implicit biases (Bastable, McIntosh, et al., in press), choice of strategies to implement from a menu of similar interventions (Reinke et al., 2011), testimonials from school personnel willing to pilot the strategies (McIntosh et al., 2016), and ongoing coaching of the

school PBIS team coordinating the intervention (Reinke et al., 2008).

***Assessing data for vulnerable decision points.*** In ReACT, school personnel are led through a systematic process of (a) identifying which student racial/ethnic groups are receiving inequitable discipline and (b) a root cause analysis using the school's ODR data. This analysis goes beyond simply documenting whether students from certain groups are receiving disproportionate ODRs to when, where, and why inequitable ODRs are most likely. These conditions, vulnerable decision points (Smolkowski et al., 2016), are specific situations in which biases are more likely to influence the educator's discipline decision making. For example, a school's data may show that Black students are more likely to receive ODRs for defiance, in the classroom, in the afternoons just after returning from lunch.

***Culturally responsive behavior strategies.*** Once the school's VDPs are identified, school teams lead school personnel to select strategies that are most likely to address the inequities and have the best fit with their staff skills and values from pre-established menus. The menus include strategies for (a) improving student-teacher relationships (e.g., positive greetings at the door; Cook, Fiat, et al., 2018), (b) teaching desired behaviors (e.g., learning about values of families; Hammond, 2014), and (c) responding to unwanted behaviors (e.g., wise feedback; Yeager et al., 2014). One core ReACT strategy is the Personal Matrix (Leverson et al., 2021), an activity that helps bridge expectations across school and home that has been shown to increase equity (Gion et al., 2021; Muldrew & Miller, 2021). These strategies align with a PBIS approach and principles of culturally responsive pedagogy (Bastable, Falcon, et al., in press). Once selected, teachers contextualize the strategies to match their school and classroom contexts.

***Teaching about implicit bias and how to neutralize it.*** The third key element of ReACT is professional development on about how individuals make discipline decisions and how

implicit racial biases influence the ODR decision, especially during VDPs. With this understanding, school personnel select a strategy to use in place of their biased response called a neutralizing routine (McIntosh, Girvan, et al., 2014). Neutralizing routines can be understood as replacement behaviors for a snap-judgment decision to send a student out of the classroom and have shown initial promise as part of an intervention package (Cook, Duong, et al., 2018; McIntosh et al., in press). Although the strategies themselves may vary, neutralizing routines are intended to slow down the decision-making process to allow conscious thought. One example of a neutralizing routine is TRY, which stands for Take a deep breath, Reflect on your emotions, and respond in the Youth's best interest. As with the culturally responsive behavior strategies, school personnel contextualize by brainstorming possible examples, piloting them, and selecting a single school-wide neutralizing routine to be used by staff and students.

***Evidence of effectiveness.*** Initial promise for the approach has been shown through a case study in a K-8 school demonstrating decreased disproportionality over a 3-year period (McIntosh, Ellwood, et al., 2018), an experimental single-case study showing increased equity in teacher-student interactions across 4 teachers (Gion et al., 2020), and a quasi-experimental study of 26 schools documenting decreased exclusionary discipline and improved school climate compared to other schools receiving school improvement support from their state (McIntosh et al., in press).

**Purpose of the Study**

Given the promise of this equity-focused PBIS approach and the urgent need for effective interventions, we tested its efficacy through a small-scale randomized controlled trial in eight elementary schools with racial discipline disparities, as documented by increased rates and risk of exclusionary discipline for Black students. Randomized trials have stronger internal validity

than other types of studies, in which pre-existing differences in schools that elect to implement the intervention may make effects more likely. Although small samples can undermine the comparability of treatment conditions, we employed matching procedure to help ensure balance between conditions (Campbell & Walters, 2014). To test the intervention's efficacy, we asked the following research questions:

1. To what extent does an equity-focused PBIS approach decrease disparities in the risk of ODRs between Black students and all other racial/ethnic groups?
2. To what extent does the approach decrease rates of ODRs issued to Black students?
3. To what extent do educators implementing the approach find it to be socially valid (e.g., acceptable, appropriate, fair)?

