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An Exploratory Investigation of Student-Level Factors and Perceptions of Safety in Secondary Schools Implementing SWPBIS

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by

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Abstract

Past and recent violent incidents (e.g., shootings, bullying) within schools in the United States have caused great concern among the public about the safety of students. Although research has shed light upon the positive and negative impacts of current crisis prevention initiatives (e.g., federal and state legislation, security cameras, trauma-informed practices) on student perceptions of safety, the breadth of literature focused on the impact multitiered systems of supports (i.e., school-wide positive behavior supports and interventions [SWPBIS]) have on student perceptions of safety is limited (Nowicki, 2020). This exploratory investigation utilized a multivariate analysis of variance to examine perceptions of safety across student-level predictors (i.e., grade level and race/ethnic identity) of secondary students in two schools implementing SWPBIS. Additionally, this study investigated the interaction effect between grade level and race/ethnic identity. Findings included significant differences within specific domains of school safety between student racial and ethnic identities and between grade levels. Findings indicate the importance of disaggregating student-level data when evaluating school safety. Directions for future research pertaining to SWPBIS and school safety are also presented.

Chapter One: Introduction

The school setting should be a safe learning environment for all students; however, school-associated violence (e.g., school shootings) in the United States has increased since 2015, contributing to detrimental student outcomes (Beland & Kim, 2016; Center for Homeland Defense and Security [CHDS], 2020; Yang et al., 2018). Although there are numerous safety enhancements methods (i.e., physical and psychological safety, and discipline and order; Reeves et al., 2011; Cornell & Mayer, 2010), much of the literature suggests these initiatives should be integrated into a preventative, multitiered framework (e.g., Nickerson et al., 2019; O'Brennan & Furlong, 2013; Perumean-Chaney & Sutton, 2013). With research demonstrating positive behavior interventions and supports (SWPBIS) as being an equitable and effective framework in decreasing internalizing and externalizing behaviors and increasing social skills and school climate (e.g., Bradshaw et al., 2012), well implemented SWPBIS frameworks may strengthen perception of safety in all students. However, literature around differences in perceptions of safety based on student-level factors (i.e., grade level and racial and ethnic identity) of students in SWPBIS implementing schools is lacking. This chapter briefly reviews the literature focusing on school-associated violence, its cause and impact on student outcomes, and current preventative initiatives. including SWPBIS. Additionally, this chapter briefly reviews approaches to evaluating perceptions of school safety and differences based on student-level factors. Lastly, this chapter reviews the purpose, and the questions of the current study investigating student-level factors and differences in perceptions of safety of students in secondary schools implementing SWPBIS with high fidelity.

Prevalence of School-Associated Violence

When one thinks of school-associated violence, it is likely large-scale events such as school shootings come to mind. When this type of school-associated violence happens, it can certainly generate great concern within parents, students, and the general public. Because of this, it is important to discuss the true prevalence of school shootings in the United States. In 2018, schools throughout the United States experienced 11 active-shooter incidents, or cases involving the injury or death of students and/or school staff by the use of firearms, as well as 105 non-active shooter incidents, or cases involving firearms on the school campus without the injury or death of a student and/or school staff (CHDS, 2020). This rate of violence was followed by 7 active and 111 non-active school shooter incidents in 2019 and 1 active and 112 non-active school shooter incidents in 2020, despite roughly 55,000,000 students impacted by school closures due to the COVID-19 pandemic beginning in March 2020 (Decker et al., 2020). Compared to the number of combined incidents, active and non-active shooters, in 2015, 2016, and 2017 (40, 50, and 55, respectively), school-associated violent incidents have been on the rise over the past three years. Among these incidents, 102 students and school staff were killed, and 247 students and school staff were wounded by active shooters. Additionally, a majority of these school-associated violent deaths have occurred on the campus of secondary settings by the use of a firearm (i.e., middle and high schools; Holland et al., 2019). It is estimated that the United States will experience between 32 and 64 school-associated violent deaths annually (CDC, 2020).

Bullying and victimization is also characterized as school-associated violence. Throughout the United States, roughly 1 in 5 middle and high school students (20%) have experienced some form of bullying or victimization (Seldin & Yanez, 2019). Characteristics of

these incidents include rumors being spread (66%); being made fun of, offended, or disrespected (64%); engaging in physical aggression (e.g., fighting; 26%); and engaging in threats to harm (19%). Notably, students who are bullied and victimized report that their physical appearance, race and ethnicity, gender identity, disability, religion, and sexual orientation are most often targeted. Overall, the prevalence of school violence in the US contradicts the notion that the school setting should be a safe learning environment for all students (Reeves et al, 2011).

Causes of School-Associated Violence

When evaluating initiatives intended to prevent school-associated violence, it is important to understand causes. An important note to make clear is that there is no single cause of school shootings, bullying, and other incidents of violence (Bushman et al., 2016). Instead, there are risk factors that exist in the ecology of students' environments. Researchers have identified ten youth risk factors associated with engaging in violent behaviors in the school environment: (a) familial characteristics (e.g., rejection, abuse and neglect, discipline), (b) personal characteristics (e.g., aggression, impulsivity, callous-unemotional traits [Frick et al., 2014]), (c) barriers to academic success (e.g., academic engagement, motivation to learn, poor achievement), (d) neurobiological deficits, (e) firearm access (e.g., parental gun ownership, relaxed gun control legislation, unlocked firearms and/or ammunition), (f) drug and alcohol abuse, (g) social rejection (e.g., bullying, disrespect, exclusion from peers), (h) socioeconomic status (e.g., street justice [Sykes, 1986], limited resources, lack of supervision), (i) exposure to violent media, and (j) mental illness. It is important to note that research around mental illness and violent crime has demonstrated small percentages of incidents of violent acts are associated with severe mental illness (Appelbaum, 2014; Fazel et al., 2006), thereby providing evidence for ecological contributors to school violence. Bushman and colleagues (2016) suggest reducing

ecological risk factors and strengthening school climate and culture would prevent incidents of schools-associated violence and the negative impact they have on students.

Effects of School-Associated Violence

Students who experience school-associated violence, specifically school shootings, have been found to demonstrate academic difficulties including decreased school enrollment and lowered state-level test scores in math and reading (Beland & Kim, 2016). Regarding internalizing and externalizing concerns, post-traumatic stress symptoms, disruptive behaviors, and suicidal ideation and behaviors are common in students who have been exposed to a school shooting (Travers et al., 2018). It is important to note that over time, with adequate social support, student post-traumatic symptoms declined.

Students who experience bullying have been found to be at an increased risk for depression and anxiety, loss of sleep, and suicidal ideation and behavior (Aluede et al., 2008; CDC, 2019). Additionally, victims and perpetrators of multiple instances of bullying are at a larger risk of mental health and externalizing and internalizing concerns. Academically, victims of bullying typically experience increased absenteeism and decreased academic achievement leading to increased risk of dropping out (Aluede et al., 2008; CDC, 2019). Socially, students who have been bullied tend to experience poorer relationships with parents and other family members, lose confidence in themselves, and struggle in social settings, which lead to the loss of friends and to isolation (Wolke & Lereya, 2015).

Current Preventative Initiatives

School safety consists of three narrow domains: physical safety, emotional safety, and order and discipline (Wang & Degol, 2016). Within each of these domains exists methods, practices, and programs that researchers suggest impacts student perceptions of safety. Physical

safety may include the placement of student resource officers, installation of metal detectors and surveillance cameras, and conducting lock down and active shooter drills. Emotional safety may include implementing social emotional learning programs, incorporating trauma-informed approaches throughout instruction and teacher/staff and student interactions, and enhancing connectedness throughout the school culture. Order and discipline may include consistent and fair disciplinary policies and procedures and implementing preventative frameworks and multitiered systems of support, which were typical recommendations by the above researchers to incorporate alongside these initiatives. It is important to note that much of these initiatives are supported and funded by state and federal legislation enacted to enhance safety supports in schools and prevent incidents of school-associated violence.

School-wide Positive Behavioral Interventions and Supports (SWPBIS)

School-wide positive behavior interventions and supports (SWPBIS) is a multitiered system of supports framework intended to prevent problem behaviors and to intervene when such behaviors occur through clear and consistent disciplinary policies and procedures. When implemented with fidelity, studies have demonstrated improvements in students' social-emotional, behavioral, and academic outcomes (Bradshaw et al., 2012; Noltemeyer et al., 2019; Sugai & Horner, 2009). SWPBIS has also demonstrated the capability of improving internalizing behaviors in students (McIntosh et al., 2014; Wiest et al., 2018) and developing and enhancing desired student behaviors, including social skills, emotional regulation, problem solving in real life, and coping strategies (Barrett et al., 2013). Ultimately, SWPBIS is intended to provide an environment that is predictable, consistent, positive, safe, and equitable (Horner & Macaya, 2018).

