Journal of School Psychology 102 (2024) 101259

Contents lists available at ScienceDirect

Journal of School Psychology

journal homepage: www.elsevier.com/locate/jschpsyc

National patterns of vulnerable decision points in school discipline

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ARTICLE INFO

Editor: Craig A. Albers
Action Editor: Tai Collins

Keywords:
Behavior
Disproportionality
Racial disparities
Team
Problem solving
Data-based decision making
School discipline
Office discipline referrals
Implicit Bias
Exclusion
Descriptive

ABSTRACT

In this study, we identified the specific discipline decision situations (i.e., vulnerable decision points [VDPs]) that contribute most to racial discipline disparities from a sample of 2020 schools across the United States. We also examined how much VDPs contributed to overall discipline disparities and the extent to which there was similarity among the strongest VDPs within each school. Last, we directly compared the VDP that contributed most to disparities in each school to situations with the highest rates of office discipline referrals (ODRs) to identify the extent of agreement with overall school discipline patterns. We found the most common VDPs within schools to be subjective behaviors (e.g., defiance, disruption) in classrooms throughout the day, with ODRs for physical aggression contributing notably to disparities among the top 10 VDPs. The strongest single VDP accounted for an average of 17% of racial disparities across the school and the top three VDPs accounted for 37% of disparities. The strongest three VDPs within schools also were remarkably consistent across behavior and location. Finally, there was moderate agreement between situations with the most ODRs and those with the strongest racial disparities, with 63% of schools in the sample having VDPs identical to their situations with most ODRs. In the absence of prescriptive analysis of their own school data, the results of this study provide school leaders and intervention researchers with more precise, promising targets for intervention to increase educational equity.

Disproportionate use of exclusionary school discipline for students of color remains one of the most important and persistent challenges facing educators in the United States. Black students have the greatest likelihood of disparities in office discipline referrals (ODRs; U.S. Department of Education Office for Civil Rights, 2021; Welch et al., 2022), leaving them more prone to the negative outcomes associated with exclusionary discipline, including loss of instructional time, high school dropout, and justice system involvement (Davison et al., 2022; Skiba, Arredondo, & Williams, 2014). Unfortunately, these racial disparities, a phenomenon attributed to racial bias affecting decision-making (Girvan et al., 2021; Okonofua, Walton, & Eberhardt, 2016), have been resistant to intervention (Cruz et al., 2021). However, recent evidence suggests that interventions can be successful if they specifically target the circumstances in which racial disparities are most likely to occur (McIntosh et al., 2018; McIntosh, Girvan, Falcon, et al., 2021; McIntosh, Girvan, McDaniel, et al., 2021). Building on these findings, in the present study we examined the precise contexts in which the greatest disparities occur within individual schools. Furthermore, we also examined (a) what proportion of racial disparities can be accounted for by only a few situations, (b) the similarity of these situations within schools, and (c) the overlap between these situations with greatest disparities and situations with greatest number of referrals.

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https://doi.org/10.1016/j.jsp.2023.101259
Received 23 August 2022; Received in revised form 28 March 2023; Accepted 26 October 2023
Available online 20 November 2023

1.1. School discipline in the United States

The use of exclusionary discipline as a remedy for unwanted behavior is a common practice in schools across the United States. Examples of exclusionary discipline include ODRs, suspensions (in- or out-of-school), and expulsions. ODRs are ubiquitous in school data collection and are used to document both student behavior that warranted a student being sent from the classroom to the office and staff responses to that behavior (Irvin et al., 2006). In a typical ODR, a teacher sends a student to the office, where the administrator decides additional consequences. An ODR, prior to any further action, removes a student from the classroom for an estimated average of 45 min (Scott & Barrett, 2004). This interaction in the office, depending on circumstances, can lead to further, more severe exclusion from school. Suspensions are a harsher consequence than ODRs, wherein students are disallowed from their assigned classroom (i.e., in-school suspension) or from the school as a whole (i.e., out-of-school suspension) for at least half of a school day. Approximately 2.5 million students were suspended in the 2018–19 school year with out-of-school suspensions alone resulting in 11 million lost days of instruction that year (Ryberg et al., 2021). For a student who is suspended, this can mean multiple days or even weeks barred from school. These high counts per annum suggest that exclusion remains a regular part of the school discipline routine across the U.S.

Research has documented that contrary to educator intent, suspending a student does not prevent unwanted behavior in schools (American Academy of Pediatrics Council on School Health, 2013). Students who are suspended early in the school year are much more likely to receive another suspension later in the year (Massar et al., 2015); furthermore, implementing strict policies of exclusion leads to increased frequency and intensity of unwanted behavior (Sugai & Horner, 2002). There is also evidence that suspension does not benefit the school as higher use of suspension is correlated with more negative perceptions of school climate (Huang & Cornell, 2018; Skiba et al., 2008). Despite its ineffectiveness and the recommendations of professional organizations to change practice to more inclusive, instructional alternatives, exclusion is exceedingly common in school district policies (Green et al., 2021).

Beyond their ineffectiveness, exclusionary discipline practices have tangible deleterious consequences for students. Longitudinal studies find that students who receive suspension in school are more likely to have lower academic outcomes, drop out of high school, and become involved in the juvenile justice system (Cholewa et al., 2018; Schollenberger, 2015; Skiba, Arredondo, & Williams, 2014). In an analysis of post-secondary outcomes, Davison et al. (2022) found that students who were suspended were more than twice as likely to be charged with and convicted of a crime, were less likely to attend or graduate from college by age 23 years, and earned less in wages at age 27 years.

One method of problem solving to reduce the use of exclusions is to focus on the specific contexts that account for ODRs. To do so, teams often identify the specific circumstances (e.g., location, student behavior, time of day) associated with the highest rates of ODRs in the school, sometimes described as Precise Problem Statements (PPSs; Horner et al., 2018). PPSs are usually produced by examining ODR data and drilling down to find the specific contexts in which ODRs are occurring. First, a team might identify the location with the most ODRs, then identify the behaviors in that location that account for the most ODRs, and from there identify the time of day that accounts for the most ODRs for that behavior in that location. A team might follow this progression to additional contexts (e.g., grade level, days of the week) until they have sufficient detail to develop a meaningful, targeted plan to reduce ODRs. For example, by analyzing the school's data, a team might identify that ODRs are most common in the cafeteria (i.e., where), for defiance (i.e., what), at noon (i.e., when), on Thursdays and Fridays (i.e., what days), among 4th grade boys (i.e., who). With a precise operational definition of the most common circumstances for ODRs, school teams create action plans with tailored strategies targeting those narrow circumstances, and in such a case, reach out to a grade-level team to further problem solve the issue. Compared to more general statements about discipline patterns (e.g., there are many more referrals this month), this level of detail can inform additional points of inquiry and result in a more refined and matched strategy to address concerns and reduce the number of ODRs.

1.2. Racial disparities in exclusion

In a trend that dates back decades (Children's Defense Fund, 1975; Gregory et al., 2010), students with marginalized identities are disproportionately removed from classrooms and schools compared to their peers. The most prominent of these disparities occurs with Black or African American (hereafter referred to as Black) students, who are referred to the office and suspended at rates 2–3 times higher than expected based on their enrollment (U.S. Department of Education Office for Civil Rights, 2021; Welch et al., 2022). These disparities are also evident in ODRs (Girvan et al., 2017, 2021), which are the most common form of exclusion in schools. Disparities for Black students are consistent and robust, holding across gender and grade levels, as early as preschool (Girvan et al., 2021). Disparities have frequently been found to be most disparate in secondary settings (Welsh & Little, 2018), but there is evidence that Black preschool students are excluded at notably higher rates than older students (Steinberg & Lacoe, 2017).

