A Geospatial Analysis of Disproportionality in Indiana High Schools: The Impact of Teacher Experience and Location on Disciplinary Responses to Students of Color

A Geospatial Analysis of Disproportionality in Indiana High Schools: The Impact of Teacher Experience and Location on Disciplinary Responses to Students of Color

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Abstract

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A Geospatial Analysis of Disproportionality in Indiana High Schools: The Impact of Teacher Experience and Location on Suspension Rates for Students of Color

Co-Chairs of Dissertation Committee: Dr. Tori Colson and Dr. Jill Raisor

Disproportionate responses in discipline for students of color persist in public education despite federal laws and programs specifically designed to combat the issue. Research has shown that harsher forms of punishment, especially suspension from school, has a detrimental impact that limits the chances of a student graduating high school. Emerging research contends that this also plays a significant factor in personal outcomes beyond high school, affecting the greater community. Much is known about disproportionality in discipline in research spanning the past 40 years. Research has identified numerous causes, from implicit bias to zero-tolerance policies; despite this research, there is still much to learn about how geographical location within a state, as well as the levels of experience of the teachers within a state, play a factor in this disproportionality. This research study will specifically analyze discipline data from 221 traditional public high schools and 243,279 high school students in the state of Indiana. The intent of this research study is to identify the extent to which disproportionality in suspensions persists in public high schools in Indiana and what impact, if any, that teacher experience and geographic location may have.

Keywords: disproportionality, teacher experience, geography, locale, suspension, discipline, zero-tolerance policies, public education, ethnicity

Dedication

This dissertation is dedicated to my wife, Natalie and children, Brooklynn and Ella. This work is as much theirs as mine because of their sacrifice of time, a priceless commodity. No dedication can express my gratitude for their enduring love and support.

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I would like to thank several individuals, without whom, I would not have been able to accomplish my life-long goal of earning a doctorate degree. None of this would have been possible without my wife, Natalie Griffin, who provided the support and endured the sacrifice required for this to be accomplished. Also, the vision was first embodied by the tireless effort of Dr. Charlie Brooks, my father-in-law. I can't say that he made the endeavor more attractive, but more accessible with countless encouragement along the way. The encouragement and sacrifice endured first by my mother-in-law, Mary Brooks, provided the solid foundation for my wife's subsequent support. My mother and family, and especially my grandmother, Jody Griffin, who always wanted a doctor in the family, though I don't think she had this in mind!

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Chapter 1: A Problem in Practice

Positionality of the Researcher

The researcher currently serves as the Dean of Students for a traditional public high school, routinely working with students, teachers, and families through the discipline process. Through this lens, and additionally through the lens of being a White male, disproportionality in suspensions, especially for students of color, are perceived through the researcher's ontological assumptions of appropriate student behavior and what is deemed as corporately appropriate responses to that behavior. Every effort was made by the researcher to adhere to a quantitative analysis of the data contained herein; however, the reasons associated with the content of this dissertation are naturally derived from the context of the work associated with administrative responses to student behavior, observed disproportionality, perceived effects of punitive discipline, and the unique positionality of the researcher.

Background

The Children's Defense Fund report of 1975 highlighted troubling, national trends with respect to the over-suspension of Black students, at a national rate of at least 2:1. This ultimately began a national dialogue of how the "discipline gap" was a clear disparity, revealing systemic disadvantages for students of color (Ruchkin, 1979; Young et al., 2018). Since this report, disproportionality in discipline for students of color and the use of suspension has been a consistent finding in discipline research at all levels of K-12 public education (Skiba & Peterson, 2000).

Over two decades later, as schools began to react to highly-publicized school shootings throughout the nation, "zero-tolerance policies" began to emerge nationwide as a social response to school violence. This trend put zero tolerance policies, namely suspension and expulsion, as a

primary strategy to reduce school violence (Morrison et al., 2001). In a 1996 study analyzing teacher attitudes and perceptions of safety in rural schools, a majority of respondents believed that violent behaviors were increasing, though many teachers also attributed non-violent behaviors such as incivility and verbal intimidation, as part of the increase (Skiba & Peterson, 2000). These prevailing attitudes led to further adoption of these policies and the impact has been deleterious to students of color.

Simply put, zero tolerance policies have disproportionately impacted students of color. A Civil Rights Project conducted at Harvard University (2000) was among the first to scrutinize the impact of zero tolerance policies on students of color and identified that not only were Black students referred more for non-violent behaviors, such as defiance and disrespect, but were represented nearly double the amount of suspensions proportionate to their overall population (32% and 17%, respectively; Solari & Balshaw, 2007).

From a legal perspective, the greatest leverage came from increased oversight and funding of federal education dollars. In 2004, there was a congressional reauthorization of Individuals with Diabilities Education Act (IDEA) where disproportionality was top priority (Albrecht et al., 2011; Sugai & Horner, 2006). As a result, states were required to monitor disproportionality and spend a portion of its funding, known as “Part B” funding, when a school was considered to be significantly disproportionate. This response was for students with disabilities, but forced schools to look at discipline data much more intentionally, ensuring that money was spent on the problem in a specific, data-supported way (Green et al., 2018). In the ensuing 20 years, School-Wide Positive Behavior Interventions and Supports (SW-PBIS) emerged as a preventative tool to monitor progress, make decisions, and sustain positive student

and adult behaviors. It largely became the primary method of addressing disproportionality in the school-wide setting (Hassan & Carter, 2020; Sugai & Horner, 2006).

Despite its widespread adoption nationwide and a marked decline in office referrals, SW-PBIS alone has not accomplished a significant reduction in disciplinary disproportionality for students of color. One of the most recent studies conducted by Zakszewski et al. (2021) analyzed discipline disproportionality among 27 schools and 15,000 students in urban school settings. This study specifically looked at SW-PBIS implementation over three years and found that disproportionality was sustained and in some cases heightened despite intentional use of the program (Skiba, 2007; Zakszeski et al., 2021).

Problem of Practice

In public education broadly, there exists a racial disproportionality in discipline, especially in how students are excluded from the educational environment due to suspension. In the United States, an average of one in every six Black students, one in every 12 Native American students, one in every 14 Hispanic students, one in every 20 White students and one in every 50 Asian students have been suspended at least once (Losen & Gillespie, 2012). This disproportionality, despite the broad use of specific programs designed to reduce office referrals and focus on disproportionality, continues to persist.

Despite an extensive body of research into disproportionality in discipline, Black students are still two–three times more likely to be expelled from school than their White peers and are subject to a higher frequency of exclusionary forms of discipline, such as higher rates of out-of-school suspension (Gregory et al., 2010; Hassan & Carter, 2020). The impact of suspension has been well documented, including greater risk of delinquency, unequal access to resources, and a greater likelihood of possessing a firearm, use of tobacco, alcohol and other illicit substances, as

well as increased involvement in the juvenile justice system (Morrison et al., 2001). As incidents of out-of-school suspension increase, the likelihood of graduating decreases (Skiba & Peterson, 2000).

Teacher experience seems to exacerbate an already systemic problem. Novice teachers, here defined as teachers within their first one to two years of teaching experience, ultimately ensures a greater chance that students, generally speaking, are suspended from school (Losen et al., 2014; Morrison et al., 2001) and a higher likelihood of suspension for Black students, especially at the high school level (Losen et al., 2014). Research also shows that teacher inexperience is a significant predictor in disproportionality (McIntosh et al., 2017) and schools that have higher rates of poor and minority students are also staffed with higher concentrations of novice teachers, thereby compounding the problem (Losen et al., 2014).

There is a gap in research as to how this disproportionality varies in terms of geographical location. Geography and potential concentrations of disproportionality have been less studied and an analysis of geolocation within a state is largely absent from current research. Research shows that there is evidence that discipline disproportionality becomes more pronounced and complex in demographically diverse communities, whether it is the lack of diversity in rural communities, or significant diversity, such as in urban communities (Mawene & Bal, 2020).

Broadly, there is some evidence that in addition to being suspended more frequently, students of color are also more likely to be suspended for longer periods of time, resulting in a greater loss of instructional time (Bal et al., 2017; Losen & Gillespie, 2012). Despite this research, there exists a gap in identifying to what extent disproportionality is present in the amount of instructional days missed due to suspension out-of-school, based on ethnicity, based

on specific geographical location. If there is a trend related to differences in disproportionality, there is little research to show how different these trends are based on specific geographic region (i.e., urban, suburban, town and rural locales).

Purpose of the Study

The purpose of this study is to investigate suspension rates for students of color in Indiana public high schools and identify to what extent these suspension rates vary based on geographical locations within the state. Additionally, this study investigates the extent to which students of color are more likely to receive out-of-school suspension compared to their White peers, the impact of teacher experience on rates of suspension for students of color, and to what extent disproportionality is present in instructional days missed due to suspension. Because resources are allocated to schools at the state level and there is significant variation in geographical areas within a state, there is an immediate need for quantitative evidence that can highlight geography and teacher experience as potential indicators of student outcomes.

Significance of the Study

The need to understand patterns of racial disproportionality in school discipline is increasingly urgent. Several studies have found that such patterns are widespread in schools throughout the United States and that the consequences for students of color are highly significant (Brown & Tillo, 2013; Losen & Gillespie, 2012; Rausch & Skiba, 2004; Skiba et al., 2002). Exclusionary discipline and the impact has been well documented, including greater risk of delinquency, unequal access to resources, and a greater likelihood of possessing of firearm, use of tobacco, alcohol and other illicit substances, and well as more involvement in the juvenile justice system (Morrison et al., 2001).

Similarly, the UCLA Civil Rights Project, as highlighted by researchers Losen and Gillespie (2012), identified a related, and equally troubling pattern with respect to the loss of time in classrooms experienced by students—mostly Black—who are suspended or expelled. The study found that students who were most likely to be suspended were also more likely to drop out of school. An extensive longitudinal study discovered that a single suspension in the 9th grade increased dropout risk from 16% to 32% (Balfanz et al., 2013), and a second suspension increased the risk by 42% (Skiba et al., 2014).

Earning a diploma has been considered one of the most significant indicators of lifetime earning potential and suspensions and expulsions can have a cascading effects on the likelihood of dropping out of school and failing to earn a diploma. Students who ultimately dropout of school earn an average of $375,000 less over the course of their lifetimes than their peers that earn a high school diploma (Center for Labor Market Studies, 2009). Moreover, students that dropout of high school have a likelihood of being incarcerated eight times greater than those who graduate (Christle et al., 2005; Skiba et al., 2014).

This study is designed to determine to what extent disproportionality in discipline persists in various geographical areas within a state, both in the suspension rate and proportion of days missed, as well as to what degree the level of experience for teachers plays a factor. This significance is twofold: 1. To give broad analysis to education policymakers on the impact of geographical location and disproportionate responses in discipline for students of color; 2. For schools to understand the impact of first and second year teachers on discipline in schools.

This study is intended to help inform educational leaders and policy makers on the prevalence of disproportionality in all high school locations as well as the impact of higher concentrations of novice teachers on school discipline outcomes for students of color. In

researching disproportionality through the lens of locations within a state, data anomalies can be identified that may be masked through looking at state-wide aggregate data as a whole.

Definition of Terms

Disproportionality

In this research project, disproportionality will specifically refer to disproportionate use of exclusionary discipline suspension rates among different ethnic categories, defined as "over or under-representation of students in a particular population or demographic group…relative to their groups' presence in the overall student population" (NCEA, 2011).

Exclusionary Discipline

This includes in school suspension, out-of-school suspension, expulsion, school based arrests, school based referrals to the juvenile justice system, and voluntary or involuntary placement in an alternative education program (IDOE, 2020).

Locale

Federal census designations that include:

a. City: territory inside an urbanized area and inside a principal city
b. Suburban: territory outside a principal city and inside an urbanized area
c. Town: territory inside an urban cluster that is a distance away from an urbanized area
d. Rural: census defined rural territory that is a distance away from both urbanized areas and urban clusters (Monroe, 2005)

School-Wide Positive Behavior Interventions and Supports (SW-PBIS)

The SW-PBS effort emphasizes an integration of measurable outcomes, data-based decision making, evidence based practices, and overt support systems…behaviorally based,

comprehensive systems approach [to achieve] effective school-based interventions. (Sugai & Horner, 2006).

Traditional School

A public elementary/secondary school providing instruction and education services that does not focus primarily on special education, vocational/technical education, or alternative education, or on any of the particular themes associated with magnet/special program emphasis schools (Monroe, 2005)

Zero Tolerance Policies

Relying primarily upon school exclusion (suspension and expulsion) and school security measures (e.g., metal detectors, video surveillance, locker searches), zero tolerance policy punish[es] both major and minor incidents severely in order to "send a message" that certain behaviors will not be tolerated (Skiba & Peterson, 2000).

Limitations

This study depends on the accuracy of the data provided by schools and school corporations to state and federal databases. As such, the accuracy of this data cannot be independently verified. The data collected from all schools included suspensions based on ethnic composition. A number of schools had limited diversity and several did not represent all 7 ethnic groups analyzed in this study. This resulted in the absence of suspension data due to the absence of suspension as an action taken by the school. In geographic locations where diversity was limited, the sample sizes were relatively small.

This study does not account for the specific type of offenses that led to an out-of-school suspension and is limited to overall suspension counts only. Consequently, behavior data includes only suspensions that do not account for the durations of the suspension period. The

suspension data in this study also does not account for suspensions that lead to expulsions, as this data is not flagged for individual students.

Delimitations

Delimitations of this study include scope and schools that were not included. This study is limited to a single snapshot in time, analyzing discipline and enrollment data from the 2017-2018 school year. This study focused solely on non-charter, traditional, public high schools in the state of Indiana. As a result, all private and parochial high schools, magnet and innovative high schools, correctional facilities, and both public and private charter high schools were excluded from the study. As such, this study is less generalizable to all school settings.

Research Questions

Research Question 1. To what extent is disproportionality in suspensions for students of color present in traditional high schools in the state of Indiana?

Research Question 2. How do rates of suspension vary between geographical locations (i.e., urban, suburban, town, rural) for students of color?

Research Question 3. To what extent are students of color more likely to receive out-of-school suspension compared to their White peers?

Research Question 4. To what extent does the percentage of teachers within their first one to two years of teaching impact rates of suspension across all ethnicities and locales?

Research Question 5. To what extent is disproportionality present in the percentage of instructional days missed due to out-of-school suspensions across all ethnicities and locales?

Chapter 2: Literature Review

Introduction

This review of relevant literature spans nearly 40 years of research, most of which is from the year 2000 to the present. Several themes emerged in the review of relevant literature, including the current state of disproportionality nationwide, the impact of exclusionary discipline as well as the effects of implicit and explicit bias, potential causes of disproportionality and efforts to address disproportionality in schools. There are also themes related to poverty and disproportionality, a common reason often used to explain disproportionality, as well as the impact of teacher experience and zero tolerance policies and the relatively new understanding of the School to Prison Pipeline.

Current State of Disproportionality Nationwide

There is longitudinal evidence that overrepresentation of students of color in discipline practices in schools persists as a significant educational disparity in the United States (Gregory et al., 2017); this phenomenon has been present at least since early research in the discipline gap identified these disparities in 1975 (Ruchkin, 1979). Presently, students of color, especially Black, Hispanic and Native American students commonly receive more office referrals and experience out-of-school suspension (OSS) at rates greater than their White peers (Anyon et al. 2014; Losen et al., 2015; Skiba et al., 2011). This data is exhaustively studied and analyzed by local, state, and federal educational leaders. Despite this level of awareness and access to data, disproportionality in OSS for students of color continues to persist nationally and has been relatively constant in public education at all grade levels (Skiba & Peterson, 2000).

Researchers have been mining discipline data for decades attempting to determine the extent to which disproportionality is present. Black students have specifically been highlighted

as the most disproportionate ethnic group when it comes to exclusionary discipline (Gregory, 1997; McCarthy & Hoge, 1987; McFadden et al., 1992; Wu et al., 1982). In reviewing past research, Wallace et al. (2008) identified that Black male students received office discipline referrals (ODRs) 30% more often and would receive exclusionary discipline 330% more often than any other ethnic group. This same research found that Black female students received ODRs twice as often as White female students and received exclusionary discipline five times more often.