Recently, research has supported the movement towards developing comprehensive multi-tiered systems of support by integrating academic, behavioral, and mental health framework into one cohesive framework (Eber et al., 2019). Adequately implementing critical components of SWPBIS as the foundation for school safety would allow for the integration of a multidisciplinary team including key stakeholders (e.g., mental health professionals, community emergency response personnel, school resource officers); establishment of early screening and use of data sources to determine safety management interventions; measurement of student, school climate, and fidelity outcomes; and continuation of educator and administrator professional learning. More specifically, factors related to safety enhancement are embedded in SWPBIS through emphasizing prosocial skills and behavioral expectations (teaching and acknowledging appropriate social behavior), establishing and using universal screening data to evaluate a positive school-wide social climate (promotes a collective effort to addressing concerns to promote all students' social, emotional, and behavior), consistently implementing and adhering to explicit policies and procedures for addressing problem behaviors, and providing increasingly intensive interventions and supports through the multitiered framework (i.e., secondary and tertiary prevention; Katsiyannis et al., 2018; Terrance et al., 2008). Based on these brief descriptions of the elements of SWPBIS, this framework may be a foundational component to establishing a comprehensive, preventative school safety system. However, little is known about how effective a well implemented SWPBIS framework is in strengthening student perceptions of safety. Although investigations of SWPBIS implementation and teacher and educator perceptions of safety exist (Horner et al., 2009), to the evaluator's knowledge, there are no known studies that investigate the relationship between the implementation of SWPBIS and student perceptions of safety.

Evaluating Student Perceptions of School Safety

To best evaluate student perceptions of school safety, utilizing self-report methods (i.e., measuring student perceptions of safety) are among the most meaningful data-producing tools when assessing school safety (Furlong & Morrison, 2000). Research focused on systems and programs (i.e., physical safety or school hardening methods and psychological or emotional safety practices and programs) utilized self-report student perceptions of safety to demonstrate student-level impacts (e.g., academic achievement, externalizing and internalizing behaviors) of specific safety concerns (e.g., school shootings, bullying, sexual harassment) as well as their effectiveness in preventing incidents of school-associated violence.

As an example of the rich information measuring student perceptions of safety can produce, Croft and colleagues (2019) included items within the nationally administered American College Test (ACT) to better inform school safety and mental health needs from a student's perspective based on student-level factors (i.e., gender and racial and ethnic identity). The data collected included (a) percentage of agreement on various school climate statements (e.g., "Students treat the teachers with respect at my school"), (b) current safety measures used in their schools, (c) how often their schools are locked during the school day, (d) whether or not their school includes security staff, (e) whether or not their school provides mental health services, and (f) recommendations to improve school safety in their schools. These data were disaggregated across gender and racial and ethnic identity, as well as location of school and school size. Examples of their findings at the student-level included male students and White-identifying students perceived their school to be safer than female students and students of color. Additionally, White-identifying student perceived that the school would be safer if teachers were trained and armed with firearms in the school than their Hispanic-, Black- and Asian-identifying

peers. These data informed the authors' recommendation of incorporating students' perspectives of safety and student-level factors when considering programs and practices.

Research utilizing student perceptions of safety to better understand the impact of specific preventative initiatives demonstrates usefulness in evaluating student outcomes across student-level factors. Elsaesser and colleagues (2013) investigated perceptions of safety in middle school students alongside specific student-level and school-level indicators of school safety. It was found that no school-level indicators (i.e., teacher and administrator perceptions of school climate and response to violence) correlated with student perceptions of aggression and violence within their school. However, student perception of safety correlated with victimization by or perpetration of peer relational aggression.

Kwong and Davis (2015) informed and expanded the above findings as well as demonstrated the need to incorporate student-level factors in investigating perceptions of safety. The researchers investigated the perceptions of safety of sophomore high school students and alongside specific student-level and school-level indicators. Although student-level indicators included student gender identity, racial and ethnic identity, family composition, and educational track, the authors did not report an effect between student racial and ethnic identity and perceptions of safety. However, school-level factors were found to have an impact on perceptions of safety. It was found that an increase in institutional security, such as police officers and metal detectors, and surveillance cameras was correlated with lowered perceptions of safety. The authors suggested that tier 1 supports and programs to increase school climate, and policies and procedures that provide consistent and fair disciplinary actions are key to developing strong student perceptions of school safety.

Fan and colleagues (2011) investigated the extent to which school-level factors (e.g., student enrollment and school type) and student-level factors (e.g., racial and ethnic identity and gender identity) predicted perceptions of school climate and safety. The researchers collected perception of safety data from 16,168 10-grade students along with student-level indicators. It was found that both Hispanic- and Asian-identifying students perceived their schools to be less safe when compared to the White-identifying peers. Other student-level indicators of lowered perceived safety and school climate included having parents who were born outside of the United States, having single-parent families, being retained, and exhibiting behavior problems. The findings support the notion that student-level factors are viable predictors of perceptions of safety and climate. They suggested that future research on student perceptions of safety should investigate more narrow student-level indicators that can be incorporated into intervention development such as grade level or racial and ethnic identity. These factors can be linked to crisis prevention programs tailored to student-specific needs rather than factors that cannot be directly addressed and impacted within the school setting (e.g., family dynamics).

Investigating student-level factors as predictors of perceptions of school safety also is crucial when evaluating preventative systems (e.g., SWPBIS). The above studies utilized student perceptions of safety data alongside school- and student-level factors. However, little has been done to investigate student-level indicators as they pertain to perceptions of safety of students within schools implementing SWPBIS.

Purpose and Study Questions

The use of student-level factors alongside perceptions of safety data has shown to be an important, but underexamined aspect of evaluating preventative frameworks and systems and determining school-level need regrading climate and safety. Currently, there are no evident

studies that have examined perceptions of safety differences across grade levels and racial and ethnic identities of students in SWPBIS implementing schools. The overall purpose of this study was to expand on the literature investigating student perceptions of safety and the literature investigating student-level outcomes within schools SWPBIS implementation by examining the differences in perceptions of safety reported by secondary students in schools implementing SWPBIS with high fidelity. Specifically, the researcher aimed to investigate differences by grade level and by racial and ethnic group. This study was considered an exploratory evaluation to inform future research around integrating safety and crisis prevention, intervention, and postvention systems into a successfully implemented SWPBIS framework. Specific study questions included:

1. Are there significant mean differences in student perceptions of safety for individuals of different racial and ethnic identities in secondary schools implementing SWPBIS with high fidelity? If so, which racial and/or ethnic identities differ within each domain of school safety?
2. Are there significant mean differences in student perceptions of safety for individuals from different grade levels in secondary schools implementing SWPBIS with high fidelity? If so, which grade levels differ within each domain of school safety?
3. Is there an interaction effect between grade level and racial/ethnic identity?

Definition of Key Terms

- **grade level:** an independent variable that was defined by the grade in which the participating student was enrolled. For the purposes of this study, this variable was operationalized as Middle School, (7^{th} and 8^{th} grade students), Underclassmen (9^{th} and 10^{th} grade students), and Upperclassmen (11^{th} and 12^{th} grade students).

- **racial and ethnic identity:** race is defined as the "physical differences that groups and cultures consider socially significant" and ethnicity is defined as "shared cultural characteristics such as language, ancestry, practices, and beliefs" (American Psychological Association, 2019). In this study, racial and ethnic identities were operationalized in broad and combined terms: White, Hispanic/Latinx, Black, Asian, and Other. These terms were used to remain consistent with the terms used in previous SWPBIS literature and school safety literature as well as for methodological convenience purposes to limit the need to divide the alpha due to the number of tests performed. More specifically, the evaluator used the combined term Hispanic/Latinx. There are large number of identifiable subgroups by sociodemographic or sociocultural characteristics under the term (e.g., Puerto Rican, Mexican, Cuban) which may have made it difficult to conduct adequate data analyses within a smaller sample size. The evaluator recognizes the implications of using this term, including minimizing the flexible boundaries and within-group ethnic or cultural differences in data analyses and interpretations (Umaña-Taylor & Fine, 2001), diminishing the sense of inclusion among participants of differing ethnicities and cultures (Huynh et al., 2011), and the inability to address disparities within specific ethnic and cultural identities, particularly those that exist within the broader ethnic identity of Hispanic and Latinx (Telles, 2018). Additionally, the term "Other" was used in the current study to combine racial and ethnic identities that were considered below 1% of the enrolled students per the district's demographics. The implications previously listed also align with those when using the term "Other" as a race or ethnicity option, which are also recognized by the evaluator. The term "Other" does not provide the specific information regarding participant racial and ethnic identity needed to conduct

more meaningful analyses based on race and ethnicity. However, the term is typically used when participant numbers in racial and ethnic subgroups are too small to include and adequately analyze. This practice is also consistent with previous SWPBIS literature and school safety literature.