A factor likely contributing to the difficulty of eliminating racial disparities is the tendency to center the problem solely within students instead of understanding the context. For instance, a common misunderstanding is that although racial disparities are present, the disparities themselves can be attributed to student-level factors, such as higher rates of poverty or differences in base rates of behavior. The available literature does not support this as research has been consistent in illustrating that these disparities persist regardless of student or event-specific variables. For instance, multiple studies have shown Black students receive disproportionate exclusionary discipline even after controlling for factors such as student behavior, prior unwanted behavior, socioeconomic status, gender, caregiver status (single vs. multiple caregivers), and using different methods of measurement (Fadus et al., 2021; Girvan et al., 2017; Huang, 2020; Huang & Cornell, 2017; Skiba et al., 2002; Skiba, Chung, et al., 2014; Welch et al., 2022; Welsh & Little, 2018). More recent research has identified that these disparities persist within incidents. Even after controlling for number of discipline incidents each student received prior, Black students were more likely to be suspended and to be suspended for longer compared to

White students engaged in the same discipline incident (Shi & Zhu, 2022). What can be said of the complexity of racial disparities is that schools are systems with multiple levels of decision-making that influence student outcomes. Decisions made by parents, teachers, principals, district leaders and boards, and state leadership all shape education in the classroom to varying degrees. Along those same lines, discipline disparities are associated with variables at the student, classroom, school, and community levels (Girvan et al., 2021; Welsh & Little, 2018). This complexity, combined with its devastating consequences and political thorniness, has made the problem challenging to remedy.

Compounding the effects of disproportionate referral and suspension, research indicates that suspension has worse consequences for Black students than other groups. Black young adults who received a suspension in high school experienced the largest disparities in criminal justice involvement, incarceration rate, income, and poverty outcomes compared to other students from other racial/ethnic groups who had received a suspension (Davison et al., 2022). Research has suggested a notable proportion of the gap in incarceration rates between Black and White adults can be accounted for by the gap in exclusionary discipline (Barnes & Motz, 2018; Davison et al., 2022; Welch et al., 2022). Davison et al. (2022) found that 30% of the disparities observed between Black and White criminal justice outcomes could be accounted for by observed disparities in suspensions. The serious impact of exclusionary discipline, in particular for Black students, demonstrates the urgent need to reduce its use.

1.3. Racial bias as a potential cause of disparities

An alternative explanation of discipline disproportionality in schools is that the main driver in disparities is racial bias. People living in the United States are exposed to a legacy of negative and harmful racial stereotypes, and schools are far from the only institution affected. Institutional racism is a reality that negatively affects several groups, particularly people of color, in the United States when it comes to important opportunities such as housing (Pager & Shepherd, 2008), employment, credit, and education. The racial bias thought to be affecting school discipline is specifically anti-Black bias, wherein students identified as Black are perceived more negatively (Okonofua, Walton, & Eberhardt, 2016). Bias has been conceptualized to be present in both explicit and implicit forms (Evans & Stanovich, 2013; Smith & DeCoster, 2000). Explicit biases are composed of conscious beliefs and attitudes that a person communicates to others, whereas implicit biases are tendencies or beliefs that are below conscious awareness but may influence observable behaviors (Greenwald & Pettigrew, 2014).

Research shows that teachers are not immune to these biases; implicit bias manifests itself in teachers of all backgrounds (Okonofua & Eberhardt, 2015) and at levels similar to those of the general population (Starck et al., 2020). Implicit bias among decision-makers is thought to be a relevant predictor of disparities (McIntosh et al., 2014; Skiba et al., 2002) and is theorized to initiate and perpetuate a coercive cycle of negative interactions that ultimately shape teacher-student relationships (Okonofua, Walton, & Eberhardt, 2016). In Girvan et al. (2021), the strength of community-level implicit racial bias was significantly associated with racial disparities in ODRs and suspensions in local schools. Furthermore, the relation between community-level bias and inequities in out-of-school suspension was no longer significant when accounting for the relation between bias and ODRs. In other words, implicit bias was most influential at the ODR level and teacher decisions to issue an ODR were more tied to bias than the subsequent decision to suspend (see also Chin et al., 2020; Gullo & Beachum, 2020; Riddle & Sinclair, 2019).

In what situations these decisions manifest for students based on race is not firmly established in research. With behavioral errors occurring at the same rates across student groups (Huang & Cornell, 2017) and subjective behavior (e.g., those labeled as defiance, disruption) accounting for most disparities in ODRs (Girvan et al., 2017), a reasonable conclusion is that behavior of Black students, more often than that of other students, is consistently and discriminatively perceived as crossing a discretionary line of what can and should be managed in the classroom. Differential and racially discriminatory discipline have been demonstrated even in identical circumstances where Black and non-Black students are involved in the same incident (Liu et al., 2022; Shi & Zhu, 2022). Although this may not necessarily be indicative of intent, it means that in similar circumstances, a Black student refusing to work on an assignment is sent to the office but a non-Black student demonstrating similar behavior is permitted to stay.

The influence of bias on discipline decisions is still the subject of recent research. Implicit racial bias may affect these decisions through increased scrutiny of Black students (Gilliam et al., 2016), whereby teachers respond to Black student behavior more because they more closely monitor Black students' behavior compared to other students. Racial bias may affect teachers' perceptions of Black students; one study found that teachers reported feeling anger far more often when reading about an unwanted behavior from a Black student as compared to a White student (Legette et al., 2023). This may lead them to view Black students as more culpable in behavioral errors than other students, and thereafter to beliefs that more exclusionary discipline is warranted (Okonofua, Walton, & Eberhardt, 2016).

Both explicit and implicit bias are harmful, if not outright dangerous to those affected, but their effects on students can be mitigated in different ways. McIntosh et al. (2014) theorized that explicit racial bias can be mitigated through policy changes that include accountability, such as one that requires evaluation of educators based on observed racial discipline disparities. In contrast, the authors posited that school practices are the most promising means of countering implicit bias, although some practices may be more effective than others, depending on the specific context.

Dual-processing cognitive models are often used to explain decision-making at unconscious and conscious levels, articulating that decisions that must be made in the moment are more likely to be influenced by unconscious bias than ones in which a teacher can consider the circumstance and possible consequences to make a thoughtful decision (Girvan et al., 2021). In recent years, studies have found that racial disparities in ODRs issued to Black students are largely composed of ODRs for behaviors that tend to be more subjective (e.g., defiance, disruption; Girvan et al., 2017; Skiba et al., 2002). This pattern implicates the influence of racial bias in teacher discipline decision-making (McIntosh et al., 2014). Specific situations in which racial bias is most likely to influence discipline

decisions are referred to as vulnerable decision points (VDPs; McIntosh et al., 2014). VDPs are situations that involve a greater degree of uncertainty or discretion and could be linked to internal states of the decision-maker (e.g., fatigue, hunger) as well, but in all cases are theorized to rely on unconscious cognitive processing. For example, teachers may be more likely to issue ODRs to Black students for defiance in the middle of a lesson in the classroom (when they are multitasking and need to respond quickly) or in the afternoons (when fatigue may affect decisions). In contrast, teachers may make more equitable decisions for attendance-related referrals (which are issued before or after a lesson and are less subjective).