## Method

### Settings and Participants

The study was conducted in eight public elementary schools in a rural school district in the southeastern United States serving approximately 9,600 students across thirteen schools. The participating schools had enrollments of approximately 500 students, approximately 30% of whom were Black (see Table 1). Each school was implementing Tier 1 PBIS during the 2018-2019 and 2019-2020 school years, with all eight schools implementing above the 70% criterion in the intervention year as measured by the *SWPBIS Tiered Fidelity Inventory* (Algozzine et al., 2014), a measure validated for assessing fidelity of implementation (McIntosh et al., 2017). In the 2018-2019 school year, before intervention, there were 0.23 ODRs per 100 students per day. The rate of ODRs per 100 Black students was 0.79 in treatment schools, slightly higher than the 0.72 in control schools (see Table 1).

### Measures

### *Office Discipline Referrals (ODRs)*

ODRs are standardized forms completed by school personnel to document information regarding incidents of problem behavior that result in removal from the classroom and possible further administrator action (Sugai et al., 2000). ODR data were entered by school personnel and extracted for analysis from the School-Wide Information System (SWIS; www.pbisapps.org), an ODR data system that allows schools to collect, summarize, and analyze student discipline data to inform decision making. When SWIS operational definitions and data entry procedures are used, their validity as an indicator of problem behavior is comparable to standardized behavior rating scales (Irvin et al., 2004; McIntosh et al., 2009).

***Risk differences.*** In this study, ODRs were aggregated to the school level and categorized by race (Black students vs. Other [i.e., non-Black] students) for both the 2018-2019 and 2019-2020 school years. Our primary metric was the Black-Other ODR risk difference. ODR risks are the proportion of students from a particular group (e.g., Black students) receiving 1 or more ODRs. ODR risk differences are computed by subtracting the ODR risk for a group of interest (i.e., Black students) from the ODR risk for a comparison group (i.e., non-Black students[1]). For example, if 30% of Black students and 10% of non-Black students had one or more ODRs in a year, the Black-Other ODR risk difference would be .30 - .10 = .20. We used this metric of discipline disproportionality because it directly measures disproportionality but is more stable than the risk ratio (Girvan et al., 2019).

***Rates.*** Because ODR risk differences do not provide information about the frequency of ODRs issued to students in the group of interest, we used the ODR rate for Black students as a

[1] We used Other students as the comparison group because it aligns with federal regulations, is rarely different from using White students but is more stable data for year-to-year comparisons (Girvan et al., 2019), and de-centers Whiteness as the "standard" for behavior in society.

secondary metric. The ODR rate is the total number of ODRs received by Black students divided by the number of Black students enrolled in the school. For example, if 70 ODRs were of Black students in a school with 100 Black students enrolled, the ODR rate for Black students would be 70 / 100 = .70 ODRs per student. Both ODR risk differences and ODR rates account for the size of student enrollment by race, which is useful for comparisons across or generalizing results to schools with very different enrollments.

***Raw differential representation.*** As a descriptive measure, we used raw differential representation, an estimate of the number of Black students who did not experience an ODR as a result of the intervention. Raw differential representation is a count of the number of students in a group of interest (e.g., Black students) who received one or more ODRs but who would not have if Black students had the same risk of ODRs as Other students (Girvan et al., 2019). Black-Other ODR raw differential representation can be calculated by multiplying the Black-Other ODR risk difference by the Black student enrollment. For example, if a school with a Black-Other ODR risk difference of .20 has 100 Black students enrolled, .20 x 100 = 20 Black students received one or more ODRs than would have if Black students had the same ODR risk as non-Black students. Here, we computed and compared the change in the total Black-Other ODR raw differential representations for the schools in the treatment and control schools from the 2018-19 to 2019-20 school year to assess practical intervention effects.

### *Social Validity*

The Primary Intervention Rating Scale (PIRS) is a 17-item unidimensional scale used to assess the social validity of school-wide interventions (Lane et al., 2009). The PIRS has established reliability and validity and has been used in multiple studies to assess aspects of social validity (e.g., Bastable, Meng, et al., in press). The PIRS uses a 6-point Likert-type

response scale, from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). It was administered to educators in treatment schools at the end of the intervention. The sample reliability of the PIRS was high ($\alpha = .98$).