This widely-available discipline data, especially suspension and expulsion data, is tracked nationally. The Office of Civil Rights, a division of the Department of Education, identified that Black students are suspended and expelled at rates 3 times higher than that of their White peers, based on 2014 data (U.S. Department of Education Office for Civil Rights, 2014). This remained consistent in the 2015-16 school year, with nearly 2.7 million students in the United States receiving at least one out-of-school suspension. Of those, 39% were received by Black students whereas Black students only made up 16% of total enrollment (U.S. Department of Education, 2018).

Geographic location is emerging as a potential factor in rates of disproportionality. A recent study (Hasan et al., 2020) looked at national discipline data for suspension rate of Black female students and discovered that not only is there disproportionality in discipline, but these rates are higher in states with fewer Black female students and these students are more likely to experience OSS in academically higher performing states. A 2018 study collectively aggregated 30 years of discipline data to analyze disproportionality across all grade levels, identifying that Black students are still more likely to be suspended by a magnitude greater than 2:1 (Young et al., 2018). Additionally, there is evidence to support that the use of exclusionary discipline may

be more prevalent in urban centers and under resourced schools – typically schools with a higher enrollment of Black and Hispanic students (Bal et al., 2017; Putnam et al., 2018).

Explicit and Implicit Bias

There is reason to believe that the action of a consequence applied to a student is primarily the responsibility of school administrators, but research conducted by Skiba and Peterson (2000) identified that teachers actually assign the most discipline consequences. When analyzing disproportionality, research has focused on the office discipline referral (ODR) as the origin of disproportionate responses to behavior. Research conducted by Irvin et al. (2004) identified that there are questions related to the validity of the ODR process and the subjectivity of teachers when writing office referrals. In short, conflict is most common in the classroom and the interpretation of the behavior of concern is viewed through the cultural lens of the teacher, a potential point of conflict leading to disproportionate referrals for student of color.

To expand on this concept, an analysis of 184 studies identified a link between teacher perception of student behavior and race (Greenwald et al., 2009). In a recent study conducted by Okonofua and Eberhardt (2015), teachers evaluated ODRs with stereotypically Black and White names. Teachers would routinely apply more severe disciplinary actions to students with stereotypically ~~White~~ Black names as opposed to students with stereotypically White names. Research on the impact of implicit or explicit bias on student discipline is well documented as well as the impact of exclusionary discipline on students and communities, especially students of color.

According to Skiba et al. (2011), Black students are more likely to be referred to the office than White students, setting up the potential that Black students are then more likely to receive exclusionary discipline, such as out-of-school suspension. Multiple studies have

identified that Black students are also more likely than White students to be referred to the office for offenses that would be considered relatively minor (Monroe, 2005; Skiba et al., 2011) and also more likely to be referred for highly subjective behaviors, such as disruption and disrespect (Skiba et al., 2002).

Researchers have offered a number of possibilities as to why these disproportionate rates for discipline, primarily originating in the classroom, continue to persist for students of color. Recent research has focused on cultural difference and implicit and explicit bias as a significant contributor for disproportionate suspension rates for students of color, especially Black students (Gibson et al., 2014).

Substantial research evidence continues to demonstrate that students of color receive more negative attention related to behavior, both in frequency of office referrals and harshness of consequences, which suggests that ethnicity, and implicit and explicit bias associated with cultural differences, continues to impact the lives of students of color in a school setting in a considerable way (Carter et al., 2015).

Impact of Exclusionary Discipline

The need to understand patterns of racial disproportionality in school discipline is increasingly urgent. Several studies have found that such patterns are widespread in schools throughout the United States and that the consequences for students of color are highly significant (Brown & Tillo, 2013; Losen & Gillespie, 2012; Rausch & Skiba, 2004; Skiba et al., 2002). There is a connection between a variety of negative outcomes, including disengagement from school, lower achievement, involvement in the juvenile justice system, and the use of exclusionary discipline practices. These outcomes tend to have a “compounding effect” on disadvantaged populations (Morrison et al., 2001).

Exclusionary discipline, as defined by the Indiana Department of Education (2020), "includes in school suspension, out-of-school suspension, expulsion, school based arrests, school based referrals to the juvenile justice system, and voluntary or involuntary placement in an alternative education program." Exclusionary discipline and the impact has been well documented, including greater risk of delinquency, unequal access to resources, and a greater likelihood of possessing of firearm, use of tobacco, alcohol and other illicit substances, and well as increased involvement in the juvenile justice system (Morrison et al., 2001).

Research has shown that lower student achievement and higher drop-out rates can be attributed to school discipline practices and policies that emphasize exclusionary discipline, such as suspension and expulsion (Cartledge & Kourea, 2008; Gregory et al., 2010). Additionally, the UCLA Civil Rights Project identified a difficult trend in the loss of instructional classroom time, experienced mostly by Black students who were suspended or expelled. The same study also identified that students who are more likely to be suspended are also more likely to drop out of school altogether (Losen & Gillespie, 2012). School suspension has been consistently found to be one of the strongest predictors of school dropout (Skiba & Peterson, 2000). A 2007 study reported that even a single suspension can increase the likelihood of dropout by over 77% and out-of-school suspensions are a more significant predictor of dropout than either socioeconomic status (SES) or grade point average (GPA; Skiba et al., 2014; Suh & Suh, 2007).

Research conducted by Fabelo et al. (2011) confirms the negative impact that exclusionary discipline has on outcomes for students, especially students of color. Overall, when looking at a comprehensive study of Texas students, the impacts of suspensions were considerable: nearly 10% of students that were suspended or expelled dropped out of high school altogether; over the course of the years-long study, nearly 60% of students that received 11 or

more disciplinary infractions did not graduate; involvement in the juvenile justice system also increased significantly when a student was suspended or expelled (Fabelo et al., 2011).

Though there is considerable evidence to suggest that OSS is damaging to students and communities, schools still use out-of-school suspension as a primary discipline action. This may be due, in part, to the limitations of proven alternatives to suspension (McIntosh et al., 2014); determining whether to exclude an individual student from an educational environment due to discipline infractions or negatively impact the classroom environment can be difficult choices for schools to make.

Potential Causes of Disproportionality

The composition of teachers locally, regionally, and nationally may have a part to play in disproportionality in discipline for students of color. A majority of the teaching force in the United States are White and female, with White teachers making up 84% of the total teaching force nationwide as of 2011 (U.S. Department of Education, 2011). As a result, it is very likely that an ethnically diverse student may not experience a teacher from a similar ethnic background in a classroom setting (Hassan & Carter, 2020; U.S. Department of Education, 2011). Research studies have recently focused on "in-group bias" and the tendency for people to favor members of their own ethnic group whether it be accountable to implicit or explicit bias (Greenwald & Pettigrew, 2014; Smith et al., 2014).

There is also research that indicates that pre-service teacher preparation programs do not prepare teachers to be successful in ethnically diverse classrooms. Pre-service learning experiences in high-poverty, culturally diverse schools have an impact on whether a teacher will ultimately take a teaching position in a similar school setting and be successful in it (Monroe, 2008).

Researchers have identified a number of reasons for the disproportionate suspension of Black students including implicit bias and teachers' deficit mindset, outdated and ineffective codes of behavior, an increased presence in law enforcement, as well as the failure of teacher preparation programs to include classroom management practices that are culturally responsive (Bowman-Perrott et al., 2013; Irvin et al. 2004; Losen, 2013; Skiba et al., 2002; Williams et al., 2018). Several research studies have also zeroed in on subjective discipline categories.

Students of color receive office discipline referrals (ODRs) at rates much higher than White students for behaviors such disrespect and disruption (Gregory & Weinstein, 2008; Skiba et al. 2002). There appears to be greater opportunities for bias in subjective ODRs and cultural and social forces may account for this disproportionality. McIntosh et al. (2017) identified that the classroom appears to be the primary location for disproportionality as opposed to other school settings.

Skiba et al. (2002) found an interesting correlation when looking at suspension rates overall, specifically that the higher the suspension rate, or the propensity of a school to use suspensions more often, the more likely that Black students will experience disproportionality in discipline. This is an especially important finding as schools and corporations seek to identify and develop plans to address disproportionality.

Efforts to Address Disproportionality

Research indicates that schools need to be explicit in their approach to disproportionality. One specific way is through existing avenues, such as SW-PBIS and equity teams where discipline data and disproportionality are a regular part of school-level data analysis and conversation (Green et al., 2018). Despite evidence of its effectiveness, there is still troubling data related to school-wide programs, such as SW-PBIS. In a study representing 346 elementary

and middle schools that had implemented SW-PBIS for the previous year, Black students were still overrepresented in office referrals. Additionally, Black and Hispanic students were more likely than White students to be suspended or expelled for similar behavior (Skiba et al, 2011).

This research point was confirmed with another study conducted by Vincent et al. (2011). In this study, despite schools experiencing success in an overall decrease in suspensions due to implementing SW-PBIS, Black students were still disproportionately suspended out-of-school, especially for suspensions lasting longer than 10 days. This persistence of disproportionality in referral and suspension rates, especially for Black students, is confirmed throughout existing research, even when schools are intentional in responding to the problem.

One of the most recent studies conducted by Zakszewski et al. (2021) analyzed discipline disproportionality among 27 schools and 15,000 students in urban school settings. This study specifically looked at SW-PBIS implementation over three years and found that disproportionality was sustained and in some cases heightened despite intentional use of the program. SW-PBIS was shown to reduce overall referrals and suspensions, but nonetheless, disproportionality persisted. There have been numerous research and data points suggested as potential indicators, especially socioeconomic status.

Poverty and Disproportionality

In 2000, the National Association of Secondary School Principals gave a statement to the U.S. Commission on Civil Rights arguing that disproportionality that occurred as a result of the implementation of zero tolerance policies: “is not an issue of discrimination or bias between ethnic or racial groups, but a socioeconomic issue” (United States Commission on Civil Rights, 2000). This was supported by leading researchers that socioeconomic status and poverty played the greatest role in rates of suspension among all groups (Skiba et al., 2002).

This widely held assumption was later disproved by Skiba et al. (2011), that socioeconomics played a greater role in discipline than ethnicity. This research indicated, when controlling for socioeconomic status (SES), Black students still were suspended at higher rates. Nonetheless, lower levels of SES continues to be a predictor for out-of-school suspension (Skiba et al., 2002). Though there appears to be a link between discipline disproportionality and centers of poverty, such as the urban school environment, socioeconomic status cannot fully explain the problem of disproportionality in discipline for students of color.

There has been some research conducted on school typology playing a role in disproportionality in school discipline. Typology refers to a number of factors, including income levels, geographic location, and characteristics of the school, such as school size (Noltemeyer & Mcloughlin, 2010). This research concluded that even when controlling for poverty, there is still significant disproportionality in student discipline based on ethnicity. In a study that also controlled for socioeconomic status, by McIntosh et al. (2014), Black students were referred and suspended at rates high than their White peers.

The Impact of Teacher Experience

First and second year teachers generally tend to have more difficulty with classroom management due to inexperience. Researchers have concluded that this low level of experience ultimately manifests in a greater chance that students, generally speaking, are suspended from school (Losen et al., 2014; Morrison et al., 2001). Researchers have continued to point to teachers as the most critical component to reduce how often and when students of color are referred to the office, often for subjective, non-violent offenses (Gregory et al., 2016; Monroe, 2005; Williams et al., 2018). Exacerbating the problem, children in high-poverty schools are also

more likely to have a greater amount of novice teachers, nearly twice as often according to recent Civil Right Data Collection reports (U.S. Department of Education, 2014).

Recent research shows that a teacher's ability to perceive the behavior of Black students and recognize cultural contexts such as body language, tone, and personal space can take years to understand; and that these key characteristics of classroom management are often limited in the classrooms of novice teachers (Williams et al., 2018). A compounding factor is the potential for a lack of self-awareness in teacher practices and classroom management techniques, often lacking from pre-service teacher programs (McIntosh et al., 2017). A study conducted by Gregory and Mosely (2004) identified that teachers often have difficulty identifying the discipline gap for Black students, highlighting that fewer than 50% identified teacher practice and implicit bias as a factor in the discipline of Black students (Gregory & Mosely, 2004).

Teacher experience, or lack thereof, has also been identified as a factor that leads to disproportionate responses to behavior in schools. Research shows that higher concentrations of novice teachers lead to a higher likelihood of suspension for Black students, especially at the high school level (Losen et al., 2014). This combination of inexperience and lack of training also plays a part in discipline responses in the classroom. Research also showed that schools with more novice teachers (specifically teachers with 1 to 2 years of experience) were significantly more likely to suspend students of color. These research findings shed light on teacher inexperience as being a significant predictor in disproportionality, potentially turning teachable moments into referable offenses (McIntosh et al., 2017).

A recent 2018 study researching disproportionality in school discipline in the state of Maryland identified three factors that were present in all schools with disproportionately high discipline numbers of discipline: 1. Larger populations of Black students; 2. Lower test scores; 3.

More inexperienced teachers (Lacoe & Manley, 2019). Research has shown that novice teachers in a building, especially high concentrations of novice teachers, can ultimately predict the risk for students of color being suspended from school. This same research identifies that the impact of teacher inexperience is greatest within urban school districts, where there are acute issues of unequal distribution of these teachers. This means there are schools with relatively few inexperienced teachers and there are some with a much greater quantity of teachers with little experience in urban school districts (Losen et al., 2014).

Zero Tolerance Polices and the School-to-Prison Pipeline

As described earlier in this study, highly-publicized school shootings led many schools and corporations to adopt "zero-tolerance policies" as a social response to school violence, resulting in exclusionary discipline such as suspensions and expulsions as a primary strategy to reduce school violence (Morrison et al., 2001). Research compiled by Mallet (2016) shows clearly the connection between exclusionary discipline, especially OSS and expulsion, and the tendency to become involved in the juvenile justice system. It can be argued that suspensions are designed to be a severe form of punishment with the intent of showing students how significant the offense is. Researchers have noted that whatever the intent, students miss classroom instruction and rarely engage in interventions to repair harm or re-socialize with their peers and often return back to school with little support (Skiba et al., 2011).

This problem appears to be particularly acute for Black males. The office of Civil Rights published 2011 data in its annual report, identifying that Black male students had the highest rates of suspensions out-of-school at 20%, or 1 in 5 Black males were suspended at least once in the 2011-2012 school year. When this is compared to White male student's suspension rate at 6%, or 1 in 17, it's evident that significant disproportionality persists nationally. As Wald and

Losen identified in their research (2003), school discipline and juvenile justice disproportionality tend to mirror one another. Also, these ~~researched~~ researchers identified that once students were excluded from the classroom, they were more likely to receive exclusionary discipline, such as suspension or expulsion (Wald & Losen, 2003).

When looking at students of color that have statistically been more likely to be referred to the office and also more likely to be suspended or expelled, this impact is compounded by the effects of childhood trauma. There is evidence by several research studies that have identified that somewhere between 26% and 60% of adolescents that have been charged with crimes that have gone through the juvenile justice system have been identified as victims of some sort of trauma or maltreatment (Bender, 2009; Ford et al., 2007; Mallett et al., 2009; Sedlak & McPherson, 2010). This means that students that are in the greatest need of support are often the students receiving a disproportionate amount of exclusionary discipline. This leads, as we have seen in previous research cited in this study, to an increase in criminal activity, arrest and students dropping out of high school (Cartledge & Kourea, 2008; Gregory et al., 2010).

Summary

This chapter included an extensive review of the literature surrounding disproportionality in school discipline. There is consistent research evidence that disproportionality in school discipline persists for students of color, both in the frequency of office referrals (Fabelo et al., 2011; Losen, 2013; Losen, 2015; Skiba et al., 2002; Skiba et al., 2011; Skiba et al., 2014) and out-of-school suspensions (Anyon et al., 2014; Balfanz et al., 2013; Green et al., 2018; Rausch & Skiba, 2014; Skiba et al., 2002; Skiba et al., 2011). Despite the overwhelming data to support evidence-based strategies, such as SW-PBIS, as a method to reducing overall office referrals and suspensions generally (Hasan & Carter, 2020; Sugai & Horner, 2006), research has indicated that

disproportionality still persists in suspensions for students of color (Skiba, 2007; Zakszeski et al., 2021).