The VDP model challenges common understandings of disproportionality that consider racial bias as the sole predictor of discipline disparities. Instead, the VDP model asserts that racial bias is more influential in specific decision situations and that it can be mitigated through strategies that assist teachers in making more equitable discipline decisions. The primary innovation of the VDP framework is that even in schools with higher rates of overall racial discipline disparities, there will be situations in which disproportionality is not evident and others in which it is acute.

Although a relatively new concept, recent research has identified points of inequity that are consistent with the VDP model. In a national study in elementary schools, Black students were found to be more often referred for subjective infractions, in classrooms, in the beginning of the day, and for infractions classified as more severe (Smolkowski et al., 2016). The VDP characteristics identified in this study likely overlap with actual common VDPs within schools, but Smolkowski et al. aggregated referral data to the national level, which did not identify patterns specific to any particular school.

This understanding changes the focus of intervention from racial bias itself to creating awareness of these possible VDPs and planning to use more intentional strategies in those situations. At the school level, measuring and tracking racial discipline disparities in these specific contexts also provides school teams with situations for which it may be more efficient to develop, implement, and monitor results of strategies. Furthermore, training of teachers about personal VDPs may provide an important opportunity for teachers to reflect and better plan responses to situations that are habitually handled inequitably; this approach empowers educators to take concrete, actionable steps to neutralize the effect of their racial biases on school discipline decisions. For example, teachers identifying that they are typically more likely to issue an ODR in the afternoon when students are talking loudly during instruction might identify a neutralizing routine to use in that situation that interrupts a quick reaction in favor of pausing, taking a breath, and choosing a more instructive approach to support the student (McIntosh et al., 2014).

1.4. Evidence supporting school-level intervention using the VDP model

Problem-solving racial disparities in schools can leverage a similar data-based approach to routine problem-solving around reducing frequency of ODRs. Identifying VDPs is a similar process with similar gains in efficiency to that of the previously mentioned PSSs, except that teams seek the situations that have the greatest racial/ethnic inequities in ODRs, not simply the most ODRs.

Using an equity lens to inform data-based decision making has been effective in reducing disparities in multiple studies. In a case study evaluating the use of a four-step problem-solving model in a school, the school successfully reduced racial discipline disparities by identifying VDPs, analyzing them, implementing an action plan, and reviewing data to evaluate progress (McIntosh et al., 2018). A more comprehensive intervention focused on schoolwide VDPs (ReACT; McIntosh, Girvan, Falcon, et al., 2021) was shown to be effective in significantly reducing discipline disparities as well. ReACT, which stands for *Racial equity through Assessing data for vulnerable decision points, Culturally responsive behavior strategies, and Teaching about implicit bias and how to neutralize it*, is an equity-focused, school-wide positive behavior support intervention approach that includes school-level professional development sessions focused on identifying and action planning based on VDPs using local (i.e., school) ODR data. School-specific, tailored intervention plans based directly on VDPs were designed and implemented, significantly reducing teachers use of ODRs with Black students (McIntosh, Girvan, Falcon, et al., 2021). For example, one school team identified a schoolwide VDP for teachers of Black students wherein fifth grade Black students received ODRs in classrooms in the early afternoon for physical aggression. With this detailed information, the school team was able to create a specific set of strategies to reduce occurrence of ODRs for that VDP, including redesigning transition routines from lunch to increase positive student-teacher interactions, increasing supervision in hallways at the same time, and implementing neutralizing routines for teachers when responding to student behavioral errors. Although this intervention was effective, it required the school to have a data system allowing the precise disaggregation of discipline data and a trainer with expertise in identifying VDPs.

1.5. Research gaps

Although there is an emerging empirical basis for the use of VDPs in equity-focused intervention, there are several knowledge gaps around how they present within schools. First, although research on VDPs has identified general circumstances in which racial discipline disparities are likely to occur (Smolkowski et al., 2016), these data were aggregated across schools and may not have reflected the VDP of any one school or set of schools in particular. For example, it is unclear to what extent the most common national-level VDPs in previous research are consistent with the most common VDPs within individual schools. Second, although racial disparities have been found to be more likely in certain circumstances than others, research has yet to explore the proportion of a school's disparities that can be accounted for by specific VDPs. Third, problem-solving around a PPS is an increasingly common practice, but research has yet to explore to the extent to which these common targets for problem-solving are the same or similar to the situations contributing most to racial disparities in schools.

1.6. The present study

In the absence of analysis of their own school discipline data, identifying the situations in which racial inequities in school discipline are most likely (i.e., VDPs) will provide school leaders and intervention researchers with promising targets for intervention. Although VDPs are likely present for multiple racial/ethnic groups, the present study focused on racial discipline disparities for Black students as compared to all other students, which is the most common pattern of discipline disparities (Welsh & Little, 2018). Because not all schools have a skilled data analyst or sophisticated data systems to identify where Black students are being disproportionately referred, using nationally representative data to identify common VDPs could be helpful to educators in these schools to eliminate racial disparities. The purpose of this study was to identify a set of empirically derived VDPs for Black students, as compared to all other students, to inform educators' efficient and effective use of resources for reducing VDPs. To do so, we sought to answer the following research questions:

1. Which ODR fields (i.e., which locations, time periods, behaviors, and grades) have the greatest racial discipline disparities?
2. To what extent do schools' strongest VDPs explain overall racial discipline disparities?
3. To what extent are the strongest VDPs within the same schools consistent across location, behavior, and time of day?
4. To what extent are VDPs similar to PPSs within the same schools?

2. Method

2.1. Participants

We conducted this study with the use of an IRB-approved data repository at the University of Oregon. We obtained the dataset through a formal data request submitted and approved through the Educational and Community Supports research unit at the University of Oregon. The data were collected using the School-Wide Information System (SWIS; May et al., 2013), which collects reported discipline data from schools, including ODRs, using an online software. The sample for this study included 2020 schools from a larger set of 5658 schools in the 2018–19 academic year. Schools in the larger sample have been shown to be representative of the general population of U.S. schools (Girvan et al., 2021). Due to this study's focus on racial disparities in ODRs issued to Black students, several inclusion criteria were used to select only the most relevant schools for the sample. First, to ensure that disproportionate discipline for Black students was present, we retained a school for the sample only if it had a Black-All Other school-level ODR risk ratio (i.e., a measure of relative risk calculated by dividing the risk index for Black students by the risk index for all other students; see Measures section and Girvan et al., 2019, for more details) of >1.25 (a common regulatory standard for disproportionality from the U.S. Equal Employment Opportunity Commission). This inclusion criterion reduced the sample by over half (3524 schools). We restricted the sample further to include only schools with enough Black and non-Black students for measures to be stable (i.e., 10 or more students in each group; Girvan et al., 2017; Smolkowski et al., 2016) resulting in 2638 remaining schools, and then filtered for similar reasons to include only schools with at least 10 ODRs issued to each group, resulting in 2196 schools remaining. Last, to ensure meaningful within-school analysis, we only included schools with 0.1 or higher Incident per Student Difference (IPSD; calculated by subtracting the incidents per student for all other students from the incidents per student difference for Black students; see Measures section for more details). This resulted in a final sample of 2020 schools from 637 districts in 43 states in which Black students reliably experienced discipline at a higher rate than other students. Table 1 provides the descriptive statistics for this sample of schools with substantial racial disparities.

Table 1
Sample School Characteristics.