- **multi-tiered systems of support (MTSS):** An evidence-based multi-tiered framework for providing integrated supports for academics, behavior, and social-emotional assessment and intervention for all students (Lane et al., 2014).
- **school-wide positive behavioral interventions and supports (SWPBIS):** A multi-tiered system of support focused on promoting positive behavior and preventing behavioral concerns throughout the entire school (Noltemeyer et al., 2019).
- **implementation fidelity:** accurately and consistently delivering an intervention or program based on its intended design (Gresham et al., 2000).
- **school safety:** "the degree of physical and emotional security provided by the school, as well as the presence of effective, consistent, and fair disciplinary practices" (Wang & Degol, 2016, p. 317).
- **climate and connectedness:** a domain of school safety focused on the connection students feel with teachers, support staff, and other students (e.g., showing concern for students, promoting open dialogues, developing trusting relationships) and creating an environment for all students to be successful academically and behaviorally (Skiba et al., 2004).
- **incivility and disruption:** a domain of school safety focused on the frequency of incidents regarding student interpersonal relationships (e.g., teasing, arguments, physical fighting; Skiba et al., 2004).

- **personal safety:** a domain of school safety focused on student feelings of being safe in specific locations of their school (e.g., bathroom, classroom, hallways) and time of day (e.g., before school, after school; Skiba et al., 2004).
- **delinquency and major safety:** a domain of school safety focused on student awareness of weapons, drugs, and alcohol on their school campus (Skiba et al., 2004).

Chapter Two: Literature Review

The focus of this chapter is to review the definitions of school-associated violence and school safety, perceptions of school safety as it relates to student grade level and race/ethnic identity, and the current preventative initiatives in place to decrease instances of school-associated violence and their impact on student perceptions of safety. This chapter also reviews current legislation, physical safety methods, and psychological safety practices. The chapter will conclude with exploring the limited literature focusing on positive behavior interventions and supports as a universal preventative framework as it relates to student perceptions of safety in the school.

Defining School-Associated Violence

A broad definition of school-associated violence was developed and disseminated through the Center for Disease Control and Prevention (CDC; 2020) which states "school violence describes violent acts that disrupt learning and have a negative effect on students, schools, and the broader community. School is the location where the violence occurs, not a type of violence" ("What is school violence?" section). To expand on the first sentence of the above definition, the CDC provides examples of school associated violence. These include engaging in bullying, cyberbullying, physical fighting, and use of weapons. It also includes engaging in violent behavior through gang-related activity as well as sexual assault. Regarding the location of school associated violence, such behaviors must occur on school property or during events sponsored by the school. They may also occur while on the way to and from the school or the event.

In conjunction with this broad definition, Henry (2000) suggests that these components of school-associated violence can be socially structured within 5 ecological-based levels. Level 1, which could be considered the most prevalent level of school associated violence, includes student on student, student on teacher, and student on school violence. Levels 2 and 3 incorporate mesosystem components. These incidents include teacher on student, administrator on student, and teacher or administrator on parents violence at level 2, as well as school board on school or parent and community on school or parent violence at level 3. Level 4 consists of exosystem components including state and national educational policy on school and media on student and on administrator violence. Lastly, level 5 incorporates macrosystem components suggesting that harmful social processes and practices and influences of class, race, and gender develop overtime and are spread throughout the first four levels.

Henry (2009) goes beyond his ecological levels of school-associated violence and provides specific constitutive elements of school-associated violence. The three elements described include the source of violence, the nature and extent of harm caused, and the victim profile, which are each related to the structural level of the violence (i.e., individual, group, institutional/organizational, communal/neighborhood, and societal/cultural). Because studies that utilize student perceptions of safety measures typically investigate student- and school-level factors, the individual, group, and institutional/organizational levels of violence will be reviewed in this section. First, for the individual level of violence, characteristics of the source range from students and teachers to counselors and administrators. The characteristics of the nature and extent of harm of the individual level include emotional, physical, and sexual violence, threats of such violence, and predation. Some of the characteristics of the victim profile include students that are typically perceived as weak and vulnerable or struggling with their mental health,

teacher, and other school staff. For the group level of violence, characteristics of the sources range from student cliques and gangs to teacher groups (e.g., unions) and parental disciplinary practices. The characteristics of the nature and extent of harm include bullying and hate crimes, failures to fulfill the right to education, and parental abuse or neglect. The victim profile of the group level of violence is characterized as marginalized and vulnerable students and teachers. Lastly, for the institutional/organizational level of violence, the characteristics of the source of violence range from discriminatory pedagogy and poor disciplinary practices (e.g., zero-tolerance and authoritarian approaches) to school culture and climate that normalize violent incidents and accommodate prejudice (e.g., homophobia and sexism). Some of the characteristics of the nature and extent of harm at the institutional/organizational level include limiting academic achievement and social development, undermining self-worth, depression, and suicide, alienating and marginalizing groups, and creating hostile and low resourced learning environments. The characteristics of the victim profile include socially and academically disadvantaged students (e.g., female-identifying students, students of historically marginalized groups, and students struggling with anger and self-control), progressive teachers, parents that trust the educational system, and safe and welcoming learning environments and climate.

School Safety

Much debate has gone into what should be done to address the ecology of school-assisted violence. More police presence? Installing metal detectors? Other approaches? Wang and Degol (2016) determined that school safety is a major component of school climate and consists of three narrow factors: physical safety, emotional (or psychological) safety, and order and discipline. Physical safety is defined as when aggression, bullying, violence, and victimization are not present in the environment (Wang & Degol, 2016). Students lack perceived school safety

when schools do not have structures that support physical safety (Lleras, 2008). These structures include positive behavioral supports, classroom management, and institutional and surveillance security. Emotional or psychological safety is defined as the presence of counseling and supportive relationships between students and teachers/school staff (Wang & Degol, 2016). Students experience more bullying, victimization, and punitive discipline when schools lack emotional supports and trusting relationships (Astor et al., 2010). Increasing mental health and counseling services, school climate and connectedness, and strengthening student-teacher relationships can alter these experiences. Order and discipline are defined as all students buying in and adhering to behavioral expectations and rules, consistent expectations across systems and classrooms, and fair and consistent disciplinary actions. Students experience a decline in bullying, victimization, and office disciplinary referrals in schools that have fair and consistent disciplinary policies and procedures (Gottfredson et al., 2005). This includes teaching students the school's behavioral expectations and allowing them to practice in their settings, reinforcing positive behaviors instead of punishing negative behaviors, and using consistent and fair disciplinary actions (i.e., practices within SWPBIS).

School Safety Theoretical Model

Understanding the terms and definitions of school safety is not enough to create a safe learning environment for all students. Mooij and Fettelaar (2013) developed a theoretical model of school- and student-level impacts on student perceptions of safety within their school. They suggest five school-level indicators and three student-level indicators within their model. The school-level indicators include (a) the size of the school (i.e., the number of student enrolled), (b) the quality of teacher pedagogy and instruction, (c) social policies (e.g., increasing student involvement strategies, promoting a warm and welcoming environment), (d) fair disciplinary

strategies and practices that are consistent and regularly taught and reaffirmed, and (e) differentiated curriculums to address all learning differences (e.g., promoting learning differences across all students, engaging in differentiated instruction). The three student-level indicators include student performance and relational characteristics (e.g., academic achievement and peer relations), family characteristics (e.g., religion and level of intact), and personal characteristics (e.g., gender, age, and race and ethnicity). A school's size and social, teaching and instructional qualities, as well as student academic achievement, age, and family intactness were among the factors having a larger positive impact on student perceptions of safety. These school- and student-level factors impacting student perceptions of safety are theorized to be included in preventive initiatives designed to promote school safety.

School Safety as it Relates to Student Grade Level

The outcomes of empirical investigations focusing on student perceptions of safety as it relates to grade level have indicated more concerns at the middle school level. A study conducted by Yang and colleagues (2021) examined the grade level differences of students' perceived school safety in a sample of 25,896 students. In their analysis, grade level served as a moderating effect, and it was found that middle school students reacted more negatively to bullying and victimization that students in high school. This outcome aligns with other studies investigating the differences in student perceptions of safety across grade levels. For example, researchers have demonstrated students in high school tend to experience fewer instances of victimization and violence than do students in middle school (Yang et al., 2018). Yang and colleagues (2018) investigated the moderating effects of student grade level when compared to student bullying victimization and student emotional engagement. The results indicated that students in middle school were more reactive to bullying victimization (i.e., decreased emotional engagement with

higher instances of bullying victimization and increased emotional engagement within lower instances of bullying victimization), whereas emotional engagement remained consistent across varying levels of bullying victimization within students in high school.

School Safety as it Relates to Student Racial/Ethnic Identity

The outcomes of empirical investigations focusing on student perceptions of safety as it relates to student racial and ethnic identity have indicated staggering differences. The study conducted by Yang and colleagues (2021) as described in the previous section also investigated student racial and ethnic identity as a moderating effect on perceptions of safety. Results indicated that students who identify as multiracial had the lowest perceptions of safety and Hispanic- and Asian- identifying students had the most positive perceptions of school safety. Additionally, there were unique differences between White-identifying students and Black-identifying students. White-identifying students were more likely to perceive schools as safe when the frequency of bullying victimization was low and were more likely to perceive schools as unsafe when the frequency of bullying victimization was high, whereas Black-identifying students consistently perceived their school as unsafe no matter the frequency of bullying victimization.