Data has consistently shown that there is a pattern that persists in public education related to the overrepresentation of students of color in discipline at the rate of the referral and the severity of the applied consequence; consequences that are commonly exclusionary in nature, especially the use of suspension out-of-school (Children's Defense Fund, 1975; Fabelo et al., 2011; Losen, 2013; Losen, 2015; Skiba et al., 2002; Skiba et al., 2011; Skiba et al., 2014; U. S. Department of Education, 2014). This seems to be made worse by teacher inexperience, because of the lack of tools associated with being a novice teacher, such as a lack of classroom management skills (Williams et al., 2018); this issue is particularly acute for students in urban settings where distribution of novice teachers can vary significantly from school to school (Losen et al., 2014).

The evidence is clear: when students are suspended more often, they become much more likely to enter the juvenile justice system or enter what is known as the "School to Prison Pipeline" (Mallett, 2016; Morrison et al., 2001). Efforts to address school violence with zero tolerance policies have not led to schools becoming safer (American Psychological Association Task Force, 2008; Skiba & Peterson, 1999); moreover, students often return to school with little to no support (Skiba et al., 2011). This leads to many significant, long-lasting effects for students of the color and the greater community, including increased rates of crime, incarceration and drop-out (Cartledge & Kourea, 2008; Gregory et al., 2010). The next chapter will outline the methods for this research study.

Chapter 3: Methodology

This chapter details the research methodology used in this quantitative study of disproportionality in student discipline in Indiana high schools. This chapter outlines the research methodology by discussing research questions, hypotheses, study design, population, variables, data collection methods and sources, and statistical analysis. Because leaders face challenges related to the intersection of school discipline, law enforcement, and long-term outcomes based on educational achievement, there is a significant need for quantitative evidence that highlights differences in disciplinary outcomes based on these factors. The purpose was to determine to what extent disproportionality persists in suspension rates for students based on ethnicity, geographical location and teacher experience.

Restatement of the Problem

There has been a continuous racial disproportionality in discipline that spans decades, which has been confirmed repeatedly by research evidence gathered by researchers throughout the country. Black students continue to be suspended at rates more than three times that of White students (Hassan & Carter, 2020) and disproportionality is evident in nearly all ethnic groups (Losen & Gillespie, 2012; U.S. Department of Education, 2014). This disproportionality continues to persist even though there are programs and policies designed to prevent it, such as school-wide behavior programs like SW-PBIS (Skiba, 2007; Sugai & Horner, 2006; Zakszeski et al., 2021).

Despite all of this research evidence, Black students continue to be suspended and expelled at rates 2-3 times greater than their White peers; moreover, student of color are often subject to more frequent office referrals and higher rates of out-of-school suspension (Gregory et al., 2010; Hassan & Carter, 2020). The impact of exclusionary discipline, especially suspension

out-of-school, has been extensively research and has identified a variety of negative impacts to individuals and communities, such as an increased likelihood to become involved in the juvenile justice system (Morrison et al., 2001), lower student achievement (Cartledge & Kourea, 2008; Gregory et al., 2010) and a direct connection between frequency of suspension and a decreased likelihood that a student will graduate (Skiba & Peterson, 2000).

When a teacher has limited teaching experience, especially teachers within their first 1-2 years of teaching, research shows that there is a greater chance that, in general, a student will be suspended from school; there is also a higher likelihood that those suspensions will be of students of color, especially Black students at the high school level (Losen et al., 2014; Morrison et al., 2001). Teacher experience seems to exacerbate an already systemic problem, specifically teacher inexperience has been considered a significant predictor in disproportionate discipline responses to students of color (McIntosh et al., 2017). In addition, schools with greater concentrations of students of color and higher levels of poverty are also staffed with the highest concentrations of novice teachers, making this problem much more acute (Losen et al., 2014).

Less studied is the effect that geography has on discipline disproportionality for students of color. Are there geographical areas that are more likely to experience greater levels of suspension and disproportionality? Identifying "locations of disproportionality" is almost completely absent from current research, especially specific analysis of geolocation within a state. Along with geography, there is a gap in research to how novice teachers within school's impact disproportionality within geographical regions. The persistent, national disproportionate discipline rates for students of color present a compelling reason why there is a need for more research into this subject.

Purpose of the Study

The purpose of this study is to investigate suspension rates for students of color in Indiana public high schools and identify to what extent these suspension rates vary based on geographical locations within the state. Additionally, this study investigates the extent to which students of color are more likely to receive out-of-school suspension compared to their White peers, the impact of teacher experience on rates of suspension for students of color, and to what extent disproportionality is present in instructional days missed due to suspension. Because resources are allocated to schools at the state level and there is significant variation in geographical areas within a state, there is an immediate need for quantitative evidence that can highlight geography and teacher experience as potential indicators of student outcomes.

Research Questions

In order to address the purpose of this study and analyze factors of disproportionality in school discipline in Indiana public high schools, the following research questions were developed:

Research Question 1. To what extent is disproportionality in suspensions for students of color present in traditional high schools in the state of Indiana?

Research Question 2. How do rates of suspension vary between geographical locations (i.e., urban, suburban, town, rural) for students of color?

Research Question 3. To what extent are students of color more likely to receive out-of-school suspension compared to their White peers?

Research Question 4. To what extent does the percentage of teachers within their first one to two years of teaching impact rates of suspension across all ethnicities and locales?

Research Question 5. To what extent is disproportionality present in percentage of instructional days missed due to out-of-school suspensions across all ethnicities and locales?

Research Design

In order to best understand the relationship between present levels of disproportionality in rates of suspension for students of color and the effects of geographical location and teacher experience, an ex-post facto design was utilized. As described by Ary et al. (2014, p. 28) "ex post facto [studies] investigate relationships between variables." The independent variables for this study were school locale, teacher experience, enrollment by ethnicity, suspension by ethnicity, and instructional days missed due to out-of-school suspension by ethnicity.

This design was chosen because the aggregate data collected was taken from a naturally occurring phenomenon of schools applying out-of-school suspensions as a form of discipline, which virtually all public high schools in the state of Indiana use. Additionally, since there was not random assignment, and because the population was grouped based grade level and locale, this design was best suited for the study.

Research Procedures

Population

The population for this study is limited to aggregate data acquired from traditional public high schools in the state of Indiana for the 2017-2018 school year. The population to be analyzed in the study are all public, non-charter, traditional public high schools that reported suspension data to the Indiana Department of Education as well as the Office of Civil Rights. Schools that did not report the use of suspension for the 2017-2018 school year were not included in this study. In total, 221 traditional high schools were represented in this study. The geographical

locations include rural (81/221, 36.7%), town (55/221, 24.9%). suburban (51/221, 23.1%), and city (34/221, 15.4%). These designations are defined by the National Center for Education Statistics (2019). In total, this study analyzes data of 243,279 high school students.

As part of the process of collecting data for individual schools, school types were excluded from the research project for a variety of reasons. In this research study, ~~I~~only ~~research~~ "traditional" public high schools were included in the research. By virtue of this designation, an original pool of 527 high schools was reduced to a total population of 221. Schools identified as "non-traditional" and which by virtue of this designation were excluded from the study, are private schools, charter schools, and magnet schools.

Private schools include non-sectarian schools as well as religious schools. Since enrollment is often selective and tuition-based, these factors fall well outside of the scope of this study as curriculum and student enrollment vary significantly from traditional public high schools. Charter schools are comprised of both public and private charter school curriculum, enrollment processes, and funding methods that vary widely throughout the state of Indiana. Finally, magnet schools generally fall under local school-board control, but are not limited to geographical boundaries within a corporation. There is often a "lottery" system for enrollment or selective enrollment based on achievement. Since this study focuses on location data, a magnet school may not reflect the community in which it is located.

Data Sources and Collection Methods

In order to collect school-level data for this research study, the following five-step process was followed:

- Step 1: A master school list was accessed from the Indiana Department of Education website (2017), starting with the "school enrollment by ethnicity and free-reduced price meal status" spreadsheet. This spreadsheet provided a total of 527 high schools to be initially considered for the study.
- Step 2: Schools were removed that were categorized as charter, magnet, alternative or special education only schools as well as schools that counted total enrollment of grades other than 9-12 (i.e., Jr./Sr. combined high schools). This reduced the total population of high schools to 227.
- Step 3: The location designations were found on the same website from a different spreadsheet entitled "similar school master list" (Indiana Department of Education, 2017). These were included to the master school list.
- Step 4: Additional data points were collected and added from the Office of Civil Rights (OCR) contained on the Civil Rights Data Collection (CRDC) website (U.S. Department of Education Office for Civil Rights, 2014). The data points collected from the CRDC website for each individual high school include: suspension count by ethnicity; count of days missed due to suspension by ethnicity; count of classroom teachers in their first and second year of teaching.
- Step 5: Data from the master spreadsheet was analyzed by each school to determine which traditional high schools did not report suspension numbers for the 2017-2018 school year or which high schools did not utilize suspension as a method of discipline for

the 2017-2018 school year, thereby reporting a suspension count of zero. Six schools were identified and removed from the population, resulting in a total population of 221 high schools.

Data Analysis

There are four primary ways to measure disproportionality: suspension rate, the Composition Index (CI), the Risk Index (RI), and the Relative Risk Index (RRI), which is consistent with several research studies (Ahram et al., 2011; Cooc & Kiru, 2018; Donovan & Cross, 2002; Gregory et al., 2010; Nguyen et al., 2019; Skiba et al., 2008; Skiba et al., 2011). The presence of disproportionality in student discipline was measured in the following ways:

Composition Index (CI): this describes the ratio of suspensions relative to an ethnic group. In order to interpret this, a given ethnic group's proportion of suspensions is compared to that ethnic group's proportion of all enrolled students. The output will indicate if overrepresentation is present by identifying whether or not an ethnic group's share of suspension in greater than total enrollment of that ethnic group. The composition index is still a primary measurement for disproportionality (Nguyen et al., 2019).

Composition Index

$$\frac{\text{Occurances}_i}{\text{Total occurances}} > \frac{\text{Enrollment}_i}{\text{Total enrollment}}$$

Risk Index (RI): measures the risk of an event, in this case suspensions out-of-school within an ethnic group. RI can be understood as the risk of a suspension per 100 students. The number of disciplinary occurrences per 100 students in a group. RI it allows for an easy side-by-side comparison of suspension rates across different ethnic groups and is a common index used

in disproportionality research (Boneshefski & Runge, 2013; Skiba et al., 2006; Skiba et al., 2008)

Risk Index

$$RI_i = \frac{\text{Occurrences}_i}{\text{Enrollment}_i/100}$$

Relative Risk Ratio (RRI): the ratio of the risk indices for two racial groups. This is interpreted as the number of times more likely a racial group is to experience a disciplinary occurrence compared to another racial group. Compares the risk of disciplinary occurrences of each race to a reference group (Bollmer et al., 2007; Gibb & Skiba, 2008; Mcloughlin & Noltemeyer, 2010).

Relative Risk Ratio

$$RR_{ij} = \frac{RI_i}{RI_j}$$

Data Analysis by Research Questions and Data Analysis

The following section provided a detailed description of how each research question was answered, as well as the methods for identifying the metrics and the types of analysis. The independent variables for this study were school locale, teacher experience, enrollment by ethnicity, suspension by ethnicity, and instructional days missed due to out-of-school suspension by ethnicity. All of these data were analyzed by using SPSS-27 and analyzed for descriptive statistics and to identify whether location and teacher experience can be a predictor of disproportionality. These data points provided overrepresentation metrics of specific groups in overall suspension rates, provided a numerical representation of disproportionality of each ethnic group, and compared these suspension rates to each other based on locale and teacher experience. Here were the methods used for each research question:

Research Question 1. To what extent is disproportionality in suspensions for students of color present in traditional high schools in the state of Indiana?

This research question was answered first by identifying whether disproportionality was present in rates of suspension among all high school students relative to their represented proportion statewide. By conducting a statewide analysis of suspension rate by ethnicity, broad data comparisons were made to determine if, and to what extent, disproportionality was present in traditional high schools. This was accomplished through the use of three different tools: suspension rate, Composition Index, and Risk Index.

First, suspension rate is calculated as the number of students in each ethnic group who were suspended out-of-school, divided by the total number of students in the same ethnic group, multiplied by 100. Disproportionality will be evident in the suspension rate if the rates of suspension are higher than the statewide suspension rate for all students or if there are notable differences in suspension rates between ethnicities.

The next measurement for this research question was through the use of the Composition Index (CI). CI measures whether a group is disproportionately overrepresented. To illustrate, in the case of North Adams High School, Black students make up 6/691 (less than 1%) and make up 3/34 out-of-school suspensions (nearly 10%). This can be further articulated by a statement such as "Black students make up less than 1% of the population, but make up nearly 10% of the total count of suspensions out-of-school." Since there is variance between these two numbers, it indicates overrepresentation based on ethnic composition within a school. The CI is a way to do a side-by-side comparison of the composition of a particular ethnic group and the composition of that ethnicity in total suspension rates.

The means of enrollment and suspension were analyzed through a paired samples *t* test to measure means and identify to what degree there is a statistical significance in the difference when comparing these means. The independent variables for this measurement were suspension by ethnicity and enrollment by ethnicity.

Finally, the Risk Index was utilized to determine the risk of suspension of each ethnic group statewide. Answering such questions as "are discipline rates higher for Black students in urban settings?" is the purpose of the Risk Index. Risk Index identifies the rate at which students in a particular group are suspended. For example, North Adams High school has three suspensions for Black students of a total enrolment of 6. Dividing 3 by 6/100 gives a risk index of 50%, or a 50% chance of being suspended for Black students in that school. This risk index will be averaged for each ethnic group in all settings and compared based on locale.

Risk Index can be measured from 0.00, being no risk, and 1.00, total risk. Risk Index measures the propensity of a group to be suspended by measuring Count of OSS to Count of Student by Ethnicity. The number can be interpreted as Score/100 = Likelihood of suspension per 100 students. For example, a RI of .20 would indicate a one in five chance of suspension.

The Risk Index scores are similar to suspension rate, as it generates rates of suspension per 100 students.; the difference is in the analysis. These data points were analyzed through a one-sample *t* test to measure means and identify to what degree there is a statistical significance in the difference when comparing the means to a test value of zero. The independent variable for this test is Risk Index scores by ethnicity. Through the analysis, schools that do not represent specific students' populations are excluded from the analysis. For example, Hawaiian/Pacific Islander students are only represented by 75/221 of the high schools in the study. Conversely, suspension rate accounts for all schools whether each ethnic group is represented or not.

Research Question 2. How do rates of suspension vary between geographical locations (i.e., urban, suburban, town, rural) for students of color?

This research question was answered by comparing suspension rate in each locale to identify the differences in statewide suspension rate. Next, the composition index (CI). CI measures whether a group is disproportionately overrepresented. These data points were analyzed through a paired samples *t* test to measure means and identify to what degree there is a statistical significance in the difference when comparing these means. This was analyzed regionally based on locale designation (rural, suburban, town, city). The independent variables for this test were enrollment percentage by ethnicity and suspension percentage by ethnicity. The grouping variable for this test was locale designation.

Next, the Risk Index was utilized to determine the risk of suspension of each ethnic group and compare those rates to each locale. The RI scores were averaged for each ethnicity and were analyzed through a one-sample t test. These data were analyzed by locale designation (rural, suburban, town, city) to identify regional differences based on ethnicity. Here again, the independent variable for this test was Risk Index scores with a grouping variable of locale designation.

Research Question 3. To what extent are students of color more likely to receive out-of-school suspension compared to their White peers?