***Fidelity of Training***

Fidelity of the training provided was assessed through a researcher-developed measure, completed through self-report and independent observation. The measure assesses 22 critical features of high-quality professional development delivery on a 3-point rating scale (0 = not implemented, 1 = partially implemented, 2 = fully implemented). The measure results in a percent of critical features observed per professional development session.

***Fidelity of Implementation***

Fidelity of school personnel implementation was assessed through two researcher-designed measures. Discrete teaching of lessons or strategies were assessed via each teacher's self-reported implementation of the lesson plans introduced in the professional development sessions through a lesson log. Classroom teachers initialed and reported the date when they completed the lesson with their students and provided supporting details about their implementation as a check for completion (e.g., most common student response, support that made implementation easier). Another measure of fidelity of implementation was an adapted version of the SWPBIS TFI Walkthrough Tool, a protocol to interview a random selection of at least 5 staff and 10 students about their knowledge, use, or receipt of PBIS practices (Algozzine et al., 2014). Teachers were asked to name and model the school-wide neutralizing routine and report whether they greeted students at the door that morning. Students were asked to name and model the school-wide neutralizing routine, report whether they were greeted at the door that morning, and report whether they were rewarded by teachers in ways they liked.

## Procedure

### *Recruitment and Assignment*

An employee of the school district approached the lead author after attending an equity session at a national conference and expressed interest in participating in the project. After receiving institutional review board approval, completing a memorandum of understanding with the school district, and obtaining written consent from all school principals, we randomly assigned schools to the treatment or control conditions in matched pairs based on their Black-Other ODR risk differences (the primary dependent variable) in 2018-2019. Treatment schools received professional development sessions for the whole staff and coaching for the school PBIS team throughout the 2019-2020 school year. The final professional development session was delivered in early March, before all schools in the district were closed in mid-March due to the COVID-19 pandemic. To make conditions comparable, waitlist schools received an equal number of hours of school-based professional development, focused on professional learning communities (DuFour & DuFour, 2013).

### *Intervention*

***Training.*** The first professional learning session was delivered to the school administrators and their PBIS teams together to provide an overview of the intervention and initial planning. The remaining sessions were delivered separately in each school to all school personnel (i.e., administrators, custodial teams, paraprofessionals, related service providers, and teachers). Each whole school session included active learning opportunities such as discussion, practice and feedback, and small group reflection. Table 2 provides the formal training schedule, participants, and agenda for the intervention year.

***Strategies.*** Although all schools received the same training sequence and instruction in

core ReACT strategies (e.g., Personal Matrix, Neutralizing Routine), each school team selected strategies based on their school's data patterns (e.g., VDPs, current strategies implemented). Each school selected strategies from a menu of (a) building positive relationships, (b) teaching desired behaviors, and (c) responding instructionally to unwanted behaviors (Bastable, Falcon, et al., in press). As an example of the school process, Table 3 provides details regarding the identification of vulnerable decision points and selection of intervention strategies for one of the treatment schools.

***Coaching.*** ReACT trainers also provided an average of 20 hours of coaching to each school team. The purpose of ReACT coaching was to meet with teams to analyze data discuss motivational barriers, and troubleshoot implementation. Coaching activities included attending PBIS team meetings, meeting one-on-one with school team leads, providing resources (e.g., diverse library lists, intervention examples), planning for strategy implementation (e.g., printing postcards, distributing lesson plans), and discussing modifications to strategies across grade levels (e.g., preschool through fifth grade).

***Planning for maintenance.*** The final professional development session focused on plans for maintaining implementation of ReACT strategies in the following year. School personnel were asked to rate each strategy as one they would keep, change, or discontinue. For the strategies they decided to continue, the school team created a plan for booster trainings and common schedules for implementation.

### *Fidelity of Training*

Fidelity of the training provided in the professional development sessions was assessed by trainer self-report, with exact, point-by-point interrater agreement calculated by an

independent observer. On average, trainers delivered sessions across school sites with 94% fidelity (*SD* = 5). Interrater agreement was high, with an average score of 92% (*SD* = 8).