Characteristic	Mean or Percentage
Mean Enrollment	693 (*SD* = 427, Range = 75–3759)
Mean Black Enrollment	137 (*SD* = 169, Range = 10–1520)
Percent Black Enrollment	21% (*SD* = 20%, Range = 1%–97%)
School Type	
Elementary	62%
Middle	23%
High	12%
Other	3%
Locale	
Urban	28%
Suburban	45%
Town	10%
Rural	13%
Title 1 Eligible	74%
Mean Black-All Other Risk Ratio	2.72 (*SD* = 1.36, Min = 1.25, Max = 21.66)
Mean Black All-Other IPSD	1.09 (*SD* = 1.49, Min = 0.10, Max = 35.80)

2.2. Measures

2.2.1. Office discipline referrals (ODRs)

ODRs are standardized data forms used to collect information regarding incidents of perceived behavioral errors (Sugai et al., 2000). When the process and behaviors are operationally defined (as is required for the use of SWIS), ODRs are valid indicators of staff perception of student behavior (Irvin et al., 2004; McIntosh et al., 2009). Inherent in all ODRs is the requirement of staff judgment based on perception of a student's behavior as incongruent with school rules. Although an imperfect measurement of observable student behavior (due to the reasons explained earlier concerning bias affecting evaluation), ODRs can be a useful tool for monitoring and problem-solving to reduce use of exclusion (Horner et al., 2018). ODRs capture multiple dimensions of perceived infractions, including a behavior category (e.g., defiance, tardy, disruption), location (e.g., classroom, hallway, bathroom), time of day, day of the week, and date. To make analysis more interpretable, we aggregated time and date into larger subsets of time. Time of day was aggregated into five time periods consisting of (a) the start of day (before 9 am), (b) morning instruction (9–11 am), (c) midday (11 am–1 pm), (d) afternoon instruction (1–3 pm), and (e) end of day (later than 3 pm). The date was aggregated into seasons (i.e., fall, winter, spring, summer).

2.2.2. Incidents per student

We calculated overall discipline rates at the school level and accounted for student enrollment in each building. Specifically, the number of ODRs for a building were divided by the number of students enrolled to yield the number of Incidents per Student (IPS). For example, a school with an enrollment of 1000 students and a total of 100 ODRs would have 0.1 IPS. IPSs have been used in multiple studies for comparing use of ODRs across schools (Carrell & Carrell, 2006; McDaniel & Bloomfield, 2020; Nishioka et al., 2020) and were used in this study as a measure of ODR rate in buildings as a whole and across various discipline decision situations. The discipline decision situation with the highest overall IPS within a given building is referred to as the strongest PPS.

2.2.3. Incidents per student difference

We measured discipline disparities at the school level using Incidents-per-Student Difference (IPSD). IPSDs are akin to Risk Differences but are focused on incidents rather than students (Girvan et al., 2019). For this metric, disparity is defined as the rate of ODRs issued to students from the target group (e.g., Black students) minus the rate issued to students in a reference group (e.g., all other [i.e., non-Black] students; see Eq. 1 below). An IPSD of zero indicates no difference in IPS between groups, a positive value indicates that Black students were relatively over-referred compared to all other students, and a negative value would indicate that Black students were under-referred. For example, if school with 200 Black students and 400 other students had 100 ODRs received by Black students and 100 ODRs received by other students, the resulting IPS for Black students would be $100/200 = 0.5$ and for other students would be $100/400 = 0.25$. The IPSD for this school would then be $0.5–0.25 = 0.25$. To describe this difference, one would say that Black students received 0.25 more referrals per student than all other students. IPSDs were calculated for entire schools and across various discipline decision situations. In addition, the percent of IPSD accounted for by individual discipline decisions situation were used to identify the relative impact of a given situation of the school's overall racial discipline disparities. The discipline decision situation within a school with the highest IPSD, or, equivalently, the situation in which the IPSD accounts for the largest percent of the IPSD for the school, is referred to as the strongest VDP.

$$\text{IPSD} = \left(\frac{\#\text{of Discipline Incidents for Black Students}}{\text{Total}\#\text{of Black Students}}\right) - \left(\frac{\#\text{of Discipline Incidents for All Other Students}}{\text{Total}\#\text{of All Other Students}}\right) \quad (1)$$

2.3. Analytic plan

To analyze Research Questions 1 and 2, we calculated IPSDs across discipline decision situations to identify the VDPs that contributed most to racial discipline disparities in each school. We used code to calculate each school's IPS for Black students and All Other students, and the IPSD (a) for the school (IPSD_s), (b) across individual ODR fields within the school, and (c) across all possible three-field ODR discipline decision situations. In addition, we calculated the percent of each school's IPSD ($\%\text{IPSD}_s$) accounted for by each situation. We limited the situations considered in calculation of IPSDs for this study to three fields: location, time of day, and student behavior. An example of a three-field VDP or PPS would be *disruption* (i.e., behavior) in the *classroom* (i.e., location) during the *afternoon* (i.e., time of day). For examining disparities, IPS was calculated for Black students and all other students separately by filtering referrals for each group into separate datasets. After that, these datasets were combined and IPSDs across each decision situation were calculated.

After we calculated IPSDs, we compiled a list of decision situations accounting for the school's greatest percentage of racial discipline disparities and sorted them based on frequency, placing the most common VDPs at the top of each list. The $\%\text{IPSD}_s$, or percent of school-level disparities accounted for by the VDP, was listed for each one. For the single-field analysis, we compiled similar lists for each ODR field in isolation including behavior, location, time period, perceived motivation, season, and student grade. We completed analysis for student grade separately by school grade levels served (e.g., elementary, middle, high), yielding five lists. We analyzed the school building grade compositions that contained >40 schools, resulting in three elementary school types, including Kindergarten through Grade 5 (K–5), Kindergarten through Grade 6 (K–6), and Pre-Kindergarten through Grade 5 (PK–5); one middle school type (Grades 6–8); and one high school type (Grades 9–12). In addition, for Research Question 2, to understand how a range of strongest VDPs contributed to racial disparities within schools, we identified the strongest 10 VDPs for each school. We also calculated

Table 2
Individual ODR Fields Ranked by Prevalence.

Rank	ODR Field	% with VDP	%IPSD$_s$
	Behavior		
1	Physical Aggression	37.28	46.4
2	Defiance	28.56	41.4
3	Disruption	10.45	37.1
4	Fighting	5.05	39.0
5	Disrespect	4.26	37.4
6	Truancy	3.56	44.4
7	Language	3.51	39.5
8	Tardy	2.33	45.4
9	Other	2.23	43.2
10	Forgery/Theft/Plagiarism	0.79	45.4
11	Location	0.59	39.9
12	Bullying	0.35	48.1
13	Harassment	0.30	29.3
14	Technology	0.30	42.1
15	Vandalism	0.15	28.5
16	Drugs	0.15	31.0
17	Lying/Cheating	0.05	61.9
18	Dress Code	0.05	38.6
19	Tobacco	0.05	21.9
	Location		
1	Classroom	79.65	57.62
2	Playground	8.56	48.35
3	Bus	3.86	52.43
4	Hall	3.27	49.92
5	Cafeteria	1.49	47.69
6	Other	0.74	45.81
7	Gym	0.54	37.81
8	Office	0.50	45.26
9	Commons	0.40	42.46
10	Unknown	0.40	61.16
11	Off-Campus	0.20	36.34
12	Locker Room	0.10	37.36
13	Bathroom	0.05	45.42
14	Library	0.05	44.30
15	Bus Loading Zone	0.05	47.74
16	Parking Lot	0.05	40.92
17	Music Room	0.05	22.86
18	Art Room	0.05	19.97
19	Classroom	79.65	57.62
	Motivation*		
1	Obtain peer attention	70.17	58.19
2	Avoid tasks/ activities	17.74	50.47
3	Other motivation	6.92	66.82
4	Obtain items/ activities	2.47	47.19
5	Obtain adult attention	1.11	46.55
6	Avoid peers	0.95	46.15
7	Avoid adults	0.64	60.59
	Day of Week		
1	Thursday	26.63	34.63
2	Wednesday	24.46	33.62
3	Tuesday	23.71	33.40
4	Friday	13.91	36.19
5	Monday	11.29	33.62
	Season		
1	Spring	43.66	52.51
2	Fall	34.60	51.29
3	Winter	21.34	51.10
4	Summer	0.40	51.65
	Time Period		
1	Midday	37.52	42.29
2	Afternoon	33.86	41.90