The consistently lowered perceptions of safety reported by students of color are also evident in the results of a study by Thibodeaux (2013). In this study, 2,510 senior student responses to three school climate and safety items on the nationally administered Monitoring the Future survey were analyzed. It was found that White-identifying students perceived their school as safer when the student body consisted of a majority of White-identifying students and perceived their school as less safe when the student body consisted of a majority of students who identify with another race or ethnicity. However, Black- and Hispanic-identifying students

consistently perceived their school as more unsafe no matter the racial and ethnic identity composition within the student body.

A study conducted by Voight and colleagues (2015) investigated racial school climate and safety gaps within middle schools. The researchers surveyed over 120,000 7th grade Black-, Hispanic-, and White-identifying students using the California-required survey titled California Healthy Kids Survey. This survey consisted of items related to safety and connectedness, adult-student relationships, and opportunities for participation. The researchers utilized several multilevel regression models to examine gaps between Black- and White-identifying students and Hispanic- and White-Identifying students. Results indicated that Black- and Hispanic-identifying students had lowered perceptions of safety and school climate when compared to their White-identifying peers. The researchers suggested that future research investigate school wide preventative practices that may decrease the gap between students based on racial and ethnic identity.

Current Preventative Initiatives

Current Federal and State Preventative Legislation

Much has been done at the federal and state level as a response to the high prevalence of school-associated violence. Although federal and state gun laws and provisions designed to strengthen gun laws exist, examples provided will solely focus on those actions taken to specifically prevent additional school-associated violent deaths. At the federal level, the Every Student Succeeds Act (ESSA; 2015) recognizes the academic benefits of students feeling safe and supported within the school environment and the need for data collection systems to monitor school safety and climate. The law defines four academic indicators as part of a comprehensive accountability system, one of which focuses on factors beyond test scores. ESSA requires at least

one indicator of school quality or student success that captures student or educator engagement, availability of advanced coursework, postsecondary readiness, or school climate and safety. It is important to note that these are examples provided by the law, and all are not necessarily required to be reported as the state-wide indicator; however, the law requires whichever measure or indicator chosen to be valid, reliable, and comparable. Although at least one measure of this indicator is required to be reported, questions remain around what and how to measure specific non-academic indicators (e.g., school climate and safety; Penuel et al., 2016). In addition to indicators, ESSA presents funding opportunities for districts and schools to establish or enhance comprehensive school safety and school-associated violence prevention.

In addition to ESSA, in March of 2018, a bill titled Student, Teachers, and Officers Preventing (STOP) School Violence Act (2018) was passed by the United States Congress. The bill appropriates roughly $50 million to develop or enhance districts' threat assessment systems, to develop or enhance anonymous threat reporting systems, and to place new or improved current security technology and personnel within schools. Additionally, funded districts are required to implement evidence-based strategies and programs. For example, school-based social-emotional learning (SEL), which research has demonstrated has positive impacts on school climate and student perceptions of safety (Durlak et al., 2011; Nickerson et al., 2019), is listed as a suggested practice and specific SEL program are provided (e.g., SecondStep, Steps to Respect).

At the state level, a majority of states have enacted and/or adopted bills around supporting school safety, including security technology placement, enacting schools as gun-free zones, and implementing suicide and bullying prevention programs (Olneck-Brown, 2020). The number of enacted and/or adopted bills ranges from no bills in Oregon, Minnesota, and Ohio to

23 bills in Virginia. The total number of bills totals 208 state-level school safety measures since February 2020. One of the more publicized bills passed, which was a response to the 2018 school-shooting at Marjory Stoneman Douglas High School in Parkland, Florida, the Marjory Stoneman Douglas High School Public Safety Act (MSDHSPSA; 2018 [CS/SB 7026]), was enacted to provide local schools in Florida training in better understanding and identifying students with emotional dysregulation, mental health, and substance abuse issues. Specifically, 90 percent of the $69 million appropriated to districts must be spent on developing or enhancing the assessment, identification, intervention, and treatment of students with mental health concerns. These services may include implementing trauma-informed practices, social emotional learning programs, and mental health supports to improve school climate, connectedness, and student resilience.

Following the passing of the Marjory Stoneman Douglas High School Public Safety Act, the CS/CS/SB 7030 was enacted to increase schools' communication and collaboration with local sheriff's departments in 2019. The focus of this act was to develop guardian programs, communicate and collaborate with local security agencies, place safe-school officers (i.e., school resource officers, school safety officer, school guardian, or school security guard) in each school, and utilize the Florida Safe Schools Assessment Tool (FFSAT). This assessment tool is an annual assessment of district-wide school safety. Prior to this act, districts only reported the FSSAT results at the district-level, not the school-level. Since the passing of the act, all districts must provide an aggregated report of both district- and school-level FSSAT results.

Notably within the MSDHSPSA, the money spent per school is not to go towards enhancing school safety. However, the content within the this act does not delineate what constitutes school safety nor methods that specifically improve it. The MSDHSPSA provides

funding for schools for the purpose of preventing school-associated violence with little direction and specificity as to how to adequately prevent such incidents and what evidence-based practices, programs, and supports are most effective. Each district must provide a School Mental Health Allocation Plan every year delineating how the funding supports the identification and intervention of students at risk for incidents regarding school safety.

Physical Safety

At the district- and school-level, physical safety or school hardening is a common approach to enhancing school safety and preventing school associated violence (Wang et al., 2020). The most recent federal government report on school safety defined school hardening as physical safety through districts expanding security technologies within their schools (DeVos et al., 2018). Funding supporting the development or enhancement of security technologies were included throughout federal and state legislation (Olneck-Brown, 2020; Weisburst, 2019). Such technologies may include installation of metal detectors and surveillance cameras, the placement of school resource officers (SROs), and the implementation of lockdown procedures.

Lockdown Procedures. Reports of school crime and safety published by the U.S. Department of Education have indicated public schools across the U.S. have engaged in three forms of lockdown procedures: (a) lockdown, (b) evacuation, and (c) shelter-in-place drills (Diliberti et al., 2019). These procedures are highly utilized approaches to preventing or limiting school-associated violent deaths. During the 2017-2018 schoolyear throughout U.S. public schools, roughly 96 percent engaged in lockdown drills, roughly 93 percent engaged in evacuation drills, and toughly 83 percent engaged in shelter-in-place drills (Diliberti et al., 2019). This review will only focus on lockdown drills as it is the more common approach to responding

to active shooters and other related threatening situations. Lockdown drills at its core are defined as:

> A procedure that involves occupants of a school building being directed to remain confined to a room or area within a building with specific procedures to follow. A lockdown may be used when a crisis occurs outside of the school and an evacuation would be dangerous. A lockdown may also be called for when there is a crisis inside and movement within the school will put students in jeopardy. All exterior doors are locked, and students and staff stay in their classrooms. (Wang et al., 2020, p. 102)

The National Association of School Psychologists and the National Association of School Resource Officers (2017) have suggested that the lockdown drill procedures remain a foundation to responding to threatening situations, but public schools should integrate options-based drills as well. These drills emphasize the autonomy of students as a means to make their own decisions and consider engaging in the lockdown, evacuating the classroom and school, staying put and barricading doors and windows, or fighting back and encountering the active shooter. Although lockdown and options-based drills are widely utilized, research on their effectiveness have been limited (Johnson et al., 2020). Much of the literature highlights best practices, student and staff preparedness (Nickerson, 2007), and the impact lock down drills have on student perception of safety (Huskey & Connell, 2021; Zhe & Nickerson, 2007).

The research around student perception of safety demonstrates mixed results. For example, Zhe and Nickerson (2007) assigned 35 elementary students and 39 elementary students into control and treatment groups, respectively. Students in the treatment group completed a lockdown drill curriculum which included engaging in a lockdown drill, whereas the students in the control group completed a curriculum in folding origami; however, students did not engage

in a lockdown drill. All students completed the School Violence Anxiety Scale after the conclusion of their curriculums and the lockdown drill. The researchers conducted analyses of variance (ANOVA) to better understand the difference in student perceptions of safety between the two groups. Results indicated no significant differences in perceptions of safety between the two groups ($F[1, 70]=1.04$, $p = .31$). Researchers suggest that adhering to best practices when training and practicing lockdown drills may counterbalance any negative impact to student fear and perceptions of safety.

Contrary to the findings in the above study, Huskey and Connell (2021) found students who had engaged in lockdown drills had lower perceptions of safety. Three hundred and seventy-nine high school graduates were surveyed on their experiences of lockdown drills and their perceptions of safety using an author-developed measure. The researchers utilized an ordinary least squares regression model to analyze these data. Results indicated students who experienced lockdown drills perceived safety in their school significantly lower than students who did not experience lockdown drills ($\beta=-0.76$; $p<.001$). There were no significant differences across student racial and ethnic identities. It is likely these studies do not identify preventative systems as an enhancing factor of lock down drills and other drills because these drills are typically the worst-case scenario in a tier 3 incident. Engaging in a lock down suggests that all other preventative systems, if any, have failed to instill safety within the school setting. Fortunately, there are other ways to address safety that may positively impact a comprehensive approach to preventing school-associated violence.