### *Fidelity of Implementation*

Fidelity of school personnel implementation of each trained strategy was assessed via lesson logs completed by 98 (91%) of the 108 homeroom teachers. An average of 82% of teachers across all school sites initialed and dated when they taught lessons. In addition, a random sample of staff and students across the four treatment schools were interviewed through the walkthrough tool. Of staff interviewed, 80% could name and model their school-wide neutralizing routine, and 95% reported greeting their students at the door that morning. Additionally, 11% of students could name and model the school-wide neutralizing routine, 81% reported they were rewarded by teachers in ways they liked (a partial indicator of ReACT's social validity), and 63% reported being greeted at the door that morning. Interrater agreement for the walkthrough interviews was assessed with exact, point-by-point agreement calculated by an independent observer. Interrater agreement was high, with an average agreement of 94%.

## Data Analysis

For Research Questions 1 and 2, we specified a standard or mixed-model (multilevel) pre-post Time × Condition analyses of variance (Murray, 1998) to test for condition differences in Black-Other ODR risk differences and the rate of ODRs for Black students. This model compares net gains across the two years between the conditions and assumes that schools in each condition regress toward condition-specific means rather than a grand mean (Allison, 1990), which is useful for small samples in which randomization may not balance conditions (Freedman, 2008). We conducted analyses with SAS PROC MIXED version 9.2 (SAS Institute, 2016) using full-information maximum likelihood estimation.

To assess effects on ODR risk differences and rates, we reported *p* values, Hedges' *g* values with their 95% confidence intervals (CI), and model probabilities (Anderson, 2008) to characterize the strength of evidence for the alternative hypothesis of a difference between conditions when compared to the null hypothesis. Model probabilities, based on the AIC, express the probability of a specific model given a set of competing models and observed data (Burnham et al., 2011; Wagenmakers & Farrell, 2004). We defined a model for the alternative hypothesis of an intervention effect ($H_A$) and for the null hypothesis of no intervention effect ($H_0$). We reported the model probability, *w*, for $H_A$; with two models, the model probability for $H_0$ is 1 – *w*. A *w* of .75 suggests, for example, the model for $H_A$ has a 75% chance of being the better model given the data and the two models; equivalently, $H_A$ is three times as likely as the model for $H_0$. For Research Question 3, we assessed social validity descriptively through examining scale means.

## Results

The bottom portion of Table 1 presents ODR rates for all students, ODR risk ratios, ODR risk differences, and ODR rates for Black students across the study years. For Research Question 1 (risk differences), the Black-Other ODR risk difference in control schools remained relatively stable between school years (from 0.16 to 0.17). In treatment schools over the same two years, the risk differences decreased from 0.23 to 0.09. Figure 1 displays the mean differences. The conditions differed on change in ODR risk differences by a substantial margin, −0.16 [−0.28, −0.03], Hedges' $g = -1.47$ [−2.62, −0.33], $t_6 = -3.16$, $p = .0196$, $w = .64$. That is, the intervention appeared to reduce risk differences by about 1.5 standard deviations, and the model probability suggests that the hypothesis of an intervention effect, $H_A$, has a 64% chance of representing the underlying data-generating processes, compared to the model of no effect, $H_0$, at 36%.

For Research Question 2 (rates for Black students), the rate of ODRs for Black students in control schools remained relatively stable between the two years (from 0.72 to 0.69), but the rate decreased from 0.79 to 0.26 in treatment schools. Hence, the two conditions also differed largely in ODR rates for Black students, −0.50 [−0.91, −0.09], $g = -1.21$ [−2.22, −0.21], $t_6 = -2.95$, $p = .0256$, $w = .57$. Given the small sample, the likelihood of replicating the same effect size with a similarly small sample is about 57%, but the effect size suggests well over a standard deviation difference.

Descriptively, as a measure of the practical impact of the intervention, from the 2018-19 to 2019-20 school year, the total Black-Other ODR raw differential representation in treatment schools decreased by 86 students, whereas in the control schools it decreased by 7 students.

### Social Validity

To answer Research Question 3, treatment school personnel completed the PIRS measure at the conclusion of the final ReACT professional development session. Results from the PIRS were evaluated as a mean across all items. With a mean rating of 5.01 (SD = 0.72) and a mode of 5 on a scale of 1 to 6, participants' average response indicated they *agreed* with statements endorsing the acceptability, appropriateness, and fairness of ReACT.