(*continued on next page*)

Table 2 (*continued*)

Rank	ODR Field	% with VDP	%IPSD$_s$
3	Morning	18.32	42.50
4	Start	5.15	45.24
5	End	5.10	45.07
6	Other	0.05	26.49
	Grade (K–5 Buildings)		
1	5th	22.90	60.48
2	4th	19.39	60.84
3	3rd	18.46	64.02
4	2nd	15.89	69.90
5	1st	13.08	59.14
6	Kindergarten	10.28	69.69
	Grade (K–6 Buildings)		
1	5th	20.73	58.88
2	3rd	18.90	65.19
3	6th	15.24	54.51
4	2nd	14.63	51.73
5	4th	12.80	64.37
6	Kindergarten	9.15	70.46
7	1st	7.93	75.91
	Grade (PK–5 Building)		
1	5th	23.12	57.12
2	4th	21.62	54.17
3	2nd	19.82	51.71
4	3rd	14.41	58.94
5	Kindergarten	11.11	57.61
6	1st	9.01	55.64
7	Pre–K	1.20	44.93
	Grade (6–8 Buildings)		
1	7th	39.74	60.98
2	6th	35.90	58.69
3	8th	24.36	62.19
	Grade (9–12 Buildings)		
1	9th	42.45	54.30
2	10th	35.10	49.44
3	11th	14.69	67.88
4	12th	7.76	59.65

Note. % with VDP = the percentage of schools in the sample with the context in that row as the top VDP; %IPSD$_s$ = the percentage of the schools' IPSD accounted for by the VDP in that row.

* Only a subset of schools (n = 1257) recorded responses in the motivation field.

the cumulative %IPSD to understand the contribution of each additional VDP to overall disparities.

For Research Question 3, we calculated the percentage agreement across three ODR fields (i.e., location, time period, and behavior) for the five strongest VDPs in each school. In addition, we calculated percentage agreement across combinations of ODR fields (i.e., behavior and location, behavior and period, and location and period). For example, if School A had for its strongest three VDPs a behavior of defiance, School B had disruption for two of its top three VDP behaviors and physical aggression for its third, and School C had three different behaviors in its top three VDPs, the sample would demonstrate 33% exact agreement on VDP behavior for the strongest three VDPs. Stated another way, 33% of schools from this example had exact agreement on VDP behaviors for their strongest three VDPs. We calculated exact agreement using the *irr* package (Gamer et al., 2012) in R statistical software (R Core Team, 2021).

For Research Question 4, we compared the strongest VDP and PPS for each school to evaluate the extent of similarity in discipline situations (Ledford & Gast, 2018). We measured the extent of agreement by calculating exact, point-by-point agreement of the features of both discipline decision situations (i.e., location, time period, and behavior). We divided the number of features that were an exact match by the available number of features to compare to yield a percent exact agreement. For example, take School A, which had its strongest VDP as *defiance* in the *classroom* at *midday* and its strongest PPS as *defiance* in the *cafeteria* at *midday*. In this case, there was agreement between the VDP and PPS on two of three features, yielding an exact agreement of 67%. In addition, we reported observed agreement across individual fields of behavior type, location, and time of day. To provide an additional metric of agreement, we calculated Fleiss' kappa using the '*irr*' package (Gamer et al., 2012) in *R* across fields and overall. The first author completed all analyses.

3. Results

3.1. Research Question 1

Table 2 displays the individual ODR fields sorted by the extent to which they accounted for racial disparities across schools. The table displays both the percent of schools in which each context was the most racially disparate within that field, as well as the percent of a school's IPSD accounted for by that context. For location, classrooms were the most disparate setting for 88% of schools. In those schools, classrooms accounted for a mean of 61% of the school's IPSD. For behavior, physical aggression and defiance were the behavior categories with the greatest racial disparities (37% and 28% of schools, respectively). For time period, the midday and afternoon were the most disparate settings in 38% and 34% of schools in the sample, respectively. By season, spring was the time during which more disparities were present compared to other seasons. For perceived motivation, attention from peers was the motivation identified most often in schools that accounted for the most disparities.

To identify the grade levels most commonly receiving the most disparities in ODRs, we analyzed schools by grade levels served in the building. In the two most common elementary school types (K–5 and PK–5), ODRs of 5th grade students had the greatest disparities. In K–6 buildings, 5th grade students and 3rd grade students were tied for having the most disparate rates ODRs between Black students and all other students. Across all elementary building types, the 5th grade in the building was referred most disproportionately.

In middle schools, 7th grade students had the most disparate rates of referral, whereas in high schools, 9th grade students were most often disproportionately referred. Across ODR fields (e.g., behavior, location), differences in grade level represented the strongest disparities in that the most disproportionately-referred grade levels accounted for over 60% of their school's overall disparities whereas the most disproportionately-referred Motivation or Day of the Week, which have similar counts of possible contexts with their ODR fields, accounted for $< 40\%$ of the total disparity.

3.2. Research Question 2

Table 3 presents the most common VDPs that accounted for the greatest proportion of racial disparities within each school (i.e., each school's overall ISPD). Similar to Table 2 and reflecting inter-school variation in VDPs, the mean percent of IPSD (a within-school calculation) may reflect higher average proportions of disparities explained for VDPs lower on the list. The most common VDP in the sample (i.e., defiance in classrooms in the afternoon) was the strongest VDP in 9.9% of schools. The second-most common VDP was defiance in the classroom in the morning and was strongest in 8.5% of schools. The third most common VDP was physical aggression on the playground at midday and was the strongest VDP in 8.1% of schools. Out of the 10 most common VDPs, six were for subjective behavior (i.e., defiance or disruption) and four were for physical aggression. The classroom was the location in nine of the 10 most common VDPs. The most common time periods for VDPs were relatively evenly split, with midday comprising four of the top 10 VDPs, and afternoon and morning each comprising three.

Table 3 displays the percent of disparities accounted for by the strongest VDPs within schools. The mean percent of school IPSDs accounted for by the single strongest VDP was 16.5% ($SD = 11.0\%$, range $= 3.4\%$–115.6%), meaning that the discipline decision situation with the greatest disparities in a school comprised an average of one sixth of the disparities for the whole school. In total, the

Table 3
Most Common School-Level VDPs.