Metal Detectors and Surveillance Cameras. Metal detectors and surveillance cameras were reported to be used in 12% and 83% of US schools, respectively (Musu-Gillete et al., 2018); however, research demonstrates (a) little evidence of their effectiveness in preventing

school violence and (b) evidence of a detrimental impact on student perceptions of school safety (Hankin et al., 2011; Lindstrom Johnson et al., 2018; Perumean-Chaney & Sutton, 2013; Tanner-Smith et al., 2018). Hankin and colleagues (2011) sought to examine the impact metal detectors have on student perceptions of safety through a review of relevant literature. Seven studies met the researchers' inclusionary criteria and were included in the review. Although self-reports were a consistent method of collecting data across all studies, outcomes ranged from frequency of safety concerns (e.g., possession of firearms, instances of victimization) to student perceptions of safety. Regarding the studies focused on student perceptions of safety (n=4), it was found that most student perceptions of safety were negatively impacted by the presence of metal detectors. In fact, few students preferred the use of metal detectors when entering schools. These results may be due to metal detectors cultivating the idea that students frequently carry weapons into their school decreasing the perception that their school is a safe place. The researchers suggested incorporating prevention programs that develop or enhance social emotional learning and pro-social behaviors.

Lindstrom Johnson and colleagues (2018) were interested in the relationship between secondary schools' use of surveillance cameras as a physical safety method and student perceptions of safety. The researchers surveyed 54,350 middle and high school students using the Maryland Safe and Supportive Schools Initiative School Climate Survey. Through a multilevel regression analysis, it was found that student perception of safety was significantly lower in schools that largely relied on the implementation of surveillance cameras inside of their buildings (β=-0.07; p=.044). Specifically, younger students and students who identified as Latinx or Other perceived their school as less safe when compared to their older peers and White-identifying peers. The researchers suggested students perceived the cameras as a contributor to

negative school climate because students may have thought the students inside the building are perpetrators or criminals and the school needs to monitor them throughout the day. Although surveillance cameras outside the school cultivated feelings of safety and the perception that the school is keeping danger from entering the building, surveillance cameras within the building only suppressed those feelings of safety in students.

To expand on the impact each of these physical safety methods has on student perceptions of safety, Perumean-Chaney and Sutton's (2013) surveyed the perceptions of safety of 13,386 middle and high school students nested within 130 schools. The independent variable, physical security measures, included the presence and absence of metal detectors and surveillance cameras within the school. Through conducting hierarchical linear modeling, the researchers found that students in schools that implemented metal detectors demonstrated significantly lower perceptions of safety (β=0.46; p<.001), whereas students in schools that implemented surveillance cameras did not demonstrate significantly lowered perceptions of safety (β=0.65; p<.10). Additionally, researchers found that students in schools that utilized a combination of at least two physical safety methods significantly reduced the perceptions of safety in their students, specifically within non-White-identifying students and younger students. The researchers suggested administrators consider implementing preventative programs centered around problem solving, student skill development in managing behaviors, communication, and consistent disciplinary actions.

To expand on the results of the above literature, it is important to understand if surveillance cameras and metal detectors deter or eliminate safety concerns such as firearms in the schools or instances of physical aggression or if it is solely the perception that is impacted. Tanner-Smith and colleagues (2018) also investigated a variety of physical safety methods,

including surveillance cameras and metal detectors, and the prevalence of firearm procession, theft, physical altercations, and drugs on the school property. The researchers analyzed data from the School Survey on Crime and Safety completed by 10,340 principals or administrators of middle and high schools as well as each school's suspension rate per 1,000 students for each of the four safety concerns. The results of the regression models incorporating multiplicative terms demonstrated no consistent impacts of specific security measures on the safety concerns. For example, results indicated significantly lowered instances of drugs on school property in schools using surveillance cameras or no other security methods. However, schools using surveillance cameras demonstrated significantly high instances of theft over schools with no security methods. Although the researchers were unable to definitively determine a consistent method or group of methods that effectively lowered all concerns of safety, it is important to note that neither surveillance cameras and metal detectors combined together nor the two integrated with the presence of a school resource officer lowered instances of drugs on campus or physical aggression. Researchers suggest that physical safety measures alone are not sufficient in keeping schools safe. Rather, they implicated fostering trusting and healthy relationships between students, and students and school staff; ensuring disciplinary actions and procedures are fair and consistent; and implementing strength-based practices alongside physical safety methods may be more effective in reducing safety concerns.

School Resource Officers. School resource officers (SRO) are sworn law enforcement officers placed in public school settings to promote safety, build positive relationships with students and stakeholders, and provide education around positive behaviors (Canady et al., 2012). With just under half of public schools reporting they have placed at least one SRO in their setting and who are engaged in school-based activities, this prevalence can be attributed to the

grant funding, trainings, and other resources provided by the Community Oriented Police Services (COPS) office through the U.S. Department of Justice that facilitate the placement of SROs (James & Gragoo, 2018; Theriot & Cuellar, 2016). However, much of the current research investigating SROs in public schools has demonstrated mixed impact in terms of the placement of SROs in school and their effectiveness in preventing violent crimes and increasing student perceptions of safety.

Gottfredson and colleagues (2020) selected 33 treatment middle and high schools and 72 comparison middle and high schools to investigate the types of offenses and the frequency of such offenses that occur when SRO staffing levels were increased. The findings of this study demonstrate an association between increased SRO staffing levels and increased use of disciplinary actions, frequency of drug-related offensives, and frequency of violent behaviors specifically by Black-identifying students; however, an increase in offenses was not evident for White-identifying students. These results contradict the results of the study conducted by Lindstrom Johnson and colleagues (2018) as described in the above section. In this study, it was found that student perception of safety was stronger in schools in which an SRO was placed (β=0.05; p=.010).

Although the relationship between SROs in schools and student perception of safety outcomes seem to vary throughout the literature, McCurdy and colleagues (2019) suggest the operations and responsibilities of the SRO should align with the critical elements of a preventative system such as PBIS. For example, SROs in PBIS schools should be adequately trained in the response (e.g., varying levels of interventions, verbal de-escalation) and non-response (e.g., planned ignoring) to problem behavior practices. Additionally, preventative activities should be a priority of SROs and include communicating and modeling the school-

wide expectations, praising and reinforcing students who appropriately engage in such expectations (e.g., providing students school tokens), and be a part of the school and community collaborative relationship and decision-making process. Ultimately, the authors propose schools implementing PBIS align and interlace the duties of SROs into the operations of the framework to emphasizes the preventative, reactive, and collaborative nature of the SROs.

Psychological Safety

Psychological safety is the presence of counseling and supportive relationships and interactions between students, teachers, and other school staff (Wang & Degol, 2016) These initiatives move away from the placement of physical safety or physical preventative approaches (e.g., metal detectors and SROs) and emphasizes increased safety when schools implement social-emotional learning (SEL) programs (Nickerson et al., 2019), enhance connectedness throughout the school and community (O'Brennan & Furlong, 2013; Whitlock, 2006), incorporate a trauma-informed approach to develop internal and external resilience (Wall, 2020) and/or implement positive behavior interventions and supports (SWPBIS; Horner & Macaya, 2018).

Social-Emotional Learning. Weissberg and colleagues (2015) define SEL programing as "implementing practices and policies that help children and adults acquire and apply the knowledge, skills, and attitudes that can enhance personal development, establish satisfying interpersonal relationships, and lead to effective and ethical work and productivity" (p. 6). Nickerson and colleagues (2019) investigated the relationship between student perceptions of SEL instruction in their school, of their SEL skills, and of individual and school wide bullying and victimization. The researchers surveyed 2,832 students across these outcomes. A structural equation model demonstrated students who reported receiving SEL instruction also reported

lowered perceptions of bullying throughout the school as well as reduced incidents of peer victimization. Additionally, results demonstrated students who received SEL instruction indicated positive perceptions of their SEL skills. It is important to note that as student grade level increased from middle to high school, lowered levels of instruction, teacher use of praise and rewards, and SEL skills were reported by students. Researchers suggested engaging in SEL programs develops or enhances SEL skills in students, which decreases school wide bullying and peer victimization. However, researchers found students who experienced more peer victimization, although perceiving to have strong SEL skills, reported higher levels of bullying throughout the school. Such results differ for students who experience more peer victimization but perceived to have weaker SEL skills. These students reported lowered perceptions of bullying and victimization throughout the school. The researchers linked these outcomes to the imperative need to include SEL in school wide curricula.