This was measured through the use of the Relative Risk Index (RRI). The RRI identifies to what degree disproportionality exists between groups by comparing students of color and White students in order to compare suspension rates by assigning a numeric value, or score, to each ethnic group compared to a baseline of 1.0. For example, if an ethnic group has an RRI of 1.0, the score indicates that rates of OSS are the same for that ethnic group and White students.

RRI's that are greater than 1.0 indicate to what degree disproportionality in discipline is present, or over-representation; RRI's less than 1.0 indicate under-representation in suspensions.

This research question was answered by comparing the statewide means of all ethnicities to a baseline score of 1.0. Then each locale was analyzed separately to determine how varied the scores are with respect to their assigned locale. Through a paired samples *t* test, these means were measured to identify statistical significance when comparing these means to the baseline score of 1.0. The independent variable for this test was the Relative Risk Index score by ethnicity which was measured against the testing variable of a score of 1.0.

Research Question 4. To what extent does the percentage of teachers within their first one to two years of teaching impact rates of suspension across all ethnicities and locales?

The metric chosen for this research question in the Relative Risk Index. These scores were analyzed through the lens of teacher experience by first identifying the percentage of novice teachers in a building and then determining if there is a relationship between higher percentages of disproportionality and higher percentages of novice teachers. Since this is the method of analyzing disproportionality that explicitly identifies how many times more likely a student of color will be suspended compared to their White peers, this metric gives a straightforward analysis of disproportionality in all settings.

In order to determine the strength of the relationship between these scores and the percentage of teachers within their first one to two years of teaching in a building, a correlational analysis was conducted. A correlational analysis will identify if, and how strong the relationship is between the variables of Relative Risk Index and Percentage of Novice Teachers. Separate correlational analyses were conducted first statewide, and then for each locale. The independent

variables for this test were Relative Risk Index scores by ethnicity and percentage of teachers within the first one to two years of teaching.

Research Question 5. To what extent is disproportionality present in the percentage of instructional days missed due to out-of-school suspensions across all ethnicities and locales?

This research question will be answered by comparing the count of out-of-school suspensions for each ethnic subgroup relative to the total instructional days missed due to the out-of-school suspension. These raw numbers of total days of suspensions by ethnicity and total instructional days missed due to suspension by ethnicity will be converted to percentages and compared. Since this research study is specifically looking at disproportionality in student suspension rates, these data points will identify if a specific group is receiving a greater or lesser share of total instructional days missed due to out-of-school suspensions.

This ratio should be equal based on the composition of each ethnic group within a school in order for proportionality to be present. For example, if Black students make up 6% of the student body, then that group should account for no more than 6% of the total instructional days missed for out-of-school suspensions. Anything more or less than that would indicate disproportionality. These data points were analyzed through a paired samples *t* test to compare these two means, determine statistical significance, and identify to what degree there is a difference between these two averages. The independent variables for this test were suspension percentage by ethnicity and percentage of instructional days missed by ethnicity. This was measured statewide and then regionally based on the grouping variable of locale designation.

Summary

This chapter detailed the research methodology used in this quantitative study of disproportionality in student discipline in Indiana high schools. This chapter outlined the research methodology by discussing research questions, study design, population, variables, data collection methods and sources, and statistical analysis. Chapter 4 will outline the research findings of each research question through the statistical data analysis methods described in Chapter 3.

Chapter 4: Findings

Introduction

Chapter 4 will examine the data collected and present findings from that research. Five main research questions will guide the narrative for Chapter 4: (1) To what extent is disproportionality in suspensions for students of color present in traditional high schools in the state of Indiana? (2) How do rates of suspension vary between geographical locations (i.e., urban, suburban, town, rural) for students of color? (3) To what extent are students of color more likely to receive out-of-school suspension compared to their White peers? (4) To what extent does the percentage of teachers within their first one to two years of teaching impact rates of suspension across all ethnicities and locales? (5) To what extent is disproportionality present in percentage of instructional days missed due to suspension across all ethnicities and locales?

Descriptive Statistics

In total, there were 221 traditional high schools represented in the study population. This includes 243,279 students that represent 7 ethnic categories. Table 1 details the ethnicities

Table 1

Statewide Enrollment by Ethnicity

Ethnicity	Total Enrollment	Percentage
Hawaiian/Pac. Isl.	159	0.1%
Am. Indian	574	0.2%
Asian	5711	2.3%
Multiracial	10,185	4.2%
Hispanic	24,371	10.0%
Black	24,467	10.1%
White	177,812	73.1%
Total	243,279	100.0%

represented throughout the state, with White students making up the majority at 73.1% of the total enrollment population statewide. Students of color make up 26.9% of the total student population; within this group, the largest ethnicity represented is Black students at 10.1%. The ethnicity that is the least represented is Hawaiian/Pacific Islander students at 0.1%, with only 159 total students in the population of this research study.

Table 2 details the number of schools that represent each ethnicity statewide. Of the 221 school represented in this study, the largest count of schools is located in the rural locale (36.6%), followed by town, suburban and city.

Table 2

Number of High Schools by Locale

Locale	Total School Count	Total School Percentage
City	34	15.4%
Suburban	51	23.1%
Town	55	24.9%
Rural	81	36.6%
Total	221	100.0%

Not all ethnicities are represented in all schools, however, and Table 3 details the variation in ethnicities present in each locale. Of particular note, only White and Multiracial students are found in all of the 221 high schools across all locales. There are several high schools represented in this study that have one or more missing ethnicities in their student population with Hawaiian/Pacific Islander being the least represented and only present in 33.9%, or 75 of the high schools in this study. Table 3 also identifies that when looking at each locale separately, students of color are largely concentrated in city and suburban locales, 45.7% and 29.2% respectively; whereas town and rural areas have significantly fewer students of color, 13.7% and 12.2% respectively. White students are represented in the city locale at 54.3% and represented in the rural locale at 87.8%. White students make up a total of 73.1% of the total population across all locales. A majority of students, nearly 60%, are concentrated in the city and suburban locales.

Table 3

Enrollment Counts by Locale and Ethnicity

Ethnicity	Town	Rural	City	Suburban	Totals
Am. Indian	37	19	60	43	159
Hawaiian/Pac. Isl.	123	143	111	197	574
Asian	351	415	2,714	2,231	5,711
Multiracial	1,352	1,455	3,965	3,413	10,185
Hispanic	3,454	3,146	8,615	9,156	24,371
Black	814	1,293	13,436	8,924	24,467
White	38,651	46,619	34,477	58,065	177,812

Totals	44,782	53,090	63,378	82,029	243,279

Research Question 1

To what extent is disproportionality in suspensions for students of color present in traditional public high schools in the state of Indiana?

Research question 1 is answered by first looking at the difference in suspension rates between ethnicities statewide. Throughout the literature review of suspension rates for all students, there was no research to suggest that public high schools nationally or regionally have achieved a level of proportionality in relation to out-of-school suspension; therefore, ~~I~~ consistent ~~anticipated consistent~~ disproportionality was anticipated in all settings (Monroe, 2005; Skiba et al., 2011; Skiba & Peterson, 2000). Table 4 details the suspension rate for each ethnic group, as well as the statewide average for all students. Suspension rate is determined by taking the total number of students suspended in an ethnic group, divided by the total enrollment for that ethnic group, multiplied by 100. This gives a numerical value than can be compared to the statewide average and between ethnic groups.

Table 4

Suspension Rate by Ethnicity, Statewide

Ethnicity	Total Suspension Count	Total Enrollment Count	Suspension Rate Per 100 Students	Student Suspension Average
Black	4,694	24,467	19.2	1 in 5
Multiracial	1,100	10,185	10.8	1 in 9
Hispanic	1,890	24,371	7.8	1 in 13
Am. Indian	41	574	7.1	1 in 14
Hawaiian/Pac. Isl.	10	159	6.3	1 in 16
White	9,717	177,812	5.5	1 in 18

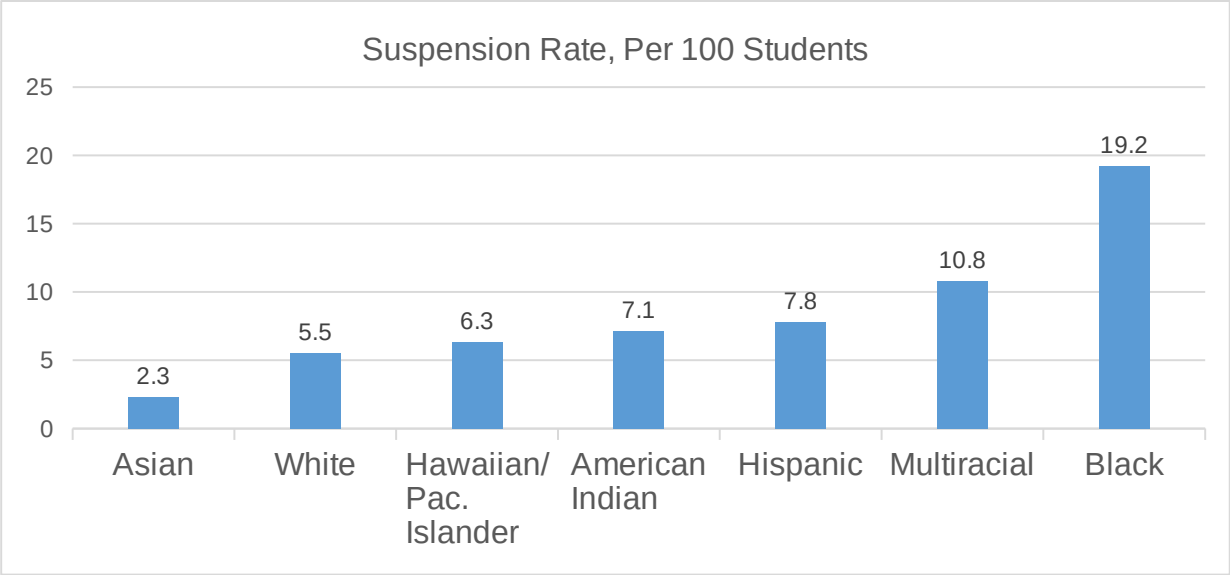
Asian	133	5711	2.3	1 in 43
Total	17,585	243,279	7.2	1 in 14

The statewide suspension rate is 7.2, meaning that an average of 1 in 14 students were suspended when including all ethnic groups. Hispanic, Multiracial, and Black students have suspension rates higher than the state average, with rates of 7.8, 10.8, and 19.2, respectively. Of particular note, Black students are suspended at a rate 2.5 times higher than the state average. Asian and White students have the lowest suspension rates, at 2.3 and 5.5, respectively. When comparing Black student suspension rates to that of White students, Black students are suspended at a rate 3.5 times greater than White students and 8 times greater than Asian students. Multiracial students are suspended at rates 2 times higher than White students and 5 times that of Asian students.

There is evidence of disproportionality when looking at suspension rates for all ethnicities statewide. As Figure 1 displays, when looking at each ethnic group, it is evident that there are differences in the suspension rater per 100 students, especially for students of color. The only exception is the low rate of suspension for Asian students.

Figure 1

Total Suspension Rate by Ethnicity, Statewide



The second measure of disproportionality in suspensions in this study is the Composition Index. Composition Index provides a side-by-side comparison of the difference in means of suspensions out of school and total percentage of enrollment by ethnicity. If the average percentage of suspensions is greater or less than the average percentage of students within an ethnic group, over or under-representation is present. In order to determine the statistical significance of the difference in these means, a paired samples *t* test was conducted. Table 5 details the difference in means between enrollment and suspension percentages by ethnicity.

When comparing enrollment and suspension percentages statewide, there is evidence of statistically significant differences in these two means. For Asian students, there is evidence in underrepresentation when comparing representation in total enrollment percentage students (*M* =

Table 5

Difference in Enrollment and Suspension Percentages by Ethnicity, (CI) Statewide

Ethnicity	Percentage Enrollment	Percentage OSS	Percentage Difference +/-
Hawaiian/Pac. Isl.	0.19%	0.12%	-0.07%
Am. Indian	0.33%	0.34%	+0.01%
Asian	1.59%	0.62%	-0.97% ***
Multiracial	3.52%	5.36%	+1.84% ***
Hispanic	8.82%	8.67%	-0.16%
Black	7.45%	12.81%	+5.36% ***
White	79.24%	73.57%	-5.68% ***

*** p <.001

1.59, *SD* = 2.41), and OSS percentage (*M* = .62, *SD* 1.80); *t*(195) = 9.477, *p* = <.001. White students were also underrepresented when comparing total enrollment percentage, (*M* = 79.24, *SD* = 21.61) and OSS percentage (*M* = 73.57, *SD* 26.32); *t*(220) = 9.063, *p* = <.001.

The difference in means for Multiracial and Black students were overrepresented in average suspension rates in all settings. Enrollment percentage for Multiracial students, (*M* = 3.52, *SD* = 2.47), is statistically different from OSS percentage (*M* = 5.35, *SD* 6.22); *t*(220) = -5.020, *p* = <.001; and for Black students when comparing enrollment percentage, (*M* = 7.45, *SD* = 14.68), and OSS percentage (*M* = 12.81, *SD* 20.18); *t*(199) = -9.587, *p* = <.001.

The final measure of disproportionality for Research Question 1 is the Risk Index. Risk Index also identifies the number of students suspended per 100 students. Unlike suspension rate, which accounts for all schools whether each ethnic group is represented or not, Risk Index analyzes suspension data only from schools where specific ethnic groups are present. In order to

compare the Risk Index scores for each ethnic group statewide, a one-sample t test was performed.

Table 6 details the Risk Indices for each ethnic group. Similar to suspension rates associated with Black students statewide, Black students had the greatest likelihood of suspension statewide with an RI of 15.39 (SD = 21.81); $t(197) = 9.928$. p = <.001. The lowest RI scores were associated with Asian and White students with values of 2.28 and 6.10, respectively.

Table 6

Suspension Rate Per 100 Students (Risk Index), Statewide

	Schools Represented N = 221	Risk Index
Ethnicity		
Asian	195	2.28 ***
White	221	6.10 ***
Hawaiian/Pac. Isl.	75	6.59 *
Am. Indian	165	8.10 ***
Hispanic	220	9.17 ***

Multiracial	221	11.93 ***
Black	198	15.39 ***

* $p < .05$. *** $p < .001$.

Research Question 2

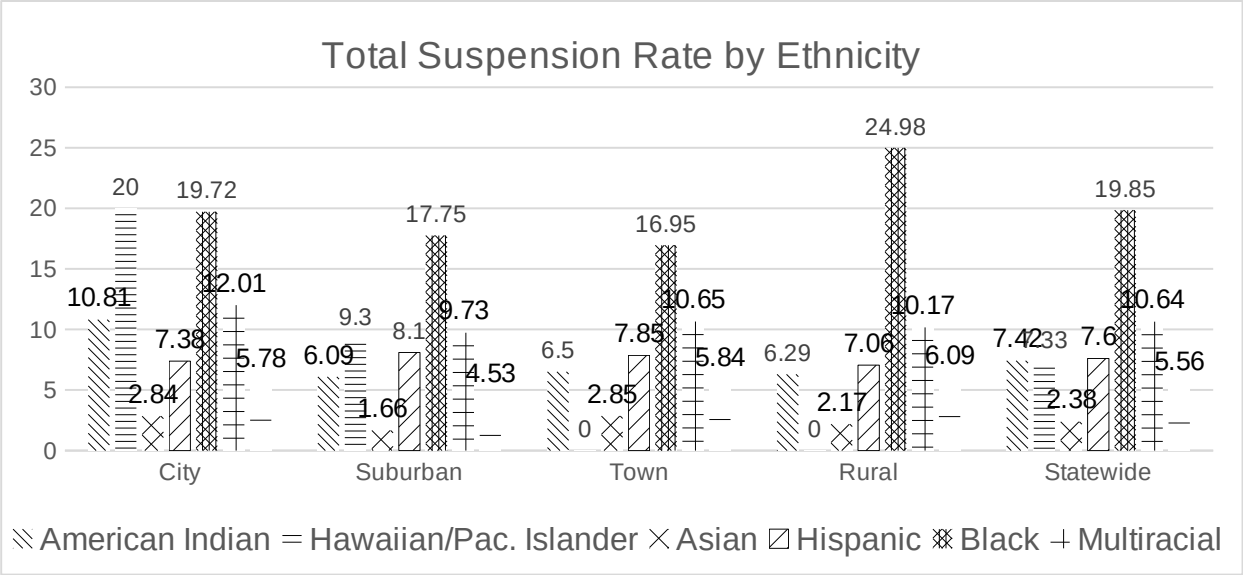
How do rates of suspension vary between geographical locations (i.e., urban, suburban, town, rural) for students of color?