## Discussion

Racial inequities in school discipline represent a long-identified problem in schools across the U.S. The purpose of this study was to examine the effects of a 1-year intervention to decrease educators' disproportionate use of exclusionary discipline. Participants received direct equity-focused professional development and coaching to assess their school discipline disparities and implement methods to counteract implicit bias and culturally relevant

instructional practices within a PBIS framework. Results showed statistically significant and clinically meaningful improvements in racial equity in school discipline.

Although racial inequities in ODRs remained stable for control schools, they decreased considerably for the treatment schools. The Black-Other ODR risk difference in control schools remained near the national median in both school years (approximately .16; Girvan et al., 2019), whereas in treatment schools, the Black-Other risk difference dropped from above the national median in the 2018-19 school year to approximately the bottom quartile of schools nationally in 2019-20 (Girvan et al., 2019). Such reductions in disproportionality can result from *reduced* rates of ODRs among Black students or *increased* rates of ODRs among other students. However, although the rates of ODRs issued to Black students remained stable for control schools, they decreased sharply for treatment schools, suggesting that the benefits of the intervention occurred through reductions in exclusionary discipline for Black students. Finally, we used Black-Other raw differential representation to assess the practical impact of the intervention (Girvan et al, 2019). This measure is an estimate of the raw number of Black students who received ODRs that would not have if Black students had the same risk of ODRs as other students. It is thus encouraging that, although the raw differential representation for control schools declined by just 7, it declined by 86 in the treatment schools, indicating that effects of the intervention were equivalent to approximately 80 fewer Black students experiencing disproportionate exclusionary discipline and associated impacts (e.g., lost instructional time). Finally, given the sensitive and difficult nature of discussing disproportionality and uncovering racial biases, is important to note that participants viewed the intervention as acceptable, feasible, and fair.

Although these findings are preliminary in nature and require replication, there are several unique contributions to the limited research base. First, significant, meaningful, and

robust decreases in disproportionate discipline were achieved within a relatively brief, 1-year professional development intervention. Whereas other studies have shown decreases in rates of exclusionary discipline for Black students (Bradshaw et al., 2018) but have not necessarily narrowed the discipline gap, the current findings point to significant decreases in actual racial disparities. Moreover, in addition to decreases in discipline disparities and the discipline rates for Black students, overall discipline rates decreased in treatment schools by half, from 0.22 per 100 students per day to 0.11 per 100 students per day. Although not directly related to disparities and thus not one of the primary metrics, this additional marker of school-wide improvement for treatment schools suggests the intervention had a positive effect for non-Black students as well.

Another unique contribution of this study is the application of a randomized controlled trial, which allows for a more rigorous examination, to the study of equity, as opposed to the case studies that are common in the literature. Randomized controlled trials with assignment to condition after consent are particularly challenging to conduct (e.g., obtaining district consent, withholding intervention from control schools, avoiding contamination) but yield important findings with fewer methodological limitations than quasi-experimental designs (Campbell & Walters, 2014), such as intervening in schools that are already motivated to improve equity. Finally, this initial randomized controlled trial adds to the promise for the effectiveness of ReACT by building an evidence base that now includes a case study, experimental single-case study, and quasi-experimental large-scale research study (Gion et al., 2020; McIntosh, Ellwood, et al., 2018; McIntosh et al., in press). Together, these studies present evidence of a potentially efficacious approach that includes using disaggregated data to identify and intervene in specific situations of potential bias, all embedded within a PBIS framework.

**Limitations and Future Research**

The primary limitation for this study was the small sample size, which can impact comparability of schools between conditions and thus the validity of the results. There are at least two reasons to believe that this did not affect the results seen here. First, to improve balance across conditions, we matched schools prior to random assignment on pre-intervention Black-Other ODR risk differences (Diehr et al., 1995). The comparability in levels of disproportionality between schools at baseline reduces the chance of selection effects such as administrators in the intervention condition being more committed to racial equity that those in the control condition and thus making changes on their own to reduce discipline disparities. Second, achieving improvements in discipline equity has, unfortunately, proved to be more difficult for schools than simply being aware of the problem or being motivated to address it (McIntosh et al., 2020). As such, it is unlikely that schools in the intervention condition made improvements on their own. These points provide support for the robustness of the results. Regardless of the evidence for significant and meaningful effects found here, however, much stronger conclusions could be drawn with a larger sample. In addition, it is important for future research to replicate the study in different schools, including secondary schools and in different regions of the U.S.