An example of a widely implemented and effective SEL program in schools is Second Step: Student Success Through Prevention (SS-SSTP; Collaborative for Academic, Social, and Emotional Learning, 2015). The purpose of the program is to develop and enhance the ability of school age students to empathize, manage emotions, and solve problems in their everyday lives with the goal to positively impact academic success, peer relationships, and well-being, and reduce violence, truancy, bullying, and other internalizing and externalizing behaviors. Espelage and colleagues (2013) investigated the effectiveness of SS-SSTP in reducing violent behaviors, such as physical aggression and peer victimization, in adolescents. Thirty-six middle schools were randomly assigned to either a treatment condition or a comparison condition. Schools assigned to the treatment condition implemented SS-SSTP whereas schools assigned to the comparison condition did not implement the program. Three thousand six hundred and sixteen

students nested in schools in either condition completed various scales measuring perpetration and victimization of bullying, physical aggression, homophobic name calling, and sexual harassment and violence. Multilevel analyses of these data demonstrated students who completed a full year of the SS-SSTP program were significantly less likely to engage in physical aggression towards other students than students who did not participate in the SEL program. However, Black- and Hispanic-identifying reported instances of physical aggression more often than their White-identifying peers, and Black-identifying student reported instances of perpetration and victimization of sexual harassment and violence more often than compared to their White-identifying students. Additionally, the researchers did not find any significant changes in the remaining outcomes and suggested increased efforts to enhance other social ecologies in schools would be needed to address these more complex forms of aggression.

Connectedness. Connectedness in schools can be defined as feelings of fairness and being supported academically and emotionally by both adults and peers (Blum, 2005; CDC, 2009). Connectedness is strengthened through educators and school staff fostering caring and trusting relationships and supporting the well-being of all students, students engaging in positive social experiences and peer groups, a school wide commitment to learning, and engaging in practices that provide students and staff a safe and supportive psychosocial environment (CDC, 2009). Whitlock (2006) sought to link student's perceived school connectedness to several school climate and environmental factors. Specifically, 305 secondary students completed a survey measuring perceived school connectedness, student's meaningful roles within their school, perceptions of safety, student academic engagement, and levels of creative engagement. Regarding perceptions of safety, analyses demonstrated significant correlations between perceived school connectedness and students' perceptions of safety in that increased perceptions

of safety contributed to increased feelings of connectedness. However, an inverse relationship was found between student grade level and connectedness in the school. Differences in perceived connectedness was not significant across student racial and ethnic identity.

These findings support O'Brennan and Furlong's (2013) investigation of the relationship between student perceptions of connectedness and the frequency of peer victimization. 1,253 secondary students completed measures of perceptions of school connectedness, self-reported peer victimization, and specific reasons for such peer victimization. A between-subjects analysis of variance (MANOVA) demonstrated the low and high perceptions of school connectedness significantly differed in self-reported peer victimization. Specifically, students who reported strong school connectedness also reported fewer incidents of peer victimization. Moreover, students who reported weak school connectedness experienced more incidents of peer victimization in the form of physical aggression. These outcomes also shed light on differences between grade levels in that 10th grade students perceived less connectedness in the schools than 8th and 12th grade students. The researchers suggest fostering strong connectedness through implementing school wide preventative programs that promote positive behavior and belongingness.

Trauma-Informed Approach. Trauma-informed approaches are described as a system's way of work that recognizes the many impacts of trauma and evidence-based practices to recovery where staff are systematically trained in identifying the many signs and symptoms of trauma as well as to integrate this knowledge into their policies, procedures, and practices to ensure a safe and supportive environment where re-traumatization is unlikely to occur (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). An important component of trauma-informed approaches if fostering resiliency, an effective counterbalance of

trauma and a child's ability to endure and recover from adverse childhood experiences (ACEs) such as physical, emotional, and/or sexual abuse, violence, and peer victimization (Afifi et al., 2020; Felitti et al., 1998; Wolpow et al., 2016).

Wall (2020) sought to better understand trauma-informed approaches and their impact on student resiliency. Using a qualitative research design, 13 educators, one community liaison, and one principal agreed to complete questionnaires which focused on how their students have displayed symptoms of trauma exposure in the classrooms; how educators have incorporated trauma-informed approaches in their daily instruction and practices in supporting each student; and the overall impact their trauma-informed approaches had on behavior and other student outcomes. Participants reported their students experienced both physical and psychological symptoms of trauma. These symptoms included poor hygiene, self-harm, and arriving to school with a disheveled appearance, as well as anxiety, low self-esteem, depression, and general fearfulness. Regarding the changes made to daily instruction and support practices, participants reported emphasizing structure, stability, and predictability in their instruction and empowering students to improve instead of producing perfect products; becoming more flexible and allowing students to have a voice in classroom structure and reinforcement; including social-emotional learning curricula focused on developing or enhancing prosocial skills, problem solving, and decision-making with goal to increase resiliency; being attentive and responding to individual student triggers while instilling self-awareness of such triggers to prevent escalations; and fostering strong and emotionally supportive student-teacher, teacher-teacher, and student-caregiver relationships that cultivate a sense of caring, affection, and attention. Participants reported that these changes to their instruction and support practices have been beneficial to developing or enhancing resiliency in their students. For example, students have described

feeling safer at school, being able to self-advocate while having the ability to talk to adults about their experiences and emotions and engaging in more academically complex activities with little fear of failing or being compared to other students. The researcher suggests trauma-informed approaches fit into school-wide prevention systems and initiatives and are key components to ensuring students develop social competency and resilience through a safe, supportive, and predictable environment.

School-wide PBIS

SWPBIS became a focus of the public education system when the reauthorization of the Individual with Disabilities Education Improvement Act (IDEIA; 1997, 2004) included language suggesting its effectiveness as a model to prevent student problem behaviors that impede academic achievement and to address the needs of students with disabilities. The model has been adopted as a preventative framework after years of research demonstrating its positive impact on several student outcomes, including office disciplinary referrals, suspensions, and academic achievement (Noltemyer et al., 2019).

Critical Elements

It is important to note that SWPBIS is a preventative framework, not a preventative curriculum or program. By this, specific critical elements must be in place in order for the system to succeed in preventing and addressing problem behaviors and supporting student concerns. The four critical elements include (a) established goals that are measurable and observable and include both school-wide implementation and student-centered outcomes that are culturally equitable and appropriate for specific school and community values, (b) evidence-based practices as a foundation of preventing and addressing all student needs, (c) continued investment in systems that support the delivery of interventions and supports across all three tiers, and (d) data

collection systems and practices to inform equitable data-based decision-making (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2021).

Framework Structure

Primary prevention efforts or tier 1 includes teaching all students new skills and replacing problem behaviors with appropriate, rule-following behaviors (Horner & Sugai, 2015; Horner et al., 2010). This includes altering the school and class environment and culture to promote behavioral expectations and a positive climate and rewarding or incentivizing expectation/rule following behaviors instead of only punishing problem behaviors. Additionally, data collection on variables such as student outcomes (e.g., office disciplinary referrals and out-of-school suspensions) and implementation fidelity (e.g., Benchmarks of Quality [Childs et al., 2011]) is used for decision-making about student-focused interventions and supports. Hawken and colleagues (2009) also provide appropriate suggestions for valid student behavior screening tools including the Systematic Screening for Behavior Disorders and the Social Skills Rating System to ensure students are appropriately responding to the tier 1 supports. Lastly, a continuum of disciplinary procedures for problem behaviors exists and all school staff adhere to these practices (Horner & Sugai, 2015; Horner et al., 2010).

Secondary preventative efforts or tier 2 include students, roughly 10-15%, that do not demonstrate success in collected tier 1 data and receive direct instruction, practice, and support through a variety of interventions based on their social, behavioral, and/or academic needs; increased feedback from educators and student support staff; and increased structure (e.g., prompts and daily schedules; Horner & Sugai, 2015; Horner et al., 2010). Interventions and supports are typically implemented across small groups of students exhibiting similar ongoing problem behaviors. Examples of tier 2 interventions include Check-in/Check-out (Hawken et al.,

2020; Swoszowski, 2014) and SecondStep. It is strongly recommended SWPBIS teams and interventionists utilize standard, comprehensive progress monitoring tools across multiple interventions to ease the measuring and evaluation process (Hawken et al., 2009).

Tertiary prevention efforts or tier 3 include student, roughly 1-5%, that do not demonstrate success in collected tier 2 data and receive individualized intensive interventions and supports (i.e., behavioral intervention plans; Horner & Sugai, 2015; Horner et al., 2010). These interventions are linked to the outcomes of a completed functional behavioral analysis, or the systematic collection of direct behavior observation data, student, teacher, and parent interviews, multi-informant-based behavior ratings, and record reviews development (Sugai et al., 1998; Sugai et al., 2000). The student, their teachers and support staff, and, in some cases, caregivers are trained in the intervention and supports developed by the multidisciplinary team to increase generalization and success in all environments.