The second research question focuses on the differences in suspension rates and the disproportionality metrics of Composition Index and Risk Index when accounting for each of the four locales: city, suburban, town and rural. The first metric that was analyzed was the suspension rate for each ethnicity and how these rates differ for each locale. Figure 2 displays the suspension rate by ethnicity across all locales.

As Figure 2 depicts, Asian and White students had the lowest suspension rates overall with a statewide average of 2.38 and 5.56 respectively. When looking at specific locales, Asian and White students both had the lowest suspension rates in the suburban locale with rates of 1.66 and 4.53 per 100. This means that Asian students were suspended at a rate of one in 60 and White students were suspended at a rate of one in 22 in the suburban locale. When these rates are compared to Black student's suspension rates of one in six and Multiracial student's suspension rates at one in four in the rural locale, there is clear evidence of disproportionality in suspension rates among ethnic groups and locales.

Figure 2

Total Suspension Rate by Ethnicity across all Locales



Note. Suspension rate includes all schools in each locale.

Research Question 2 is also answered by looking again at the Composition Index between each locale. In Research Question 1, Composition Index was analyzed statewide. In Research Question 2, the means of enrollment percentage by ethnicity and suspension percentage by ethnicity are disaggregated by locale. To determine the statistical significance of the difference in these means, a paired samples *t* test was conducted for each locale. A paired samples *t* test was chosen as a method to compare the means of two related pairs of data, which is enrollment percentage by ethnicity and suspensions by ethnicity. Perfect proportionality would result in these number being equal; any difference either positive or negative indicates disproportionality.

Table 7 displays the Composition Index for each locale. There are evident patterns of disproportionality. The city and suburban locales show disproportionality for Black and Multiracial students in overrepresentation in suspension percentages, whereas White and Asian students are consistently suspended at rates far lower than their enrollment percentage. In the City locale, Black students make up 22.5% of the enrollment population, but make up 36.7% of total students suspended. This makes up a difference of 14.2%, the largest disproportionate measurement when looking at the Composition Index. This is second only to White students in the city locale, who make up an enrollment of 53.7% and a suspension percentage of 42%, a difference of almost 12%. In the suburban locale, Black and Multiracial students are disproportionately represented in suspensions out of school nearly twice that of their enrollment percentage.

Table 7

Enrollment and Suspension Percentages by Ethnicity and Locale, (CI)

	City		Suburban		Town		Rural	
	Enroll.	OSS %	Enroll.	OSS %	Enroll.	OSS %	Enroll.	OSS %
Haw./Pac. Isl.	0.18%	0.32%	0.11%	0.10%	0.33%	0.00%	0.15%	0.00%
Am. Indian	0.26%	0.17%	0.29%	0.21%	0.35%	0.36%	00.4%	0.54%
Asian	3.62%	1.53%	2.24%	0.87%	0.83%	0.31%	0.76%	0.26%
Multiracial	6.37%	9.53%	4.08%	7.40%	2.83%	4.00%	2.43%	3.23%
Hispanic	13.84%	10.01%	13.01%	12.46%	6.49%	7.54%	5.61%	6.43%
Black	22.49%	36.70%	10.42%	18.45%	1.57%	3.41%	1.78%	3.11%
White	53.65%	42.00%	70.09%	60.65%	88.10%	84.73%	89.74%	87.38%

Note. Composition Index compares enrollment and suspension percentages by ethnicity.

When looking at all locales separately, differences in the enrollment percentage by ethnicity and out-of-school suspension percentage by ethnicity begin emerge starting with an analysis of the city locale, detailed in Table 8. Underrepresentation in the city locale for White students by 11.65% when comparing total enrollment (M = 53.65, SD = 24.00) and OSS percentage (M = 42.00, SD = 23.82); $t(33) = 10.406$, $p < .001$. This was true in underrepresentation of Asian students by 2.10% when comparing total enrollment (M = 3.62, SD = 4.83) and OSS percentage (M = 1.53, SD 3.66); $t(30) = 6.414$, $p < .001$. Conversely, there is statistically significant overrepresentation in suspension for Black students by 14.21%: enrollment percentage (M = 22.48, SD = 23.16) compared to OSS percentage (M = 36.70, SD = 25.56); $t(33) = -8.642$, $p < .001$; and Multiracial students by 3.16%: enrollment percentage (M = 6.37, SD = 2.58) compared to OSS percentage (M = 9.53, SD = 5.35); $t(33) = -3.548$, $p < .001$.

Table 8

Enrollment Percentage and OSS Percentage by Ethnicity (CI), City

Ethnicity	Total Count $N = 34$	Percentage Enrollment	Percentage OSS	Percentage Difference +/-
Am. Indian	30	0.26%	0.17%	+0.09%
Asian	31	3.62%	1.53%	-2.10% ***
Hawaiian/Pac. Isl.	21	0.18%	0.32%	-0.14%
Hispanic	34	13.84%	10.01%	-3.83% **
Black	34	22.49%	36.70%	+14.41% ***
Multiracial	34	6.37%	9.53%	+3.16% **
White	34	53.65%	42.00%	-11.65% ***

** $p < .01$. *** $p < .001$

Table 9 provides Composition Index data for the suburban locale. Disproportionality is evident in the differences in enrollment and suspension percentages between White and Black students. White students are underrepresented in suspensions when comparing enrollment percentage (M = 70.09, SD = 24.39) and OSS percentage (M = 60.65, SD = 27.41); $t(50) = 6.102$, $p < .001$. Black students, however, are overrepresented in suspensions when comparing enrollment percentage (M = 10.42, SD = 14.96) and OSS percentage (M = 18.45, SD = 20.67); $t(50) = -7.140$, $p < .001$. Statistically significant overrepresentation for Multiracial students is evident as well as underrepresentation for Asian students in the suburban locale.

Table 9

Enrollment Percentage and OSS Percentage by Ethnicity (CI), Suburban

Ethnicity	Total Count N = 51	Percentage Enrollment	Percentage OSS	Percentage Difference +/-
Am. Indian	44	0.29%	0.21%	-0.08%
Asian	48	2.24%	0.87%	-1.37% ***
Hawaiian/Pac. Isl.	22	0.11%	0.10%	-0.01%
Hispanic	51	13.01%	12.46%	-0.55%
Black	51	10.42%	18.45%	+8.03% ***
Multiracial	51	4.08%	7.40%	+3.32% **
White	51	70.09%	60.65%	-9.44% ***

** $p < .01$. *** $p < .001$

In the town locale (Table 10), there are much smaller differences in percentages when comparing enrollment and OSS percentage by ethnicity. Though statistically significant differences are still presented for nearly all ethnic groups, the greatest difference for Black students. Black student enrollment (M = 1.57, SD = 3.91), and OSS percentage (M = 3.41, SD = 6.96); $t(50) = -3.544$, $p < .001$, shows an overrepresentation of OSS percentage more than twice that of the total population. To contrast in the town locale, Asian student enrollment (M = .83, SD = .52) and OSS percentage (M = .31, SD = .42); $t(48) = 3.995$, $p < .001$ indicates the opposite, with suspension percentages more than twice that of their total population.

Table 10

Enrollment Percentage and OSS Percentage by Ethnicity (CI), Town

Ethnicity	Total Count $N = 55$	Percentage Enrollment	Percentage OSS	Percentage Difference +/-
Am. Indian	44	0.35%	0.36%	+0.01%
Asian	49	0.83%	0.31%	-0.52% ***
Hawaiian/Pac. Isl.	17	0.33%	0.00%	-0.33% **
Hispanic	55	6.49%	7.54%	+1.05%
Black	51	1.57%	3.41%	+1.84% ***
Multiracial	55	2.83%	4.01%	+1.18% *
White	55	88.10%	84.73%	-3.38% **

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 11 displays the difference in means between enrollment and suspension percentages in the rural locale. The greatest negative difference in percentage, which indicates underrepresentation, is noted is for White students with an enrollment percentage (M = 89.74, SD = 10.65) and an OSS percentage (M = 87.38, SD = 15.50); $t(80) = 2.679$, $p = .009$. This is closely followed by Black students when comparing enrollment percentage (M = 1.78, SD = 4.50) and OSS percentage (M = 3.12, SD = 8.13); $t(63) = -2.646$, $p = .010$. This indicates statistically significant overrepresentation in suspensions relative to the total representation in the student population.

Table 11

Enrollment Percentage and OSS Percentage by Ethnicity (CI), Rural

Ethnicity	Total Schools N = 81	Percentage Enrollment	Percentage OSS	Percentage Difference +/-
Am. Indian	47	0.40%	0.54%	+0.01%
Asian	68	0.76%	0.26%	-0.50% ***
Hawaiian/Pac. Isl.	15	0.15%	0.00%	-0.15% ***
Hispanic	80	5.61%	6.43%	+0.82%
Black	64	1.78%	3.11%	+1.33% *
Multiracial	81	2.43%	3.23%	+0.80%
White	81	89.74%	87.38%	-2.36% *

* $p < .05$. ** $p < .01$. *** $p < .001$.

When considering all ethnic groups in all locales (Table 12), there are several significant findings. American Indian student suspension rates relative to their ethnicity percentage within high schools was the closest of all ethnic groups, meaning the differences were the closest and no significant disproportionality was found. Asian students were consistently underrepresented in suspensions in all settings and at the greatest statistical significance. Hawaiian/Pacific Islander students represented the smallest ethnic group in the study, however, statistically significant disproportionality was identified in both the town and rural locales. This is due to the fact that no suspensions were recorded for either locale for this ethnic group.

Disproportionality among Hispanic students in this population can be found only in the city locale. Black students had disproportionality in suspension rates in all locales. Black students also had the highest difference in percentage between enrollment and suspension percentages at +14.21% in the city locale, the greatest single measure of disproportionality when measuring these two means. Multiracial students were suspended at disproportionate rates in

Table 12

Difference in Means Between Enrollment and Suspension Percentages (CI)

	City	Suburban	Town	Rural	Statewide
Ethnicity					
Am. Indian	-0.09%	-0.08%	+0.01%	+0.01%	-0.09%
Asian	-2.10% ***	-1.37% ***	-0.52% ***	-0.50% ***	-0.97% ***
Haw./Pac. Isl.	+0.14%	-0.01%	-0.33%	-0.15% ***	-0.07%
Hispanic	-3.83% ***	-0.55% ***	+1.05% ***	+0.82%	-0.16%
Black	+14.21% ***	+8.03% ***	+1.84% ***	+1.33% *	+5.36% ***
Multiracial	+3.16% **	+3.32% **	+1.18% *	+0.80%	+1.84% **

White	-11.65% ***	-9.44% ***	-3.38% ***	-2.36% **	-5.68% ***

* $p < .05$. ** $p < .01$. *** $p < .001$.

three of the four locales at varying levels of significance, with the greatest being in the city and suburban locales. In the city locale, White students had the single greatest measure of underrepresentation when measuring the difference between enrollment percentage and suspension percentage by ethnicity with a difference of -11.65%. White students were also underrepresented in proportion of suspensions in each of the four locales.

Next, Risk Index was analyzed for each locale. As individual locales are separated to highlight differences for each ethnic group, evident disparities emerge. In the city locale, detailed in Table 13, the highest risk for Multiracial students is identified at 21.44 ($M = 21.44$; $SD = 37.41$), $t(33) = 3.342$, $p = .002$. This indicates that 21.44% of multiracial students in the city locale were suspended for the 2017-2018 reporting year. When these rates are compared to White students at 7.65 ($M = 7.65$; $SD = 6.19$), $t(33) = 7.204$, $p = < .001$, and Asian students at 1.80 ($M = 1.80$; $SD = 2.32$), $t(30) = 4.325$, $p = < .001$, disproportionality is evident. To illustrate, Multiracial students in the city locale are suspended at nearly three times the rate of White students and nearly 12 times that of Asian students.

Table 13

Suspension Rate Per 100 Students (Risk Index), City Locale

	Schools Represented $N = 34$	Risk Index
Ethnicity		
Am. Indian	30	10.37 *
Asian	31	1.80 ***
Hawaiian/Pac. Isl.	21	14.81 *
Hispanic	34	10.73 **
Black	34	19.92 **
Multiracial	34	21.44 **
White	34	7.65 ***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Black students are suspended at higher rates than any other group in the suburban locale (Table 14) at a rate of 16.42 ($M = 16.42$; $SD = 14.64$), $t(49) = 7.933$, $p = < .001$; that is 3 times greater than that of White students who are suspended at a rate of 5.63 ($M = 5.63$; $SD = 4.02$), $t(50) = 10.02$, $p = < .001$. Statistically significant disproportionality is noted for each ethnic group aside from Hawaiian/Pacific Islander students. Additionally, Asian students have the lowest suspension rate of any other group in the suburban locale at 1.56 ($M = 1.56$; $SD = 2.40$), $t(47) = 4.504$, $p = < .001$.

Table 14

Suspension Rate Per 100 Students (Risk Index), Suburban Locale

	Schools Represented $N = 51$	Risk Index
Ethnicity		
Am. Indian	44	12.09 *
Asian	48	1.56 ***
Hawaiian/Pac. Isl.	22	8.33
Hispanic	51	7.10 ***
Black	50	16.42 **
Multiracial	51	12.61 ***
White	51	5.63 ***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 15 details the data for the town locale. It should be noted that a value cannot be generated for Hawaiian/Pacific Islander students due to the fact that, although they are present in the enrollment for the rural locale, no students from this category were suspended in the 2017-2018 reporting year. Here similar trends emerge for suspension rates being highest for Black, Multiracial, Hispanic, and American Indian Students relative to their White peers. Though Asian students have a Risk Index score lower than any other ethnic group in the town locale, ($M = 3.32$; $SD = 14.67$), $t(47) = 1.570$, $p = .123$, this value is not statistically significant.

Table 15

Suspension Rate Per 100 Students (Risk Index), Town Locale

	Schools Represented *N* = 55	Risk Index
Ethnicity		
Am. Indian	44	5.43 *
Asian	48	3.32
Hawaiian/Pac. Isl.	17	0.00[x]
Hispanic	55	7.01 ***
Black	51	14.90 ***
Multiracial	55	9.29 ***
White	55	5.39 ***

* $p < .05$. ** $p < .01$. *** $p < .001$. [x]. Standard deviation is 0.

Similar to the town locale, the rural locale (Table 16) also did not suspend a single Hawaiian/Pacific Islander student, meaning a value could not be produced. Here again, Black, Multiracial, and Hispanic students have suspension rates higher than that of White students with a rate of 6.22 ($M = 6.22$; $SD = 4.82$), $t(80) = 11.609$, $p = <.001$, Though Asian students still have the lowest suspension rates, 2.27 ($M = 2.27$; $SD = 8.38$), $t(67) = 2.232$, $p = .029$, American Indian students have a Risk Index value of 5.40 ($M = 5.40$; $SD = 18.15$), $t(46) = 2.041$, $p = .047$, lower than that of White students for the first time across all locales.