Rank	Behavior	Location	Time	% with VDP	%IPSD$_s$
1	Defiance	Classroom	Afternoon	9.85	16.19
2	Defiance	Classroom	Morning	8.47	14.70
3	Physical Aggression	Playground	Midday	8.07	17.42
4	Defiance	Classroom	Midday	5.69	14.26
5	Disruption	Classroom	Afternoon	4.90	13.28
6	Physical Aggression	Classroom	Morning	4.60	16.35
7	Disruption	Classroom	Morning	4.46	15.53
8	Physical Aggression	Classroom	Afternoon	4.01	16.73
9	Physical Aggression	Classroom	Midday	3.27	15.46
10	Disruption	Classroom	Midday	2.72	13.92
11	Physical Aggression	Playground	Afternoon	2.13	17.38
12	Defiance	Bus	End	1.44	22.39
13	Defiance	Classroom	Start	1.09	19.77
14	Physical Aggression	Cafeteria	Midday	0.99	16.60
15	Truancy	Classroom	Afternoon	0.99	19.19
16	Disrespect	Classroom	Morning	0.94	13.48
17	Tardy	Classroom	Start	0.94	30.74
18	Disruption	Bus	End	0.89	14.82
19	Defiance	Bus	Afternoon	0.84	15.47
20	Disrespect	Classroom	Afternoon	0.84	14.24

Note. % with VDP = the percentage of schools in the sample with the context in that row as the top VDP; %IPSD$_s$ = the percentage of the schools' IPSD accounted for by the VDP in that row.

2020 schools in the sample contained 243 unique VDPs. In 310 of 2020 schools (15%), the strongest single VDP accounted for 25% or more of a school's total IPSD, and for 7% of schools, the strongest VDP accounted for > 33%. On average, the strongest three VDPs within a school accounted for 37% of a school's IPSD (*SD* = 21.4%, range = 9.3%–241.1%). In 361 schools (18%), the top three VDPs accounted for 50% or more of the school's IPSD, and for 50 schools (2%), the top three VDPs accounted for > 90% of the school's overall disparities.

3.3. Research Question 3

Table 4 displays the percentage agreement across ODR fields and combinations of ODR fields. The field with the highest agreement was location, with 59% of schools having the same location across the top two VDPs and still nearly one third (31%) across the strongest three VDPs. Behavior had the next highest percent agreement across the top five strongest VDPs, ranging from 41% of schools having identical behaviors in the top two VDPs down to 4% of schools having the same behavior across all five top VDPs. Time period demonstrated the lowest percent agreement across VDPs, with percent agreement dropping sharply beyond the top two VDPs. For over one quarter of schools (27%), the strongest two VDPs had the same behavior and location, differing only in time period. Agreement between the strongest two VDPs on time period and location was much less common (14%), whereas percent agreement was low across all range of VDPs for the combination of behavior and time period (4%) for the strongest two VDPS. Across all ODR field and ODR field combinations except for location, percent agreement was in single digits beyond the three strongest VDPs.

3.4. Research Question 4

For Research Question 4, we calculated percent of exact agreement and Fleiss' kappa to examine consistency in fields of the strongest VDP and PPS within each school. Table 5 displays the extent of agreement and Fleiss' kappa between these decision situations. The rate of overall exact agreement between VDPs and PPSs was 63%, thus, for 63% of schools, the strongest VDP perfectly matched the time period, location, and behavior of the strongest PPS. Comparing the ODR fields separately, we found location to be an exact match in 73% of schools, behavior was a match for 63%, and time period was an exact match for 52%. The Fleiss' kappa for overall agreement was 0.345 ($p < .001$). The Fleiss' kappa for location was 0.488 ($p < .001$), for behavior was 0.526 ($p < .001$), and for time period was 0.345 ($p < .001$).

4. Discussion

Research is consistent in indicating that instead of blaming students for discipline disparities, educators can examine the context to identify more malleable variables for intervention, including understanding how biased responses contribute to disparities. The persistence of disparities despite intervention is a testament to the need for more precision in our understanding of both the mechanisms and the circumstances by which these disparities present. This study sought to identify the latter more precisely by relying on a national sample of ODRs to describe patterns and magnitude of disparities within specific situations in schools. We found patterns of discipline disparities both consistent with and deviating from previous research. Next, we found that single discipline decision situations can and often do contribute substantially to overall racial discipline disparities within a school, with the top VDP accounting for an average of 17% of overall disparities. We also identified school patterns of VDPs, providing insight into which situations are most likely to contribute to disparities in schools as well as indication of some similarity among the strongest VDPs within schools. Last, this study uncovered substantial agreement between VDPs and PPSs, holding implications for discipline problem solving.

4.1. Comparison to previous research

The single field analyses largely corroborated findings from previous studies. With schools as the unit of analysis in this study, classrooms were the dominant location for racial disparities, similar to findings of previous studies of VDPs (Girvan et al., 2021; Smolkowski et al., 2016) and bolstering the case for classrooms as an important context for equity intervention. Additionally, subjective behaviors (e.g., defiance, disruption) were among the top behavior categories for disparities, echoing findings from several studies on racial disparities in school discipline (Girvan et al., 2017; Skiba et al., 2002; Skiba, Chung, et al., 2014). The timing of racial

Table 4
Percent of Black-All Other Disparities by Top VDPs and Agreement among Top VDPs within Schools.

# of Strongest VDPs	*M* % $IPSD_s$	*SD* % $IPSD_s$	% of Schools with Same Location for Top VDPs	% of Schools with Same Behavior for Top VDPs	% of Schools with Same Time Period for Top VDPs	% of Schools with Same Behavior & Location for Top VDPs	% of Schools with Same Period and Location for Top VDPs	% of Schools with Same Behavior and Period for Top VDPs
1	16.5	11.0	–	–	–	–	–	–
2	27.9	16.9	59.1	41.2	24.5	27.5	13.5	4.0
3	37.0	21.4	42.5	19.7	5.6	10.0	1.7	0.1
4	44.7	25.3	30.8	7.5	1.6	1.9	0.2	0.0
5	51.55	28.9	22.7	3.6	0.8	0.1	0.0	0.0

Note. $\%IPSD_s$ = the percentage of the schools' IPSD accounted for by the number of VDPs in that row.

Table 5
Exact Agreement and Fleiss' Kappa of VDP and PPS.

ODR Field	Exact Agreement	Fleiss' Kappa	*p*-value
Location	73.37%	0.488	< 0.001
Behavior	62.97%	0.526	< 0.001
Period	51.58%	0.345	< 0.001
Overall: Location, Behavior, and Time Period	62.64%	0.345	< 0.001

discipline disparities has been explored only in one study (i.e., Smolkowski et al., 2016) that found that Black-White disparities in ODRs were more likely to occur between 8:30 am–1:45 pm compared to 2–3 pm. In the present study, with the time segmented differently, midday (11 am–1 pm) and afternoon (1–3 pm) were found to be the times of day wherein schools were most likely to have the strongest disparities; morning and the start of the day accounted for far less in the overall sample that included all grade levels.

The patterns present in this study are mostly consistent with the VDP model. Based on dual-processing cognitive theory (Girvan et al., 2021), the VDP model postulates that stereotypes and attitudes are more likely to influence decisions when people are less focused (e.g., tired, hungry) or when the guidelines for a decision are ambiguous (McIntosh et al., 2014). Midday and afternoon presented as the most likely period during which hunger and fatigue, respectively, would be most likely present for staff. The results for time period found midday and afternoon to be much more common times for disparities than other times. Similarly, supportive of the VDP model, defiance and disruption, which are subjective behaviors prone to unclear behavior definitions, were among the most common behavior categories and the behaviors were present in six of the top 10 three-field VDPs. Conversely, physical aggression, which has traditionally been considered a more objective behavior in previous research (Girvan et al., 2017; Greflund et al., 2014), was the most common disparate behavior category. This result may be inconsistent with the VDP model or it may indicate a need to explore whether physical aggression is subjectively defined, monitored, and referred. This behavior category may have similar ambiguities to some subjective behaviors: As with defiance or disruption, the threshold at which horseplay or a shove becomes an ODR for physical aggression could be a decision based more on impression and judgment than precise behavioral definition. If so, this finding may point to a need to, in collaboration with families, students, and community members, better define physical aggression and update and reteach expectations around physical interaction.