A second limitation is that, due to the current COVID-19 pandemic, the study did not include the entire 2019-2020 school year. However, all participating schools had the same number of school days in the year (i.e., all schools closed at the same time and did not issue ODRs to any students during closures), and so the comparison between conditions was unaffected. It is unclear how results may have varied, but it is not implausible that effects would have been stronger, given that the final session was delivered less than two weeks before the end of the school year.

A third limitation is the smaller-scale focus of intervention and measurement of effectiveness. ReACT is intended to be used to support a range of student groups, but this study focused on racial inequities for Black students because each school's data showed Black students received the most inequitable ODRs. As such, the promise of ReACT should be limited to supporting Black students until it can be tested with other marginalized groups. Further, the only outcomes assessed were ODRs. Future research should examine effects in other outcomes, including academic achievement, attendance, school climate, suspensions, and expulsions. Given the effects of exclusionary discipline on academic achievement and racial inequities in achievement in particular (Morris & Perry, 2016), it will be especially important to assess the promise of long-term effects of ReACT on academic achievement.

**Implications for Practice**

These results indicate the promise of a school-wide intervention that includes training on implicit and explicit forms of racial bias, intensive assessment of disaggregated discipline data, and tailoring intervention plans to address the specific situations that contribute most to disproportionality (i.e., VDPs). The tailoring feature of ReACT allowed school personnel to (a) identify specific targets for intervention, (b) select strategies most likely to address their needs, and (c) implement strategies within a school-wide approach that fit the school's culture (e.g., team-based implementation, using of existing data systems, fit with existing practices).

School-wide interventions have substantial benefits over interventions aimed to improve the practices of individual educators because all school personnel can receive the intervention, which increases consistency in the school environment for students. Such an approach also avoids stigmatizing individual teachers, who may not choose to participate in one-on-one equity coaching (Bastable, McIntosh, Falcon, et al., 2021). An important implication of this school-

wide approach is that like PBIS, equity-focused interventions can also be implemented with fidelity at the school level. Additionally, this intervention included personnel in the school-wide approach (e.g., librarian, nurse) who would not receive support from an individual educator or grade-level intervention.

The second important implication also borrows on PBIS implementation. That is, implementing interventions within multi-tiered systems of support such as PBIS has advantages over trying to implement stand-alone efforts. First, the intervention was embedded within existing PBIS systems, including teaming, data, and professional development structures that can be utilized for installing interventions and monitoring effects (McIntosh & Goodman, 2016). Second, implementation within ongoing multi-tiered systems of support can increase the sustainability of interventions (Good et al., 2011; Meng et al., 2016). The findings from the current study imply, likewise, that ongoing equity-focused intervention can have sustained effects. The third implication was that because the equity-focused intervention was aligned to PBIS, school personnel were able to adapt existing (or integrate new) PBIS practices to make them more culturally responsive or equitable, with relative efficiency, rather than implementing standalone equity programs. Relatedly, implementing within the PBIS framework allows for integration of ReACT strategies with other initiatives. For example, instead of adopting a new neutralizing routine, school teams could use an existing self-regulation strategy from a social-emotional learning program they are implementing (Santiago-Rosario & McIntosh, in press).

In addition to gleaning important practical implications from this work, the social validity findings point to potentially effective methods to support educators in engaging in discussions about race, racism, and discrimination, which are likely to be avoided in school and society as a whole (Hetey & Eberhardt, 2014). Although at times discomforting for some educators, it was

important to learn that the intervention can both increase awareness of hidden biases and provide educators with concrete strategies to improve inequities in school discipline. Although additional research is needed, these findings provide further evidence that ReACT is an effective and acceptable approach for reducing stubborn racial discipline disparities in elementary schools. Given widespread patterns of racial inequities in schools today, it is encouraging to have evidence that they can be reduced.