Table 16

Suspension Rate Per 100 Students (Risk Index), Rural Locale

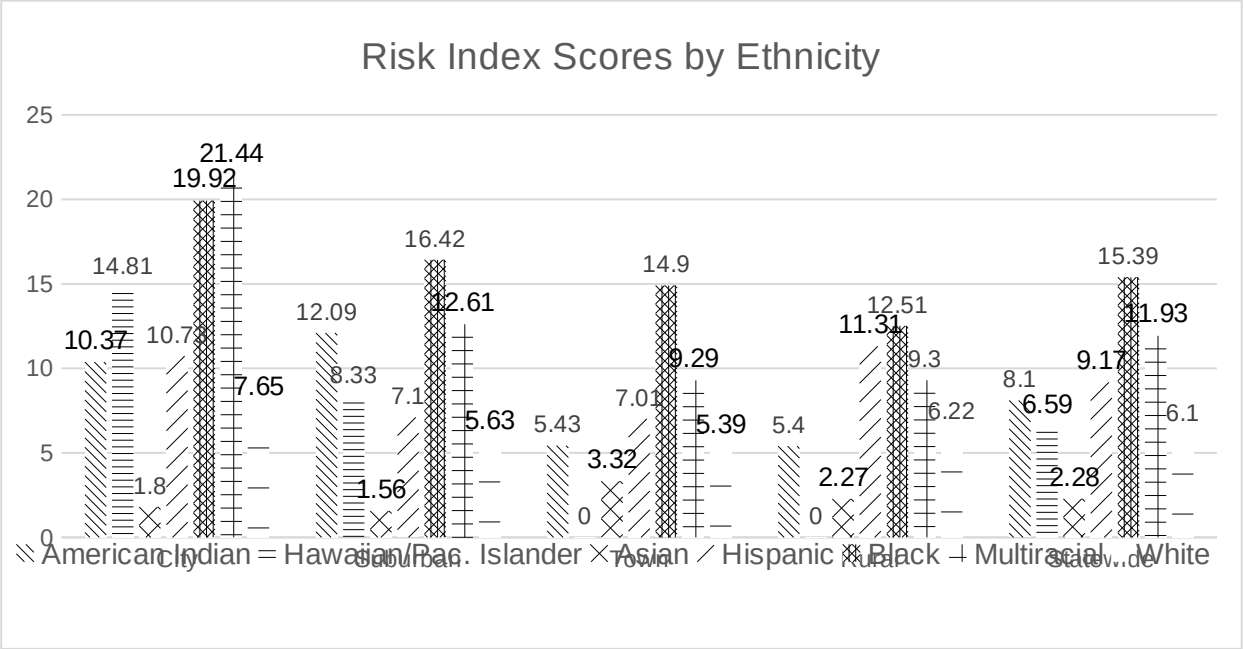
	Schools Represented $N = 81$	Risk Index
Ethnicity		
Am. Indian	47	5.40 *
Asian	68	2.27 *
Hawaiian/Pac. Isl.	15	0.00[x]
Hispanic	80	11.31 ***
Black	63	12.51 ***
Multiracial	81	9.30 ***
White	81	6.22 ***

* $p < .05$. ** $p < .01$. *** $p < .001$. [x]. Standard deviation is 0.

Figure 3 displays the comparison of all locales and ethnicities in one comprehensive picture. Statistically significant disproportionality is evident in each locale and statewide for virtually every non-White ethnic category aside from Asian students that have suspension rates approximately 1.5 – 4 times less than White students and far less than any other ethnic category. This is particularly critical for Black students who are suspended at rates ranging from 2 – 3 times greater than White students and Multiracial students at rates 1.5 – 3 times greater than White students.

Figure 3

Risk Index Scores by Locale



Note. Risk Index measures the number of suspensions per 100 students.

Research Question 3

To what extent are students of color more likely to be suspended out of school compared to their White peers?

Research Question 3 was answered by looking at the Relative Risk Index (RRI), which analyzes the Risk Index of each ethnic group compared to the Risk Index of the White student group. This provides a numerical value that identifies the number of times more likely one ethnic group is likely to be suspended compared to White students. Single-sample t tests were

conducted to analyze the means of each ethnic group relative to a value of 1.00, a value that would indicate exact proportionality.

Table 17 analyzes the RRI's of each ethnic group in all settings. When looking at all locales, there is statistically significant over-representation in disproportionality measures for all ethnic groups based on a greater likelihood of suspension compared to White students. Underrepresentation is highlighted only for Asian students, (M = .40; SD = 1.43), $t(194)$ = -5.889, p = < .001, a score that indicates that these students are much less likely as their White peers to be suspended from school.

Table 17

Risk of Suspension Compared to White Reference Group, (RRI) Statewide

	Schools Represented N = 221	Relative Risk Index
Ethnicity		
Asian	195	0.40 ***
Am. Indian	165	1.32
Hispanic	220	1.52 **
Hawaiian/Pac. Isl.	75	1.53
Multiracial	221	2.13 ***
Black	198	2.90 ***

White	---	Reference Group

** $p < .01$. *** $p < .001$.

When looking more closely at individual locales, the city locale (Table 18) details disproportionality in suspension in RRI scores. The RRI scores are highest for Black students, ($M = 3.51$; $SD = 3.40$), $t(33) = 4.303$, $p = <.001$, who are suspended at rates 3.51 times greater than White students. Asian students have the lowest RRI score in the city locale ($M = 0.29$; $SD = 0.40$), $t(30) = -9.956$, $p = <.001$, rates more than two-thirds lower than that of White students.

Table 18

Risk of Suspension Compared to White Reference Group, (RRI) City

	Schools Represented $N = 34$	Relative Risk Index
Ethnicity		
Asian	31	0.29 ***
Am. Indian	30	1.14
Hispanic	34	1.34
Hawaiian/Pac. Isl.	21	2.39
Multiracial	34	2.55 **

Black	34	3.51 ***
White	---	Reference Group

** $p < .01$. *** $p < .001$.

In the suburban locale (Table 19), Black students have the greatest RRI score ($M = 3.30$; $SD = 2.76$), $t(50) = 3.036$, $p = <.001$, followed closely by Multiracial students who were suspended at rates 2.94 times greater than White students, ($M = 2.94$; $SD = 6.80$), $t(50) = 2.218$, $p = .031$. Asian students were nearly 3 times less likely to be suspended than White students in the suburban locale ($M = 0.35$; $SD = 0.52$), $t(47) = 8.683$, $p = <.001$.

Table 19

Risk of Suspension Compared to White Reference Group, (RRI) Suburban

	Schools Represented $N = 51$	Relative Risk Index
Ethnicity		
Asian	48	0.35 ***
Am. Indian	44	1.32
Hispanic	51	1.48 **
Hawaiian/Pac. Isl.	22	2.94

Multiracial	51	3.11 *
Black	50	3.30 ***
White	---	Reference Group

* $p < .05$. ** $p < .01$. *** $p < .001$.

In the Town locale (Table 20), there were fewer statistically significant RRI average scores than the city and suburban locales, but Black and Multiracial students were suspended at higher rates than their White peers. Black students had an RRI of 3.12 ($M = 3.12$; $SD = 4.48$), $t(50) = 3.374$, $p = .001$, and Multiracial students had an RRI of 1.78 ($M = 1.78$; $SD = 2.15$), $t(54) = 2.703$, $p = .009$. In the town locale, Hawaiian/Pacific Islander students were not suspended out of school for the 2017-2018 reporting year, resulting in a standard deviation value of zero.

Table 20

Risk of Suspension Compared to White Reference Group, (RRI) Town

	Schools Represented $N = 55$	Relative Risk Index
Ethnicity		
Hawaiian/Pac. Isl.	17	0.00[x]
Asian	48	0.54
Am. Indian	44	1.02
Hispanic	55	1.30

Multiracial	55	1.78 **
Black	51	3.12 **
White	---	Reference Group

** $p < .01$. [x]. Standard deviation is 0.

Table 21 details that rural schools have some of the smallest RRI values when looking at each locale, though the only statistically significant value is for Asian student with an RRI of 0.38 ($M = 0.38$; $SD = 1.66$), $t(67) = -3.116$, $p = .003$. Asian students were suspended at the lowest rates in the rural locale and mirror the statewide score of 0.40. Additionally, Hawaiian/Pacific Islander students were represented in the total population in the rural locale, but were not suspended out of school for the 2017-2018 reporting year.

Table 21

Risk of Suspension Compared to White Reference Group, (RRI) Rural

	Schools Represented $N = 81$	Relative Risk Index
Ethnicity		
Hawaiian/Pac. Isl.	15	0.00[x]
Asian	68	0.38 **
Multiracial	81	1.58

Am. Indian	47	1.72
Hispanic	80	1.77
Black	63	2.07
White	---	Reference Group

** $p < .01$. [x]. Standard deviation is 0.

Table 22 consolidates the RRI scores from each locale with their corresponding significance. Of particular note, despite having RRI's greater than 1.00, American Indian students do not show statistical significance in these values in any setting. The same is true for Hawaiian/Pacific Islander students in the city and suburban locales, also noting that though these students were represented in the student population of town and rural locale schools, there were no suspensions recorded for these students, resulting in no value.

Outside of town and rural locales, Black and Multiracial students had the highest RRI's with the greatest statistical significance, with a statewide average RRI of 2.90 and 2.13, respectively. The same is true for Asian students, only opposite: outside of the town locale, Asian students showed the most consistent underrepresentation in suspension rates relative to White students with an average RRI of 0.40 statewide. Hispanic students show a statistically significant RRI of 1.48 in the suburban locale only until accounting for the entire population statewide with an RRI of 1.52.

Table 22

Combined Relative Risk Index Scores, All Locales

	Relative Risk Index City	Relative Risk Index Suburban	Relative Risk Index Town	Relative Risk Index Rural	Relative Risk Index Statewide
Ethnicity					
Asian	0.29 ***	0.35 ***	0.54	0.38 **	0.40 ***

Am. Indian	1.14	1.32	1.02	1.72	1.32
Hispanic	1.34	1.48 **	1.30	1.77	1.52 **
Haw./Pac. Isl.	2.39	2.94	0.00[x]	0.00[x]	1.53
Multiracial	2.55 **	3.11 *	1.78 **	1.58	2.13 ***
Black	3.51 ***	3.30 ***	3.12 **	2.07	2.90 ***
White	Reference	Reference	Reference	Reference	Reference

* $p < .05$. ** $p < .01$. *** $p < .001$. [x]. Standard deviation is 0.

Research Question 4

To what extent does the percentage of teachers within their first one to two years of teaching impact rates of suspension across all ethnicities and locales?

Research Question 4 was answered by identifying if there is a relationship between the percentage of teachers within their first one to two years of teaching, and the Relative Risk Index (RRI) scores of each ethnicity and geographical location. RRI scores were used as the variable for this analysis because it is already a disproportionality metric developed to compare suspension rates from each ethnic group to that of White students.

Table 23 details descriptive statistics related to the distribution of novice teachers statewide and across each locale. The statewide of distribution of novice teachers is 9.54%. The locale that has the highest percentage of novice teachers is the town locale; the greatest concentration of teachers overall in the state is in the rural locale, which also has the greatest amount of schools represented in this study with 81 total schools. Given the research about higher turnover rates for novice teachers, especially in urban settings, the presumed hypothesis

Table 23

Statewide Distribution of Novice Teachers

	City	Suburban	Town	Rural	Statewide Totals
Total Count of All Teachers	2,028	3,461	2,665	5,345	13,499

Count of Novice Teachers	191.5	329	266	509.5	1,288
Percentage of Novice Teachers	9.44%	9.51%	9.98%	9.53%	9.54%

was that there would be a higher concentration of novice teachers in the city locale (Bal et al., 2017; Lacoe & Manley, 2019; Losen et al., 2014). This proved to not be the case, as the city locale actually had the lowest percentage of novice teachers overall.

In determining the relationship between variables, a correlational analysis was performed. Table 24 highlights the relationship between these two variables. With only the single exception of Asian students in the city locale, there are negligible correlations when analyzing the relationship between teacher experience and RRI scores for all locales. Asian students in the city locale have a moderate negative correlation (p = .051) when comparing these two variables. With a p value greater than .05, statistical significance is not found in this relationship.

Table 24

Correlational Relationship between Teacher Experience and RRI Scores

	City	Suburban	Town	Rural	Statewide
Ethnicity					
Am. Indian	-.055	-.022	-.205	-.106	-.106
Asian	-.354	-.042	-.041	.099	.003
Haw./Pac. Isl.	-.213	.007	---	---	-.016

Hispanic	-.164	.009	.046	.099	.058
Black	-.294	.091	.141	-.074	.000
Multiracial	-.194	.001	-.155	.131	.007
White	---	---	---	---	Reference

Note: none of the above values have a statistical significance of < .05 or lower. Hawaiian/Pacific Islander students were not suspended in the Town or Rural locale, resulting in no RRI score.

Research Question 5

To what extent is disproportionality present in the percentage of instructional days missed due to out-of-school suspensions across all ethnicities and locales?

Research Question 5 was answered by comparing the percentage of suspensions for each ethnic group compared to the proportion of total instructional days missed due to suspension. This analysis was completed to see whether there was a proportionate distribution of suspension days, which would indicate whether students of color are suspended for longer periods of time.

Table 25 details total suspension days for each ethnic group, separated by locale with the difference in suspension days and instructional days missed due to suspension for each locale and each ethnic group. Negative values indicate overrepresentation. When analyzing the raw data from all schools and each locale, disproportionality is evident, especially for Black students, who make up 10.06% of the total student population in the state, but make up 28.30% of the total instructional days missed due to suspension. When comparing that to White students, who make up 73.09% of the total student population yet only 54.22% of the total suspension days, disproportionality is evident.

This data was further analyzed through a paired samples *t* test which was performed to measure the statistical differences in the means associated with the number of instructional days missed due to suspension out of school relative to the percentage of suspensions by ethnicity.

Table 25

OSS Percentage and Days Missed Due to OSS by Ethnicity, All Locales

Ethnicity	City *N* = 34	Suburban *N* = 51	Town *N* = 55	Rural *N* = 81	Statewide *N* =221
Am. Indian					
Suspension Days	46	55	37	35	173
% Population	0.18%	0.24%	0.27%	0.27%	0.24%
% Days Missed	0.16%	0.21%	0.32%	0.21%	0.21%
% Difference	0.02%	0.03%	-0.05%	0.06%	0.03%
Asian					
Suspension Days	263	185	27	33	508
% Population	0.90%	2.72%	0.08%	0.04%	2.35%
% Days Missed	0.41%	0.72%	0.23%	0.20%	0.61%
% Difference	0.51%	2.00%	-0.15%	-0.16%	1.71%
Haw./Pac. Isl.					
Suspension Days	26	14	0	0	40
% Population	0.10%	0.05%	0	0	0.07
% Days Missed	0.09%	0.05%	0	0	0.05
% Difference	0.01%	0.00%	0.00%	0.00%	0.02
Hispanic					
Suspension Days	2,714	3,293	1,069	1,235	8,311
% Population	13.59%	11.16%	7.71%	5.93%	10.02%
% Days Missed	9.29%	12.77%	9.24%	7.47%	10.00%
% Difference	4.30%	-1.61%	-1.53%	-1.54%	0.02%
Black					
Suspension Days	13,813	6,780	658	2,255	23,506
% Population	21.20%	10.88%	1.82%	2.44%	10.06%

% Days Missed	47.33%	26.30%	5.69%	13.64%	28.30%
% Difference	-26.13%	-15.42%	-3.87%	11.20%	18.24%
Multiracial					
Suspension Days	2,480	1,483	697	830	5,490
% Population	6.25%	4.16%	3.02%	2.74%	4.19%
% Days Missed	8.50%	5.75%	6.03%	5.02%	6.61%
% Difference	-2.25%	-1.59%	-3.01%	-2.28%	-2.42%
White					
Suspension Days	9,845	13,970	9,078	12,150	45,043
% Population	54.40%	70.79%	86.31%	87.81%	73.09%
% Days Missed	33.73%	54.19%	78.49%	73.47%	54.22%
% Difference	20.67%	16.60%	7.82%	14.34%	18.87%
Suspension Totals	29,187	25,780	11,566	16,538	83,071

Table 26 displays that none of the differences are considered to be statistically significant when looking at all settings. Only when disaggregating based on locale is there data that is considered to be statistically significant.