4.2. Disparities by grade level

Analyzing disparities within schools first and then aggregating results, rather than aggregating ODRs across schools first, provided a unique opportunity to explore disparities by student grade level. Previous research has mixed findings regarding which grades or grade ranges are most at risk for racial disparities in school discipline, with some data pointing to early childhood (Steinberg & Lacoe, 2017) and others pointing to secondary settings (Welsh & Little, 2018). Although standalone preschools were not included in the sample, elementary schools with preschool and Kindergarten classrooms more commonly had the greatest disparities in their higher grades (specifically, Grade 5). This finding is consistent with research that has found older Black children to be perceived as relatively less innocent compared to younger Black children. Specifically, Goff et al. (2014) found that for children ages 0–9 years, Black children and White children were perceived relatively similarly, but at age 10 years, Black children were perceived by participants to be less innocent overall and as compared to same-aged White children. If these perceptual differences are present among educators, it could explain this consistent pattern of greater exclusion for older students in elementary schools.

Another interesting finding was the high percentage of a schools' IPSDs that was accounted for by referrals of students in a particular grade level. For example, >20% of elementary buildings had Grade 5 as their grade with greatest disparities, and for those schools, Grade 5 accounted for about 60% of racial discipline disparities. This means that the other 40% of racial disparities are spread over the remaining five or six grade levels in the building. This information alone is insufficient to effectively problem-solve disparities, but a consistent dynamic of one grade level in each building accounting for most disparities suggests that efforts to reduce disparities may benefit from focusing on a specific grade level in collaboration with the corresponding grade-level team. Grade-level team collaboration is a common practice in many elementary and middle schools, and grade-level teams have been successfully included as a mechanism for implementing more equitable classroom practices (McIntosh, Girvan, Falcon, et al., 2021).

4.3. Identifying VDPs within school buildings

This study provided an opportunity to identify the most common VDPs in schools. A notable finding in this regard is the proportion of schools with a small number of discipline decision situations as their strongest VDP. To illustrate this point, of the > 243 unique VDPs found in the sample, the 10 most common VDPs accounted for over 50% of all VDPs. This restricted range of behavior and location adds to previous knowledge from studies of aggregated ODR data (Girvan et al., 2017; Smolkowski et al., 2016) that attributed the bulk of racial disparities to referrals for subjective behavior. The prominence of defiance in the classroom in the most common VDPs points to a more precise definition of patterns of disparities within the classroom. Because the previously mentioned studies combined multiple subjective behaviors (e.g., defiance, disruption, disrespect) into one aggregated variable, it is unknown if this is a shift in the conceptualization of unwanted behavior from Black students or a simply a continuation.

4.4. VDPs as efficient targets

The practice of identifying and using school-level VDPs for intervention has been tested as one component of a multi-component intervention in a randomized controlled trial (McIntosh, Girvan, Falcon, et al., 2021), in a quasi-experimental study (McIntosh, Girvan, McDaniel, et al., 2021), and as a standalone strategy in a case study (McIntosh et al., 2018), all of which provided evidence that the approach can be successful in reducing disparities. With the strongest VDP accounting for an average of 17% of racial disparities within school buildings, and the top three VDPs accounting for 37% of total racial disparities, the findings of this study further support the potential for significantly reducing discipline disparities by addressing a few key discipline decision situations. Additionally, there was notable overlap detected among the strongest VDPs, wherein behavior and location were often identical among the decision situations that contributed most to racial discipline disparities. For many schools, this means enhanced efficiency because action plans designed for the strongest VDP may often also be useful for the second- or third-strongest VDPs. In a case where behavior and location were identical among the top three VDPs, a single action plan could reasonably be expected to address over one third of disparities in one school. Although exciting, it should be noted that the strategies to implement are frequently not quick fixes, requiring time invested both in problem analysis and implementation. Intervention considerations are discussed in more detail below.

To be sure, the data rarely indicated that all the disparities in a school could be addressed solely by addressing a few situations. However, experience with approaches that effectively reduce ODRs and disparities could empower and create momentum in a school as well as have a reverberation effect by disrupting of a coercive cycle of negative interactions between school staff and students (Okonofua, Walton, & Eberhardt, 2016). This approach requires a school to possess a sophisticated discipline data system and a skilled data analyst to identify VDPs, the lack of which would be a significant barrier for practitioners looking to pursue the diagnostic work to reduce disparities in their schools.

4.5. Agreement between VDPs and PPSs

The strongest VDPs and PPSs were found to be the same more often than not among the schools in the sample; in 63% of schools, the strongest VDP and strongest PPS were identical. This finding has two implications. First, situations contributing most to racial disparities often contribute substantially to overall use of exclusionary discipline in schools and vice versa. For many schools, this means that routine action planning around a PPS will benefit from and warrant use of an equity lens to make their actions more effective in reducing exclusion from instruction, even if the school does not have access to disaggregated data. Second, for a substantial number of schools, the primary driver of overall discipline disparities is not the situation with the most discipline referrals. In these schools, interventions designed to reduce overall rates of exclusionary discipline may not be as effective at addressing inequity. In either circumstance, data-based problem-solving is crucial for efficient action planning and presents school leaders with additional perspective on the problem solving they conduct.

4.6. Limitations

One limitation of this study is that the sample includes ODRs from the 2018–19 school year, which is before the COVID-19 pandemic and a social reckoning in the U.S. around racial justice. It is unknown how each of these factors may have shifted how behavior is being managed or reported in schools since this sample was collected. Second, this study evaluated racial disparities for Black students compared to all other students and did not evaluate disparities for other groups that have historically been disproportionately excluded through school discipline (e.g., Indigenous students, Latino/a/e students, students with disabilities); VDP patterns for these groups may differ from those found in this study. Relatedly, we acknowledge that a diverse group of students was aggregated into the category of Black students, and that the experiences and backgrounds of these students could be quite diverse among subgroups that are not commonly articulated in school discipline data.

Third, the dataset used in this study came from SWIS, a repository commonly used in schools implementing positive behavioral interventions and supports (PBIS). Although representative of the national school population, there may be systematic differences between schools using SWIS and those that do not. Fourth, the sample for this study was necessarily reduced from the initial dataset to accommodate internal validity concerns related to school demographics and ODR rates; this stringency limits the ability to generalize findings to schools with lower enrollments or with Black-all other risk ratios below 1.25. Fifth, VDPs and PPSs in this study were empirical, identified through use of algorithms, and could differ from what school teams may identify with the same data. The agreement between practitioner-identified VDPs and empirically-derived (i.e., identified through an algorithm with statistical software) has not been explored. As a result, the implications for the findings around VDP-PPS agreement may be somewhat weakened unless schools possess data systems or code to empirically identify their PPSs. Sixth, the IPSDs calculated for season did not include the number of school days within each time segment into the calculation. This is a possible confound and could make seasons with more days look more disproportionate than seasons with fewer school days.