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Table 1

*Descriptive Statistics (and ranges) for Schools by Condition*

| | *Treatment Schools (n = 4)* | *Control Schools (n = 4)* |
|---|---|---|
| ***School Characteristics*** | | |
| *Enrollment* | 511 (420 - 603) | 448 (260 - 634) |
| *% Black* | 28% (12 - 48%) | 31% (6 - 65%) |
| *% Hispanic/Latinx* | 44.5% (16 - 57%) | 24% (20 - 55%) |
| *% Economically Disadvantaged* | 65% (56 - 69%) | 55.3% (44 - 71%) |
| *% Students w/ Disabilities* | 11.5% (7 - 19%) | 11.5% (9 - 14%) |
| *% English Language Learners* | 37.5% (17 - 49%) | 20.3% (14 - 29%) |
| *% PBIS Fidelity of Implementation* | 80.8% (73 - 90%) | 85.8% (67 - 100%) |
| ***Office Discipline Referral Data*** | | |
| *Pre-intervention Year (2018-19)* | | |
| *ODRs/100 Students/School Day* | 0.22 (0.09 - 0.36) | 0.24 (0.04 - 0.34) |
| *Black-Other ODR Risk Ratio* | 3.74 (2.96 - 5.11) | 3.19 (1.67 - 5.33) |
| *Black-Other ODR Risk Difference* | 0.23 (0.09 - 0.37) | 0.16 (0.1 - 0.23) |
| *ODR Rates per Black Student* | 0.79 (0.3 - 1.06) | 0.72 (0.43 - 1.01) |
| *Intervention Year (2019-20)* | | |
| *ODRs/100 Students/School Day* | 0.11 (0.05 - 0.16) | 0.24 (0.05 - 0.42) |
| *Black-Other ODR Risk Ratio* | 2.30 (1 - 3.67) | 3.38 (1.91 - 6) |

| | | |
|---|---|---|
| *Black-Other ODR Risk Difference* | 0.09 (0 - 0.16) | 0.17 (0.04 - 0.34) |
| *ODR Rates per Black Student* | 0.26 (0.05 - 0.36) | 0.69 (0.1 - 1.42) |

*Note. PBIS Fidelity of Implementation measured by the SWPBIS Tiered Fidelity Inventory (TFI) Tier 1 scale.*

Table 2

*Professional Development Scope and Sequence*

| Session | Month | Participants | Length | Content |
|---|---|---|---|---|
| 1 | June | • School Teams | • Full day (6 hrs.) | • District administrator introduction indicating district leadership commitment<br>• Implicit bias and vulnerable decision points (VDPs)<br>• Analysis of data on racial equity in school discipline and equity goal setting<br>• Identification of school-level VDPs<br>• Selection of culturally responsive strategies |
| 2 | July | • School Faculty and Staff | • Full day (6 hrs.) | • School administrator introduction indicating school leadership commitment<br>• Implicit bias and VDPs<br>• Presentation of data on racial equity in school discipline by school team<br>• Identification of school-level VDPs<br>• Overview of culturally responsive school-wide and classroom strategies<br>• Initial culturally responsive strategies training |
| 3 | September | • School Faculty and Staff | • Half day (2.5 hrs.) | • Review of data on racial equity in school discipline<br>• Strategy reflection and peer testimonials<br>• Introduction to Personal Matrix strategy (self-completion) |
| 4 | October | • School Faculty and Staff | • Half day (2.5 hrs.) | • Review of data on racial equity in school discipline<br>• Strategy reflection and peer testimonials<br>• Review of student Personal Matrix results |
| 5 | January | • School Faculty and Staff | • Full day (6 hrs.) | • Review of data on racial equity in school discipline<br>• Strategy reflection and peer testimonials<br>• Strategies for increasing positive student-teacher interactions and building relationships |

| | | | | |
|---|---|---|---|---|
| 6 | March | • School Faculty and Staff | • Half day (2.5 hrs.) | • Review of data on racial equity in school discipline<br>• Strategy reflection, testimonials, and fidelity follow-up<br>• Strategies for responding instructionally to unwanted behaviors<br>• Strategy maintenance planning |