Table 26

OSS Percentage and Days Missed Due to OSS by Ethnicity, Statewide

	Schools Represented $N = 221$	Percentage OSS	Percentage Days Missed Due to OSS	Percentage Difference
Ethnicity				
Black	138	18.59%	18.93%	-0.35%
Multiracial	163	7.26%	7.70%	-0.35%
Am. Indian	31	1.87%	1.67%	0.20%
Haw./Pac. Isl.	8	1.01%	0.74%	0.27%
Asian	52	2.33%	2.04%	0.29%
White	221	73.57%	73.24%	0.33%
Hispanic	220	11.98%	11.59%	0.39%

Note: none of the above values have a statistical significance of < .05 or lower.

The city locale, outlined in Table 27, details evidence of disproportionality in the allocation of suspension days in two different ways: Asian students were underrepresented in the percentage of instructional days missed due to suspension out of school ($M = 2.48$; $SD = 4.19$) relative to their total suspension percentage ($M = 3.16$, $SD = 4.82$); $t(14) = 2.264$, $p < .05$, with a difference of -.68%; Black students were overrepresented in the percentage of instructional days missed due to suspension out of school ($M = 39.28$, $SD = 26.51$) relative to their total suspension percentage ($M = 36.70$, $SD = 25.56$); $t(33) = -2.264$, $p < .05$, with a difference of +2.58%. All other ethnic groups do not show statistically significant differences in the means of these two variables.

Table 27

OSS Percentage and Days Missed Due to OSS by Ethnicity, City

	Schools Represented $N = 34$	Percentage OSS	Percentage Days Missed Due to OSS	Percentage Difference
Ethnicity				
Black	34	36.70%	39.28%	-2.58% *
Multiracial	34	9.53%	9.77%	-0.23%
Am. Indian	8	0.72%	0.74%	-0.02%
Haw./Pac. Isl.	5	1.34%	0.88%	0.46%
Asian	15	3.16%	2.48%	0.68% *
Hispanic	31	10.98%	10.21%	0.76%
White	34	42.00%	40.24%	1.76%

* $p < .05$.

The suburban locale, detailed in Table 28, details the difference in suspension percentage and instructional days missed due to suspension percentage, but no statistically significant values were identified.

Table 28

OSS Percentage and Days Missed Due to OSS by Ethnicity, Suburban

	Schools Represented $N = 51$	Percentage OSS	Percentage Days Missed Due to OSS	Percentage Difference
Ethnicity				
White	51	60.65%	62.55%	-1.90%
Asian	22	1.88%	2.02%	-0.14%
Haw./Pac. Isl.	3	0.45%	0.49%	-0.04%
Am. Indian	9	1.03%	1.05%	-0.02%
Multiracial	51	7.40%	7.35%	0.05%
Hispanic	47	13.51%	12.85%	0.76%
Black	46	20.50%	19.04%	1.46%

Note: none of the above values have a statistical significance of < .05 or lower.

The town locale, outlined in Table 29, has evident disproportionality in two statistically significant ways: the underrepresentation of Asian students in percentage of total suspension days and the overrepresentation of Multiracial students in the allocation of total percentage of suspension days. Asian students are underrepresented in the percentage of instructional days missed due to suspension out of school ($M = 1.88$; $SD = 1.04$) when compared to overall suspension percentage ($M = 1.18$; SD = .80); $t(7) = 3.182$, $p = .015$, with a difference of -0.70%; Multiracial students are overrepresented in the percentage of instructional days missed due to suspension out of school ($M = 7.04$, $SD = 6.73$) compared to overall suspension percentage ($M = 5.65$; $SD = 4.64$); $t(38) = -2.325$, $p = .025$, with a difference of -1.39%. Hawaiian/Pacific Islander

students were not suspended during the 2017-2018 reporting year in the town locale; therefore, there were no pairs for the statistical analysis.

Table 29

OSS Percentage and Days Missed Due to OSS by Ethnicity, Town

	Schools Represented $N = 55$	Percentage OSS	Percentage Days Missed Due to OSS	Percentage Difference
Ethnicity				
Haw./Pac. Isl.	0	0.00%[x]	0.00%[x]	0.00%[x]
Multiracial	51	5.65%	7.04%	-1.39% *
Black	46	6.00%	7.31%	-1.31%
Hispanic	47	11.21%	10.71%	0.50%
Am. Indian	7	2.27%	1.60%	0.67%
Asian	8	1.89%	1.18%	0.71% *
White	51	84.73%	83.57%	1.16%

* $p < .05$. [x]. No Valid Pairs.

In the rural locale (Table 30), though there are differences in suspension percentage and instructional days missed due to suspension percentage, no statistically significant values were identified.

Table 30

OSS Percentage and Days Missed Due to OSS by Ethnicity, Rural

	Schools Represented $N = 81$	Percentage OSS	Percentage Days Missed Due to OSS	Percentage Difference
Ethnicity				
Am. Indian	7	3.86%	3.60%	0.26%
Asian	7	2.50%	2.14%	0.36%
Haw./Pac. Isl.	0	0.00%[x]	0.00%[x]	0.00%[x]
Hispanic	37	11.68%	11.95%	-0.27%
Black	29	6.97%	6.52%	0.45%
Multiracial	39	6.71%	7.00%	-0.29%
White	81	87.38%	87.31%	0.07%

* $p < .05$. [x]. No Valid Pairs.

Summary

The purpose of the study was to conduct a geospatial analysis of disproportionality in traditional Indiana public high schools and assess the effect of teacher experience and location on suspension rates for students of color. Of the most significant findings of this research study, the Risk Index (RI) and the Relative Risk Index (RRI) provide the clearest evidence of disproportionality.

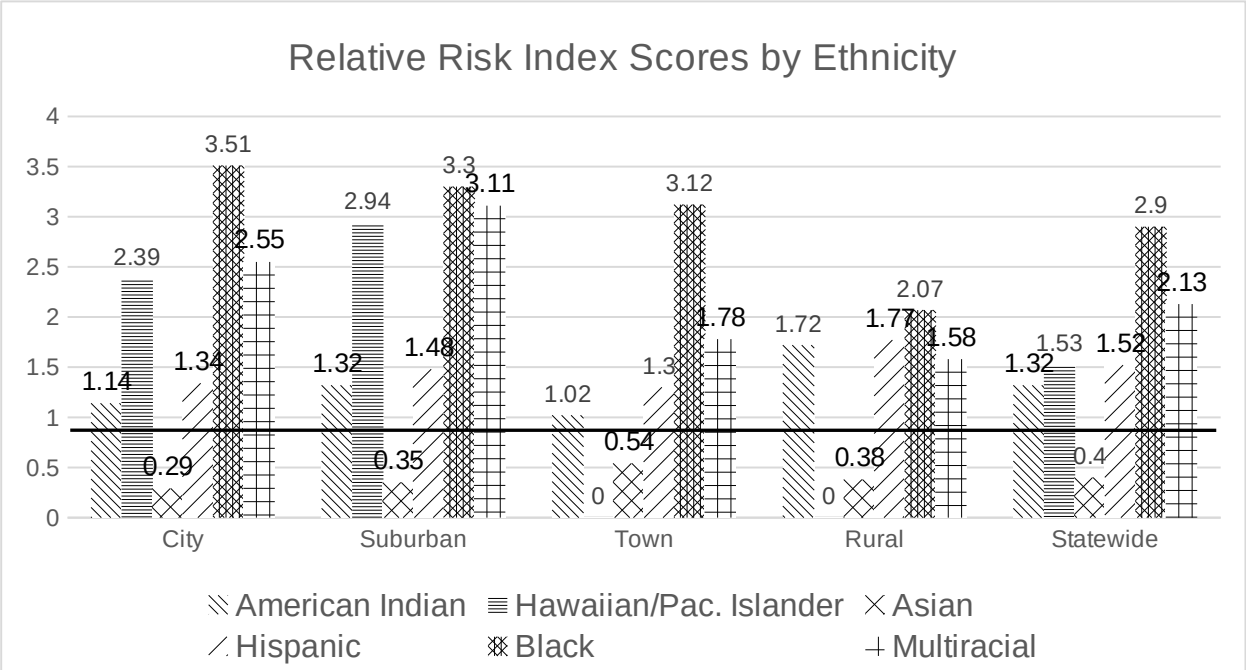
When looking at the Risk Index, disproportionality is present in suspensions for students of color statewide. Black students have the highest RI scores relative to virtually all other ethnicities when looking at statewide averages and individual locales. The risk for students of color, especially Black and Multiracial students, are often at rates 2-3 times higher than that of

White students. These are consistent findings with existing research studies that show suspension rates for Black students at rates more than double that of White students (Young et al., 2018) and overrepresentation of suspensions for Black students 2-3 times that of their total population (Department of Education, 2018).

RRI scores, because they show a comparison of suspension rates for students of color relative to that of their White peers, gives additional insight into disproportionality. Figure 4 displays these differences visually and accounts for differences associated with statewide and individual locale suspension rates. Black students are suspended at rates at least twice that of White students and as much as 3.5 times greater. With the exception of Asian students only, students of color in every locale are suspended at rates higher than white students.

Figure 4

Relative Risk Index Scores, All Locales

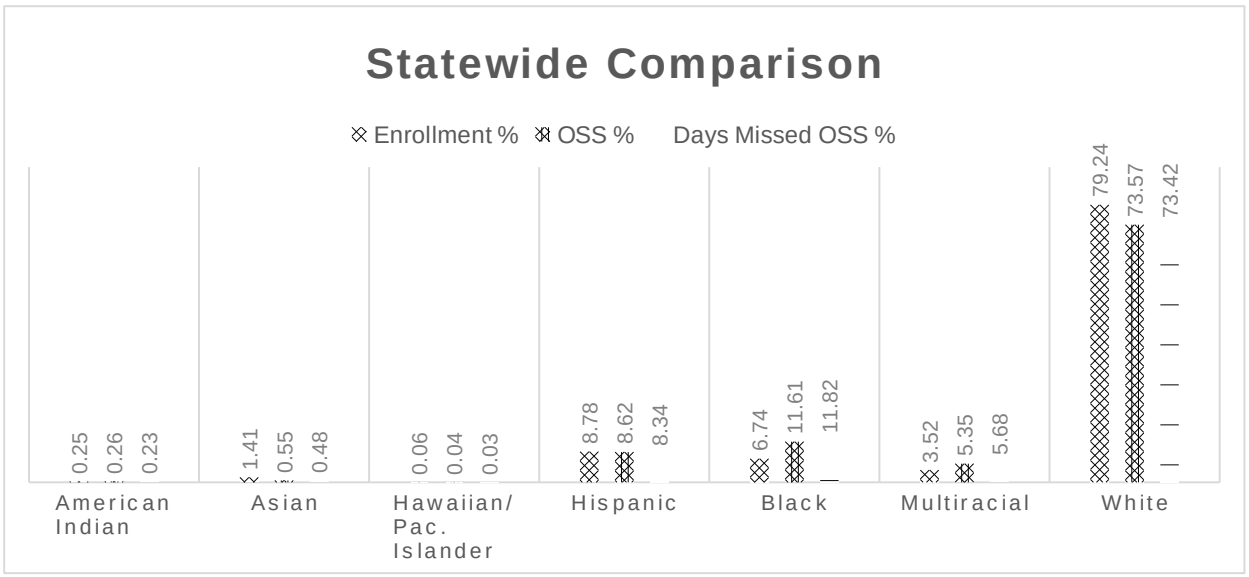


Note. Relative Risk Index measures how many times more likely a group is suspended compared to White students. Any value over or under 1.0 is considered disproportionate.

When analyzing the statewide data for all locales, there are evident trends in overrepresentation is suspension days and suspension percentages for students of color, especially Black and Multiracial students when compared to total enrollment. These trend lines, displayed in Figure 5, are evident, especially in accounting for a greater percentage of suspension days relative to suspension rate. The same is true for trends in underrepresentation for Asian and White students when comparing suspension percentage, percentage of instructional days missed due to suspension and enrollment percentage.

Figure 5

Enrollment Counts Compared to Percentage of OSS and Days Missed Due to OSS, Statewide



Chapter Five: Conclusions

Introduction

The previous chapters have provided the historical context and the evidence related to disproportionality for students of color in discipline, especially suspensions out of school. The detrimental effects of suspensions are well documented and there have been at least four decades of research to show that disproportionality in discipline persists in public education. Chapter 5 will synthesize the findings of this study by expanding on the results of each of the five research questions, including an emphasis on disproportionality in suspensions, the effects of locale and teacher experience, highlight key areas of emphasis, and discuss the limitations of the study, and implications for policy and future research.

Purpose of the Study

The purpose of this study was to investigate suspension rates for students of color in Indiana public high schools and identify to what extent these suspension rates vary based on geographical locations within the state. Additionally, this study investigated the extent to which students of color are more likely to receive out-of-school suspension compared to their White peers, the impact of teacher experience on rates of suspension for students of color, and to what extent disproportionality is present in instructional days missed due to suspension. Because resources are allocated to schools at the state level and there is significant variation in geographical areas within a state, there was an immediate need for quantitative evidence that highlights geography and teacher experience as potential indicators of student outcomes.

Research Question 1

To what extent is disproportionality in suspensions for students of color present in traditional high schools in the state of Indiana?

Research Question 1 was answered first by looking at total suspension rates for each ethnicity statewide; then, the Composition Index provided a side-by-side comparison of ethnicity enrollment averages and suspension average by ethnicity; next, the Risk Index provided scores, or risk indices, associated with the suspension rate per 100 students accounting only for school-level data from which each ethnicity was represented. Each of these measurements provide a look at whether suspensions are proportionally distributed based on ethnicity proportion within traditional high schools in the state of Indiana.

Each disproportionality measurement showed evidence of disproportionality, that is, over or underrepresentation in rates of suspension. Starting first with suspension rates, Black, Multiracial, and Hispanic students all had suspension rates higher than the state average with Black students being suspended at the highest rate of 1 in 5 statewide. When comparing these suspension rates to research conducted by Rausch and Skiba (2004), in which Black students were 5 times higher than Hispanic students and twice that of White students to be suspended out of school, these suspension rates in this study indicated disproportionality, but not at the same levels: Black students were suspended at rates just higher than twice that of Hispanic students and more than 3 times that of White students.

The findings mirrored much of the previous disproportionality research findings that served as a basis for this research study. For example, when comparing the results of a study conducted by Losen and Gillespie (2012), suspension rates are nearly identical. For Losen and Gillespie (2012), the rates of out-of-school suspension were: one in every six black students, one in every 12 American Indian students, one in every 14 Hispanic students, one in every 20 White

students and one in every 50 Asian students. This study, which analyzed data from the 2017-2018 school year, had these approximate rates of suspension: one in every six Black students, one in every 12 American Indian students, one in every 11 Hispanic students, one in every 16 White students and one in every 44 Asian students were suspended at least once. Additionally, Multiracial student suspensions were one in eight and Hawaiian/Pacific Islander students were one in 15.

Composition Index also evidenced disproportionality, especially when comparing the difference in enrollment for Black students, which showed the greatest statistically significant overrepresentation, and White students who showed the most statistically significant underrepresentation. Risk Index also shows statistically significant differences in Risk Index scores when looking at all ethnicities statewide, especially for students of color. With the exception of Asian students, White students had the lowest Risk Index scores of any ethnicity statewide.

When looking at the Risk Index, disproportionality is present in suspensions for students of color statewide. Black students again have the highest RI scores relative to virtually all other ethnicities when looking at statewide averages and individual locales. The risk for students of color, especially Black and Multiracial students, are often at rates 2-3 times higher than that of White students. These are consistent findings with existing research studies that show suspension rates for Black students at rates more than double that of White students (Young et al., 2018) and overrepresentation of suspensions for black students 2-3 times that of their total population (Department of Education, 2018).

Research Question 2

How do rates of suspension vary between geographical locations (i.e., urban, suburban, town, rural) for students of color?

Research Question 2 was answered by first by looking at total suspension rates for each ethnicity; then, comparing enrollment percentages and suspension averages by ethnicity, or the Composition Index; and finally by comparing the suspension rates per 100 students, or the Risk Index. These three measurements were separated and separately analyzed by each of the four locales of city, suburban, town and rural.