4.7. Implications for research

There are several important points of additional exploration emanating from this study. This study established VDPs across a national sample of schools but did not examine the extent to which VDPs may be different across grades, school building types, and school demographic compositions. It is possible, if not likely, that VDPs may vary systematically in these cases, which would be important both to understanding how VDPs for teachers of Black students may vary based on student developmental level or school

context and what practices might be most effective in reducing effects of bias across different settings. To inform approaches intended to reduce disparities for other groups, it is important that future research evaluates patterns and profiles for other student groups such as Latino/a/e students or dive deeper by evaluating based on intersectional identities (e.g., Black boys vs. Black girls). In addition, a replication of this study following the resumption of more traditional in-person education may be warranted. It may be the case that remote learning and a renewed social justice movement have had effects on how educators differentially intervene on and report behavior by student race.

Additional exploration of second-, third-, and lower-ranked VDPs may reveal patterns within schools that can, and perhaps should, be conceptually linked for the purpose of research and intervention. For instance, defiance and disruption are defined separately as behavior categories but may not necessarily hold significantly different meaning for the purpose of problem solving or schoolwide intervention development. Similarly, the differences between time periods may not hold particular meaning without considering particular schedules. For example, a first-ranked VDP of defiance in the classroom around 12:30 pm and a second-ranked VDP of defiance in the classroom around 1:30 pm might both revolve around similar activities, and therefore would warrant a singular action plan rather than two. Identifying situations for selective aggregation may then provide the best representation of VDP composition across schools and therefore produce more informative research.

Although this study provides insights into the agreement between VDPs and PPSs, it remains to be explored in which schools this agreement is more likely. Although this is the first study to examine PPSs on a national scale, the focus of this study was on how they related to VDPs, and thus did not explore or profile schools based on PPSs. Future research that identifies the situations under which ODRs are most frequent and how patterns in PPSs may vary by school characteristics may be helpful in refining positive behavior support systems and frameworks.

4.8. Implications for practice

The broad results of this study boost the credibility for the VDP model and associated use of targeted approaches that focuses on narrow contexts to measurably reduce racial discipline disparities. School teams seeking to increase equity in school discipline can take note of several findings from this study in conjunction with the promising results of VDP-centered approaches (McIntosh, Girvan, Falcon, et al., 2021; McIntosh, Girvan, McDaniel, et al., 2021) and apply informed strategies to their own schools. Specifically, school teams can move forward in disaggregating discipline data to identify their own school VDPs or contexts likely to be VDPs (which may be deduced in different ways depending on available data).

4.8.1. Identifying local VDPs

Although some data systems (e.g., SWIS) enable school teams and data analysts to disaggregate overall patterns into racial discipline disparities, this feature is a relatively recent innovation and is not guaranteed to be an available tool across schools. In addition, in the ReACT intervention that used the VDP approach, the process of VDP identification was scaffolded by the external coaches to ensure school staff had referred to relevant data when making determinations (McIntosh, Girvan, Falcon, et al., 2021). A more common undertaking for school data analysts, particularly in PBIS schools, is identifying some approximation of a PPS in their schools. Using PPSs to support action planning has resulted in significantly decreased ODRs (Horner et al., 2018) and the level of agreement between VDPs and PPSs is reasonable justification for these schools to employ an equity lens to their routine problem solving, even if their data system does not disaggregate by student race.

For example, if a school identified their PPS as physical aggression around noon on the playground as their PPS, a reasonable response to this PPS might include increasing supervision in the classroom or reteaching expectations around physical contact. Exploration of this PPS through an equity lens could include additional problem analysis, such as interviewing students from the minoritized group who have received ODRs to understand any additional context missed (e.g., dissonance between acceptable physical contact at home vs. at school) and having additional observers in the context to assess possible differences in rule enforcement among student groups or equity in classroom management practices. Based on this additional investigation, an VDP-focused action plan might require adapting classroom expectations and instruction on those expectations to both achieve school safety and honor student cultural background, more professional development support for teachers on VDPs and identifying circumstances that are prone to biased responses, and the introduction of new strategies to interrupt biased responses. Given these findings, as well as promising research utilizing external coaches to support equity-focused decision making by teams (McIntosh, Girvan, Falcon, et al., 2021), technical assistance and coaching supports through regional or state education agencies may be an effective means of expanding such practices.

4.8.2. Changing interpretation of behavior

This study strengthens the case for a focus on the classroom to enhance equity in school discipline. Interventions focused directly on reducing implicit bias have demonstrated limited efficacy in changing attitudes or behaviors related to equity (Forscher et al., 2019; Ishimaru & Galloway, 2021), but school leaders can take this finding as encouragement to focus on strategies to increase equity in classroom management and promote engagement from all students. Embedding culturally responsive practices within positive behavior support is a promising preventive approach for achieving both (Bradshaw et al., 2018; Gion et al., 2022; McIntosh, Girvan, Falcon, et al., 2021; Muldrew & Miller, 2021). One culturally responsive practice to help teachers better understand both the backgrounds of their students and themselves is the personal matrix activity (Muldrew & Miller, 2021). This activity has teachers and students share how expectations in school might align with or be different from those in their homes and neighborhoods, allowing teachers to assess cultural gaps. Muldrew and Miller found that implementation of this activity over 3 days resulted in significant improvements in teacher ratings of student behavior. Coaching to improve teacher cultural responsiveness has also demonstrated

positive effects in observed classroom behavior but may be cost-prohibitive due to the resources needed to implement them (Bradshaw et al., 2018; Gion et al., 2022). Other strategies used to support classroom teachers to be more culturally responsive were included as a component of ReACT. These include sharing positive family sayings among students, implementing a praise preference assessment (Gion et al., 2022), and carrying out getting-to-know-you activities with students (Gehlbach et al., 2016).

4.8.3. Replacing the biased response

Additionally, to support teachers in classrooms responding to unwanted behavior, school leaders may consider adopting school-wide use of neutralizing routines (Santiago-Rosario & McIntosh, 2022). To help staff slow down the decision-making process, neutralizing routines are a self-management strategy that prompt staff to pause, re-center on important details and effective behavior management strategies, and deliver less exclusionary and more supportive responses to students (McIntosh et al., 2014). Similarly, having staff focus on understanding student's perspectives and responding empathically demonstrates evidence of bypassing racially biased responding (Okonofua et al., 2022; Okonofua, Paunesku, & Walton, 2016). Supportive training and coaching on these practices would likely serve to bolster the uptake and maintenance of these practices.

4.9. Anticipation and prevention of VDPs

Finally, the previous implications focus primarily on responding to VDPs, but many schools will be endeavoring to be more proactive, particularly in the beginning of the school year before VDPs are evident or may lack sophisticated data analysis to identify PPSs. In these cases, where data are not available, the list of most common VDPs among schools with significant disparities can be a useful basis for action planning. Although not tailored to their school, most VDPs were for defiance, disruption, and physical aggression in the classroom, school leaders could be proactive by clearly defining these behaviors for staff and providing professional development that details when to refer (and when not to refer) students to the office. For the many instances in which an ODR is not appropriate, this professional development could feature alternative responses to unwanted behaviors that are instructional, as opposed to exclusionary (Smolkowski et al., 2016). Examples include reteaching expectations, using approaches that focus on strengthening teacher-student relationships (Nese et al., 2021), and implementing targeted supports such as Check-in Check-out (Vincent et al., 2012).

Author note

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A230399 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.

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