Table 3

*ReACT Intervention Plan Development for One Treatment School*

| Step | Guiding Question | Outcome |
|---|---|---|
| 1. Problem Identification | • "Is there an equity problem?" | **Group of Concern**<br>• In 2018-19, Black students were the group most at risk for ODRs (Black-Other ODR Risk Difference = 0.26). |
| 2. Problem Analysis | • "Why is it happening?" | **School-level Vulnerable Decision Point**<br>• Black students were most likely to receive ODRs for Physical Aggression in Classrooms during Early Afternoon in 5th Grade. |
| 3. Plan Implementation | • "What should be done?" | **Intervention Strategy Package**<br>• Prevention Strategies<br>  ○ Increase positive interactions through: (a) positive greetings at the door, (b) positive family contacts, (c) praise preference assessments<br>  ○ Environmental redesign through: (a) changing routine for return to classroom after lunch, (b) active supervision in hallways at end of lunch<br>• Teaching Strategies<br>  ○ Adapt classroom systems through the Personal Matrix activity<br>  ○ Teach, practice, and reinforce a school-wide neutralizing routine ("Take 5") for students to use when upset<br>• Responding Strategies<br>  ○ Use neutralizing routine ("Take 5") when responding to student unwanted behavior |
| 4. Plan Evaluation | • "Is the plan working?" | **Progress Monitoring**<br>• In 2019-20, the Black-Other ODR Risk Difference decreased from 0.26 to 0.12 |

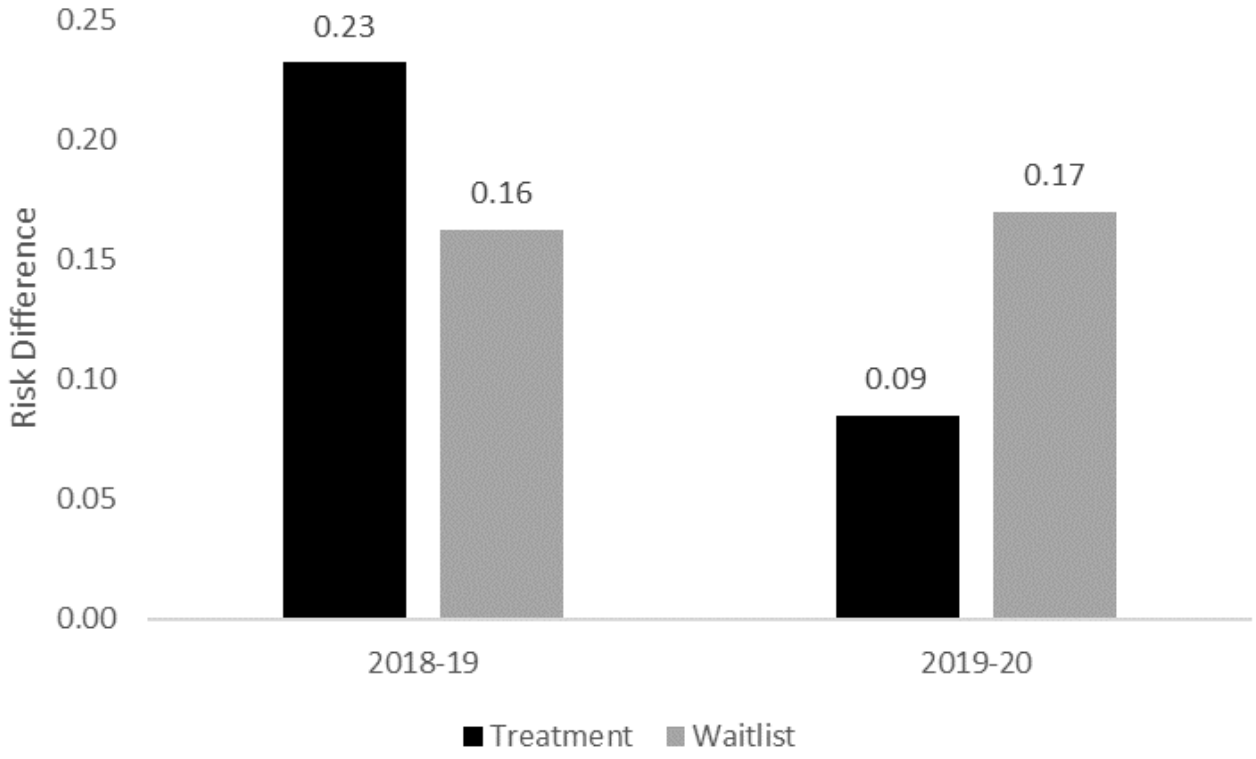


Figure 1. *Change in Black-Other Office Discipline Referral Risk Difference by Condition*