SWPBIS Impact on Student Outcomes

General Student Outcomes. Primary school settings have been a great source of data regarding SWPBIS implementation as demonstrated by Bradshaw and colleagues' (2012) investigation into the system's effects on elementary student problem behaviors and adjustment. The researchers randomly assigned 21 schools to form SWPBIS teams and receive a 2-day training in implementing the system and 16 schools to refrain from implementing SWPBIS. 12,344 students were nested within the sampled schools. Teachers in both groups completed the Teacher Observation of Classroom Adaptation—Checklist (Koth et al., 2017) once each of the four years of the study for each of their students. This tool measures each student's level of aggression, disruption, off-task behaviors, prosocial behaviors, and use of emotion regulation skills. Implementation integrity was measured using the School-wide Evaluation Tool (SET)

which indicated that all treatment schools participating in the study met and maintained the researchers' high-fidelity standards (i.e., 80% or higher), whereas just over half of the comparison schools met such criteria. Collected data were analyzed using a longitudinal 3-level hierarchical model where individual student time scores were entered at level 1, student demographics were entered at level 2, and school demographics and study group were entered at level 3. Results indicated significantly lower levels of disruptive and aggressive behaviors (y= –0.02, t=-2.23, p< .05) and off-task behaviors (y=-0.03, t=-2.08, p<.05), and significantly higher levels of prosocial behaviors (y=0.03, t=2.11, p<.05) and use of emotional regulation skills (y=0.03, t=2.30, p<.05) in students enrolled in the treatment schools. However, these results do not reflect the differences across student racial and ethnic identity nor in students in secondary schools.

Flannery and colleagues (2013) sought to examine the effects of implementing SWPBIS in secondary school settings on student problem behaviors. Over a three-year period, the researchers measured student problem behavior (i.e., office disciplinary referrals) and SWPBIS implementation fidelity (i.e., SET) from 8 high schools implementing SWPBIS and 4 comparison high schools not implementing SWPBIS. A multilevel latent growth model was used to analyze the SWPBIS conditions and student problem behaviors. Results demonstrated a significant decrease in student problem behaviors over time in schools implementing SWPBIS (β=-0.61; p<.001). Further, it was found that as implementation fidelity increased from the first year, to the second, and to the third, student problem behaviors significantly decreased (β=-3.18; p<.01). The outcomes of this study first demonstrate the success SWPBIS can have in secondary school settings in addition to elementary school settings, and secondly demonstrate the

importance of implementing SWPBIS with high fidelity in order to meet the SWPBIS team's goals around decreasing problem behaviors.

In addition to its impacts on student problem behaviors, research has demonstrated its impact on student internalizing problems (e.g., anxiety, general phobias, panic disorder, PTSD). McIntosh and colleagues (2014) described components of SWPBIS that promote resiliency in managing and reducing instances of internalizing behaviors. A well implemented SWPBIS is able to (a) improve the school culture and climate and promote predictability through adhering to clear and consistent policies and procedures to address disruptive problem behaviors, (b) strengthen perceptions of school safety by reducing instances of threatening problem behaviors such as bullying and aggression, (c) allow for continued instruction delivery by reducing classroom disruptions and limiting interruptions to student learning, and (d) incorporate the instruction and promote the generalization of adaptive social and emotional skills to reduce maladaptive and detrimental responses to stressful situations such as avoidance or problem behaviors. Weist and colleagues (2018) suggest SWPBIS can be expanded to integrate school mental health services to better prevent and address both externalizing and internalizing concerns that may lead to school-associated violence. The researchers highlight that, instead of SWPBIS and mental health initiatives being operated in isolation, services that focus on social and externalizing behaviors and the critical elements of SWPBIS (i.e., appropriate goals, meaningful teaming, evidence-based practices, and data-based decision-making) can be merged to systematically and efficiently address the unmet mental health and behavioral needs of all students. However, little is known about how SWPBIS alone impacts these factors that relate to student perceptions of safety.

Racial and Ethnic Identity Gap. It is important to highlight the impacts implementing SWPBIS has on student outcomes as they relate to student racial and ethnic identities. McIntosh and colleagues (2018) investigated the effectiveness of implementing SWPBIS in reducing racial and ethnic disproportionality in discipline. The researchers utilized descriptive statistics, including risk indices, to review out-of-school suspensions across student racial and ethnic identities in schools implementing and not implementing SWPBIS. It was found that, overall, students in SWPBIS implementing schools received an out-of-school suspension 20% less than students in non-implementing schools. Regarding student racial and ethnic identities, risk indices indicated no differences or lowered risk for out-of-school suspensions for Black-, Multiracial, and Pacific Islander-identifying students in SWPBIS implementing schools when compared to non-implementing schools. The researchers also highlighted Black- and White-identifying students out-of-school suspension risk ratio indicating that although SWPBIS implementing schools produce lowered risk ratios for Black-identifying students, a disproportionate gap in discipline between them and their White-identifying peers remained.

Another study addressing the racial and ethnic identity gaps within SWPBIS schools by Greflund and colleagues (2014) investigated disproportionality in discipline for Aboriginal students in schools implementing SWPIBS with a more rigorous data analysis. A binary multilevel logistic regression was utilized to analyze the number of office disciplinary referrals and number of suspensions of 1,750 elementary and middle school students in SWPBIS implementing schools. The researchers found no differences in office disciplinary referrals across all student racial and ethnic identities. These inconsistencies continue to exist in the literature. For example, a recent and past investigations of SWPBIS implementation and its impact on disciplinary disproportionality in Black-identifying students demonstrated little too no

differences in disciplinary outcomes across levels of implementation fidelity (Heidelburg et al., 2022; Vincent et al., 2011) despite other research demonstrating the framework's success in reducing disproportionality (Childs et al., 2016).

Inconsistencies that exist within the literature regarding how effective a well implemented SWPBIS framework is in reducing racial and ethnic gaps in student outcomes have led researchers to question the effectiveness of SWPBIS for students of color. In fact, literature critiquing the framework and advocating for a more culturally responsive SWPBIS frameworks exists (e.g., Gadd & Butler, 2019; Leverson et al., 2021). Researchers recognize that, although there are reductions in disciplinary disproportionality within a well-implemented SWPBIS, students of color continue to be over-disciplined when compared to their White-identifying peers (e.g., Johnson et al., 2018). Specifically, scholars have suggested that the framework is inherently culturally neutral and is intended to fit contextually into the values of the school and the teachers and staff implementing the framework (Bal et a., 2012; Cramer & Bennett, 2015; Johnson et al., 2018), therefore requiring culturally responsive versions of the framework. Other scholars argue that these culturally responsive frameworks are not enough, and that the complexity of disproportionality requires us to recognize and address the systemic structures impacting disproportionate practices and student outcomes across academic settings (e.g., Bal et al., 2012; Sullivan et al., 2015). Although more research is needed to understand the reasons for racial and ethnic disparities in exclusionary discipline in schools implementing SWPBIS, these differences indicate a need to investigate whether differences also may exist in students' perceptions of school safety.

Strengthening Perceptions of Safety

Much of the literature reviewed throughout each of the current preventative initiatives demonstrated a need for school wide preventative systems in place in order to effectively and comprehensively promote and strengthen student perceptions of safety. Other research that has focused on broad indicators of school safety also demonstrate a need for universal preventative systems. For example, Elsaesser and colleagues (2013) investigated the relationship between middle school student perceptions of safety and specific student-level and school-level indicators. Five thousand, six hundred twenty-five students completed multiple scales measuring relational aggression and victimization, climate, and school safety concerns. It was found that no school-level indicators (i.e., educator and administrator perceptions of school climate and the school's response to violence) correlated with student perceptions of aggression and violence. Further, student perception of safety correlated with victimization by or perpetration of peer relational aggression. Ultimately, the authors suggest that tier 1 supports and programs to increase school climate and policies and procedures that provide consistent and fair disciplinary actions are key to developing strong student perceptions of school safety.

SWPBIS may be an effective school wide preventative system in enhancing student perceptions of safety within the school. However, no research has been conducted on the effectiveness of SWPBIS strengthening student perceptions of safety (Nowicki, 2020). In fact, only one available study has been conducted around the implementation of SWPBIS that included perceptions of safety of teachers and educators (Horner et al., 2009). Horner and colleagues (2009) sought to assess the general effects of SWPBIS across a four-year investigation. Specifically, the researchers measured implementation integrity (i.e., SET), perceived school safety (i.e., School Safety Survey [Sprague et al., 1996]), problem behaviors

(i.e., office disciplinary referrals), and academic achievement (i.e., state standardized test scores) of 33 schools in a treatment group (trained in SWPBIS) and 30 schools in a control group (not trained in SWPBIS). Researchers utilized an unadjusted time x condition analysis to adjust for missing data as well as a random coefficients analysis. Regarding the perceptions of school safety variable, results demonstrated that, after training, schools implementing SWPBIS were perceived as safer environments (-.078, $t(35)=-2.03$, $p=.0499$). It is important to note that students did not complete the perception of school safety measure. In fact, the above study did not measure perception of school safety as their sole dependent variable which did not allow for the review of rich literature around school violence and safety as well as the analysis of specific factors of student perception of safety that SWPBIS most or least impacts. Moreover, no research is evident that investigated student perceptions of safety by racial and ethnic identity and by grade level. Additionally, because self-reported perceptions of safety are considered among the most meaningful and diverse data-producing tools for assessing school safety (Furlong & Morrison, 2000), and have been used to assess school-level (e.g., response to violence, school climate, availability of mental health services) and student-level factors (e.g., academic achievement, peer relational aggression) to effectively promote safe school environments (Croft et al., 2019; Kwong & Davis, 2015; Elsaesser et al., 2013), an exploratory investigation of differences in perceptions of safety across student-level predictors of students in secondary school implementing SWPBIS with high fidelity would benefit the current literature.