Disproportionality in suspensions was present in each locale and across all three of the disproportionality measurements in this study. Suspension rates showed that there are several ethnic groups that are suspended at much higher rates than others. When comparing suspension rates for each ethnicity and location to a statewide average of 7.2, Black and Multiracial students were above the state average in all of the four locales, the highest being 24.98 in the rural locale for Black students and 12.01 in the city locale for Multiracial students. In all locales, White and Asian students were well below the state average. When separating the data based on locale, the results are even more prominent. The suspension rate for Black students in the city locale is over 1 in 5, nearly 10% higher than the state average.

The side-by-side Composition Index also showed evidence of disproportionality, which in this case, was indicated by statistically significant differences in the means of enrollment and suspension by ethnicity. In each of the four locales, statistically significant overrepresentation in suspension for Black students is present. Conversely, in each of the four locales, White and Asian students have statistically significant underrepresentation in suspension.

Risk Index scores showed considerable disproportionality in suspension rates per 100 students when accounting for the schools where each ethnicity was present. Black students had the highest Risk Index scores in each locale, the only exception being the city locale where Multiracial students had the highest Risk Index score of 21.44. This research study had similar results to research conducted by Skiba et. al, (2011) which identified Hispanic and Black students as being suspended at rates higher than any other ethnicity in the suburban locale. Black students consistently had the highest suspension rates in nearly every locale with the exception of Multiracial students in the city locale with a suspension rate of nearly 1 in 4, the most prominent disproportionality metric when measuring Risk Index in all locales. Consistent with research published by the Office of Civil Rights (2011) in its annual report, black male students often have the highest rates of suspensions out of school at a rate of 1 in 5.

This data also aligns with recent research that demonstrates that under resourced and urban schools, schools that generally have higher populations of students of color, have a greater use of exclusionary discipline, such as suspension (Bal et al., 2017; Putnam et al., 2018). The city and suburban landscapes in this study had the highest suspension rates overall and also at levels far greater than that of their White and Asian peers.

Conversely, this study discovered just how different the suspension rates are for each ethnic group, especially when comparing enrollment percentage and suspension percentage based on ethnicity, or the Composition Index. Perfect proportionality would presume that both enrollment and suspension percentages would be equal. The city provided the most significant disparities especially when comparing Black and White students: Black students were overrepresented in suspensions by +14.4% and White students were underrepresented by -11.7%.

When suspension rates have statistical deviations as great as these, disproportionality is present in suspension rates based on ethnicity and locale.

Research Question 3

To what extent are students of color more likely to receive out-of-school suspension compared to their White peers?

Research Question 3 was answered by analyzing the RRI scores of each ethnicity compared to White students as the reference group. All values over 1.0 indicated overrepresentation and all values under 1.0 indicated underrepresentation. When comparing suspension risk rates for students of color to that of White students, or the Relative Risk Index, showed that, in all cases, disproportionality metrics indicated a higher suspension rate than White students in all setting, the only exception being Asian students with rates far below that of White students.

The rates are highest for Black students in the city locale, with suspension rates 3.5 times higher than that of White students and Multiracial students in the suburban locale with suspension rates 3.1 times higher than White students. Even when the data is averaged for all locales, Multiracial and Black students are still suspended at rates 2 and 3 times greater than that of White students, respectively. This, again, in consistent with findings from the Office of Civil Rights (2011) in which White students were suspended at rates far lower than that of students of color, with suspension rates as low as 1 in 17, or 6%.

Research Question 4

To what extent does the percentage of teachers within their first one to two years of teaching impact rates of suspension across all ethnicities and locales?

Previous research has identified limited teacher experience as a key factor to increased rates of suspension overall for students. Research has also identified that suspensions for students of color are more frequent when there is a greater concentration of teachers with limited experience in a school (Lacoe & Manley, 2019; Losen et al., 2014; McIntosh et al., 2017). This is due to the tendency for suspension rates to be higher when there is a greater concentration of novice teachers within a school building: when suspension rates increase within a school building, there is a greater risk of disproportionate outcomes for students of color.

This research study did not identify any statistically significant correlations between the variables of the Relative Risk Index, a comparison of suspension rates to that of White student's, and percentage of novice teachers within a building. Given the relatively similar concentrations of novice teachers across the state, no conclusions can be drawn from teacher experience and a greater likelihood of suspensions for students of color overall.

Despite this, location still has some interesting data points worth discussing. When looking at each locale, there is a difference in the concentrations of novice teachers. The city locale has an average of 8.22% across 34 schools, rural schools 9.39%, suburban 10.29%, and town 9.79%. For all locales, the average percentage of novice teachers across 221 schools is 9.52%. When taking the 25 most diverse schools in the state, that is schools with 50% or more students of color, the percentage of novice teachers is highest at 10.61%. Of these 25 schools, 13/25 = 52% are city locale, 9/25 = 36% are suburban locale, 2/25 = 8% are rural and 1/25 = 4% are in the town locale. When looking at the 37 least diverse schools in the state, that is schools with fewer than 5% students of color, the percentage of novice teachers is lowest at 8.19%. When looking at the locales of these 37 schools, 28/37 = 75.6% are rural and 9/37 = 24.3% are

town locale. There are no schools in the city or suburban locales that have fewer than 5% students of color.

Though there is an absence of a correlational relationship between teacher inexperience and presumed higher rates of disproportionality, teacher experience is still a research-supported risk factor for higher rates of suspension, commonly attributed to a lack of skills and classroom management strategies (Williams et al., 2018). Research, however, indicated that there is a greater likelihood of higher concentrations of novice teachers in urban settings (Losen et al., 2014); this study did not find higher concentrations of novice teachers in either the city or suburban locales.

Research Question 5

To what extent is disproportionality present in the percentage of instructional days missed due to out-of-school suspensions across all ethnicities and locales?

Research Question 5 was answered by both comparing total percentage of suspension days missed relative to enrollment ethnicity, but also to what extent geographical location had an effect on these outcomes. Previous research identified that in addition to being suspended more frequently, students of color are also more likely to be suspended for longer periods of time. As a result, total time missed from school was presumed to be greater for students of color due to out-of-school suspension (Bal et al., 2017; Losen & Gillespie, 2012). At face value, that is day for day, students of color did experience more suspension days relative to their proportion within the population. This was especially for Black students, who experienced over 18% more suspension days compared to their White peers who experienced over 18% fewer suspension days.

When comparing both the suspension percentage to the percentage of total suspension days assigned, statistical significance was more difficult to determine. There were some notable

exceptions where statistically significant disproportionate differences in these variables were present, such as Asian underrepresentation and Multiracial overrepresentation in the Town locale, as well as Asian underrepresentation and Black overrepresentation in the city locale.

When looking at each locale, disproportionality is especially evident for Black students in each locale, but most prominent in the city locale. Black students make up 21.2% of total enrollment in the city locale, but make up 47.3% of total suspension days, a substantial difference of more than +26%. When comparing that to White students in the city locale, White students made up 54.4% of the enrollment percentage but only 33.7% of the total suspension days, a substantial underrepresentation of -21.7% and an indicator of significant disproportionality in allocation of suspension days.

Of particular note, Black students were overrepresented in suspension days in all four locales with a statewide average of +18.2% difference in allocation of suspension days when compared to total enrollment. Multiracial students were also overrepresented in each of the four locales with a statewide average of +2.4%. White students, with a statewide enrollment percentage of 73.1%, made up only 54.2% of total suspension days, a difference of -18.9%. These findings demonstrate considerable disproportionality in instructional days missed due to suspension that is more pronounced based on geographical location.

Though statistical significance was limited when comparing means across all groups and locales and this research study is unable to determine duration of suspensions, it was able to identify proportions of suspension days allocated to students of color were far greater than enrollment percentages. Additionally, in every locale, White students were underrepresented in their proportion of suspension days allocated.

Discussion

This impact of these disparities within a school setting are perhaps less understood than data collected broadly, both nationally and regionally. Research has been consistent in indicating that when students are suspended at higher rates, academic and social impacts take place, especially a decreased likelihood in graduation (Losen & Gillespie, 2012; Rausch & Skiba, 2004); an increased risk of incarceration (Brown & Tillo, 2013), and a general negative impact on communities (Skiba et al., 2002). Thus, school level suspensions have a far greater impact and feeds what is commonly referred to as the School to Prison Pipeline. This research study has confirmed that there are higher rates of suspension for students of color and a greater proportion of suspension days allocated to students of color as well.

Schools have not been blind to these outcomes for students, especially in the disparities that exist in suspensions for students of color. Whether as a response to or as a legislative mandate, schools have adopted programs to address these concerns. School-Wide Positive Behavioral Interventions and Supports, commonly referred to as SW-PBIS, resulted in significant changes to the way that schools respond to behavior and track it monthly. Despite its often considerable decline in office referrals, SW-PBIS has not resulted in a reduction in disproportionality; in fact, research suggests that, over time, disproportionality was sustained or heightened despite fidelity to the SW-PBIS program (Skiba, 2007; Zakszeski et al., 2021). This research study did not look specifically at whether these schools implemented SW-PBIS; however, suspensions are still found to be disproportionate in all regions of the state, both in total suspension counts and total suspension days allocated.

Research has consistently shown that there are detrimental impacts to individual students when rates of suspension increase. Research conducted by Fabelo et al. (2011) identified that

nearly 10% of students suspended ultimately dropped out of high school altogether, and the greater the number of office referrals, the impetus to suspension, the more likely a student would be to not graduate – all of which led to an increased involvement into the juvenile justice system (Fabelo et al., 2011).

Limitations and Future Studies

The first limitation of the study is that there was no inclusion of incident-level behavior data. Behavior responses other than suspension were not analyzed in this research study. Understanding the complex reasons why schools would use suspension as a method of discipline response cannot be attained without knowing why suspensions were deemed the most appropriate response. Next, suspension data does not account for duration of suspension. The only way to get a sense of duration is to compare the instructional days missed due to suspension and total suspension counts. This, however can only provide an average, which cannot fully account for suspension duration.

An additional limitation is the limited diversity that was present in a number of high schools in the population; specifically, a number of schools did not represent each of the seven ethnic groups that were included in this study. This led to a significantly smaller group of schools, especially when analyzed separately by locale. Also, schools were not categorized based on diversity, or lack thereof. There are several schools in this study that had more than 90% students of color and vice versa. By categorizing schools based on these indicators, further analysis could identify data trends and correlations. Future research can disaggregate this data to identify more nuanced forms of disproportionality based on setting and demographics. Additionally, future research can focus on the equity of discipline as it applies to the broader

context of punitive discipline, such as in-school suspensions, and detentions, or non-punitive forms of discipline, such as restorative conferences or parent conferences.

Implications

The findings in this study have important implications, both at the school-level and the policy level. At the school-level, administrators have to be aware to what extent disproportionality exists within their buildings and develop systems of accountability in order to address these disparities; and since research shows that teachers actually assign much of the consequences associated with student discipline (Skiba & Peterson, 2000), working at the classroom level will likely be a necessary response. The review of literature identified a number of potential causes of disproportionality, such as explicit and implicit bias (especially as it relates to subjective office referrals), lack of teacher experience, increased police presence and zero tolerance policies, as well as the failure of teacher education programs to prepare novice teachers for working with highly diverse student populations (Bowman-Perrott et al., 2013; Irvin et al., 2004; Losen, 2013; Skiba et al., 2002; Williams et al., 2018). With these themes in mind, building-level administrators have innumerable opportunities to improve outcomes for students of color.

At the policy level, educational leaders and policy makers must review disproportionate data in relationship to discipline in order to effectively respond to the effects of the problem. The review of the literature cites numerous studies where suspensions out of school and other forms of exclusionary discipline lead to significant, life-long effects, such as drop-out, incarceration, and detrimental effects to the community (Brown & Tillo, 2013; Losen & Gillespie, 2012; Rausch & Skiba, 2004; Skiba et al., 2002). Since funds are allocated at the state and federal level for public education institutions, allocation of such funds must consider the greater need in areas

where there are inequitable outcomes. This research study shows the most significant disproportionality in the city and suburban locales where students of color, especially Black and Multiracial students, are suspended at much higher rates than any other ethnic group.

Where a student receives their education and what school they are assigned to in the public education setting is largely associated with geographical location, that is, where a household is physically within a community. As such, longstanding structural and historical inequities may be present within the community. Research conducted by Kramarczuk Voulgarides (2018) note that school and district leaders in places where there are high concentrations of minority students often embrace race-neutral school policies. In turn, leaders ineffectively address disproportionality, which has a detrimental impact on students of color.

If school leaders want to make meaningful gains in disproportionality, in both discipline and achievement, schools must have internal systems specifically designed to critically examine practice, not just between teachers and students, but also families and the broader community, especially in communities with a history of marginalized students (Bal et al., 2014; Bal, 2016). A school is not an island, and racial segregation based on residential location will result in segregated schools, which are inherently unequal. The persistent, disproportionate suspension rates for students of color, and the detrimental effects associated with exclusionary discipline, present a compelling reason why school leaders must be explicit in their efforts to address this issue.

Summary of Study

This study is designed to analyze the presence of disproportionality in suspension rates for students of color. Specifically, this study analyzed the effect of teacher experience and

location on rates of disproportionality in Indiana public high schools. This research study was guided by these research questions:

1. To what extent is disproportionality in suspensions for students of color present in high schools in the state of Indiana?
2. How do rates of exclusionary discipline vary between geographical locations (i.e., urban, suburban, town, rural) for students of color within the state of Indiana?
3. To what extent are students of color more likely to receive exclusionary discipline (i.e., suspension, expulsion) compared to their White peers?
4. To what extent does the percentage of new teacher's impact rates of suspension among ethnic groups?
5. To what extent is disproportionality present in percentage of instructional days missed due to out-of-school suspensions across all ethnicities and locales?

The literature review detailed that the topic of disproportionality has been exhaustively studied throughout the past four decades. As evidenced in the current study, suspension rates, using all available metrics associated with disproportionality, continue to be higher for students of color with limited exceptions. Geographical location also plays a significant role in suspension rates and instructional days missed due to suspension in all locales. The findings of this study has provided additional insight on the factors associated with national trends of disproportionality; trends that persist at the state level and have even greater implications at the school-level geographical locations of city, suburban, town and rural locales.

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Appendix A: IRB Approval Letter

Office of Sponsored Projects and Research Administration
8600 University Boulevard * Evansville, Indiana 47712 * 812-465-1126
www.usi.edu/ospra - rcr@usi.edu

DATE:	September 7, 2021
TO:	Ernie Griffin, MS
FROM:	USI Office of Sponsored Projects and Research Administration
PROJECT TITLE:	[1801841-1] A Geospatial Analysis of Disproportionality in Indiana High Schools: The Impact of Teacher Experience and Location on Disciplinary Responses to Students of Color
REFERENCE #:	2022-013-SEE
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
IRB APPROVAL DATE:	September 7, 2021
EXPIRATION DATE:	September 1, 2022
REVIEW CATEGORY:	TYPE 1 RESEARCH - Exempt Category # *4*

The above project has been approved by USI's IRB under the provision of Federal Regulations 45 CFR 46.

This approval is based on the following conditions:

1. The materials you submitted to the IRB (through IRBNet) provide a complete and accurate account of how human subjects are involved in your project.
2. You will carry on your research strictly according to the procedures described in the materials presented to the IRB.
3. If any changes are made, you will submit the Amendment Form through IRBNet.
4. You will immediately report to the Office of Sponsored Projects and Research Administration any problems or adverse events encountered while using human subjects.
5. Prior to expiration, you will submit a Continuing Review Form through IRBNet.

This project requires continuing IRB review on an annual basis. Please use the Continuing Review Form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of September 1, 2022.

To renew this project or make a modification, please see the IRBNet User Manual on our website at usi.edu/ospra for step-by-step instructions on submitting the Continuing Review Form or the Amendment Form.

If you have any questions, please contact us at 812-465-7000 or rcr@usi.edu.

Please include your project title and reference number in all correspondence with this committee.

Dr. K. Draughon

Dr. Katherine A. Draughon
Executive Director - OSPRA

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within The Office of Sponsored Projects and Research Administration's records.