Chapter Three: Method

Design

A quasi-experimental design was used to conduct this study. Specifically, this design was a posttest single group design. This is due to the evaluator being unable to manipulate the independent variable as one would in an experimental randomized control trial. The evaluator was unable to conduct a pretest of the group prior to receiving their training in SWPBIS implementation.

Participants and Sampling

This study focused on students in secondary schools in a school district implementing SWPBIS. Student-level data from schools that were implementing SWPBIS at the time of the data collection were included in the study.

Settings

This study was conducted in a California public school district. Within the district, there were 4 middle and 7 high schools educating roughly 16,300 students. Of the district's student population, 6.5% identified as White, 89% identify as Hispanic or Latinx, 0.8% identified as Black, 2.7% identified as Asian, and 0.9% identified as multiracial or other. Further, 25.8% of the students identified as economically disadvantaged and 37.4% identified as English language learners. According to the district's PBIS annual report, all 11 schools had been trained in and were currently implementing SWPBIS as of the 2021-2022 school year. Additionally, across all schools, the average SWPBIS Tiered Fidelity Inventory (TFI; Algozzine et al., 2014) Tier 1

implementation score during the 2020-2021 school year was 83% with a range of 63% to 94% indicated high implementation fidelity.

Inclusionary and Exclusionary Criteria. The evaluator included public secondary schools in the study (i.e., middle and high schools). Each school must have been trained in tier 1 SWPBIS for at least one year. The evaluator excluded public elementary schools from the study. Because the focus of the study is on students in secondary school settings, the evaluator did not collect data from students in elementary school settings.

Sampling Procedures

The evaluator utilized a multistage sampling approach to identify and assign the study's schools. To do this, the evaluator worked directly with the leaders of the School Climate and MTSS division of the county's Office of Education to identify a district with administrators interested in administering the perceptions of school safety survey. The administrators of the 11 secondary schools within the district were contacted by via email with an overview of the study's purpose, including the need to better understand student perceptions of safety and the preventative systems that may impact them, a synopsis of the student perceptions of safety survey, and an outline of the administering procedures and schedule. The evaluator communicated with all administrators to inquire into whether they *will opt-in or opt-out of participating in the study*. Additionally, administrators were given the option to obtain the survey data as a means to better understand their students' perceptions of safety in their school. This was also done to encourage school administrators to collect as many responses as possible to increase the likelihood of adequate response rates. Two schools, one middle school and one high school, opted to participate and committed to administering the survey.

Table 1

Participating School Demographics

Characteristic	School A		School B	
	n	%	n	%
Total Enrollment	1,221	100	2,661	100
Race/ethnic identity				
White	82	6.7	578	21.7
Hispanic/Latinx	1,068	87.5	1,897	71.3
Black	13	1.1	37	1.4
Asian	41	3.4	99	3.7
Other	17	1.4	50	1.9
Grade level				
7th	618	51	0	0
8th	603	49	0	0
9th	0	0	713	26.8
10th	0	0	677	25.4
11th	0	0	625	23.5
12th	0	0	646	24.3

Note: School A obtained a total TFI Tier 1 implementation score of 87%. School B obtained a total TFI Tier 1 implementation score of 97%

Student Participants and Sampling. Student participants included middle and high school students in the two schools for which the principals opted to participate. The survey administration schedule and procedures were included in the initial contact with the administrators described in the previous section. The evaluator asked each participating administrator to forward the survey link to each of their teachers and to ask each teacher to administer the survey on a specific day in Spring of 2022 during a specific period of the school day.

All students were given an opt-out letter containing information about the study for parents to review. If parents did not want their student to take the survey, they signed the letter and returned to their student's homeroom period teacher. As part of this procedure, teachers were asked to provide via script a short overview of the purpose of the survey and how to take it using

a computer or tablet. Students within the recruited schools were included simply by them choosing to complete the survey if they did not return a signed opt-out letter from their parents. If a student chose not to complete the survey, was not attending school the day the survey was administered, or they returned a signed opt-out letter, they were not included in the study. Each schools' response rate was tracked by obtaining and comparing the current number of students enrolled to the number of responses received from that school.

Study Variables and Measures

Data for this study were only collected once to provide a cross-section (post-test only) of the differences across student-level predictors and student perceptions of school safety. Student-level variables included student perceptions of safety measured by the Safe and Responsive Schools Survey (SRSS; Skiba et al., 2004) and student-level demographics (i.e., grade level and racial/ethnic identity).

Independent Variables

Each participating student provided student-level demographics. Specifically, students provided their grade level and racial and ethnic identity. These questions were presented at the beginning of the perceptions of school safety survey to avoid students completing multiple surveys. Grade level was operationalized as Middle School, or 7th and 8th grade students, Underclassmen, or 9th and 10th grade students, and Upperclassmen, or 11th and 12th grade students. The grade level variable was coded as such: Middle School = 1; Underclassmen = 2; and Upperclassmen = 3. Students racial and ethnic identity could fall into one of the following categories: White, Hispanic/Latinx, Black, Asian, and Other. The racial and ethnic variable was coded as such: White = 1; Hispanic/Latinx = 2; Black = 3; Asian = 4; and Other = 5.

The term “Other” was used to combine racial and ethnic identities that were considered below 1% of the enrolled students per the district’s demographics. This practice is consistently used within the education and behavioral literature including the SWPBIS literature and the school safety literature. This practice also allowed the evaluator to conduct the desired data analyses due to the smaller group sizes within the sample size. The evaluator recognizes the negative implications of using such a term (e.g., minimizes the flexible boundaries and within-group ethnic or cultural differences in data analyses and interpretations [Umaña-Taylor & Fine, 2001], diminishes the sense of inclusion within participants of differing races and ethnicities [Huynh et al., 2011], and disregards disparities within the broader ethnic identities [Telles, 2018]).

Dependent Variable: Student Perception of School Safety.

The Safe and Responsive Schools Survey (SRSS; Skiba et al., 2004) was utilized to measure student perception of school safety. The SRSS is used throughout districts and schools to provide data that identify or inform areas of concern within a currently implemented crisis preventative framework that require additional supports or attention. For this study, the data from the SRSS identified areas of concern around student safety within the SWPBIS framework. This survey uses a Likert scale ranging from 1 (“Strongly Disagree”) to 5 (“Strongly Agree”). The secondary school version of this survey is a 45-item survey. Two of the items included are validity checks on the accuracy of responding. The principal components analysis completed by Skiba and colleagues (2004) demonstrated four domains of schools safety that accounted for 51.67% for the shared variance: Climate and Connectedness, Incivility and Disruption, Personal Safety, and Delinquency and Major Safety.

Climate and Connectedness. The Climate and Connectedness domain includes items that focus on the student's perspective of their school promoting a welcoming environment committed to student success, of their teachers being caring and engaging in open communication and connectedness practices, and of the school rules being clear, consistent, and fair. Examples of items include "I feel comfortable telling a teacher or an administrator about potential violence", "I am learning a lot at this school", "school rules seem reasonable", and "I feel that the teachers care about me as a person." Skiba and colleagues (2004) calculated an internal consistency estimate for this domain of .939 (19 items). The items in this domain also accounted for 28.63% of the explained variance in responses.

Incivility and Disruption. The Incivility and Disruption domain includes items focusing on the student's perspective of specific instances of minor interpersonal conflicts that may occur in their school. Examples of items include "arguments among students are common at school", "threats by one student against another are common at school", and "physical fighting or conflicts happen regularly at school." The estimation of the internal consistency for this domain was .827 (7 items). The items in this domain also accounted for 11.76% of the explained variance in responses.

Personal Safety. The Personal Safety domain includes items that focus on the student's perspective of their safety within specific locations of their school and specific times of their school day. Examples of items include "I feel safe in my classrooms", "I feel safe in the school hallways", and "I feel safe before and after school while on school grounds." The estimation of the internal consistency for this domain was .893 (8 items). The items in this domain also accounted for 7.22% of the explained variance in responses. The item "I have seen a gun at school this year" will be adjusted to "I have seen a student with a gun at school this year" to

avoid any potential confusion around students seeing SROs carrying a firearm. This adjustment was present in the school climate study conducted by Dorio and colleagues (2020).

Delinquency and Major Safety. The Delinquency and Major Safety domain includes items focusing on the student's perspective of specific instances of major conflicts and illegal activity that may occur in their school. Examples of items include "I have seen a knife at school (not including a cafeteria knife)", "students use drugs or alcohol at school", and "robbery or theft of school property over $10 in value is common." The estimation of the internal consistency for this domain was .853 (8 items). The items in this domain also accounted for 4.06% of the explained variance in the responses.

Data Collection

The SRSS can be distributed both on paper form and electronically. For this study, the survey was distributed via the online survey development software Qualtrics. Each participating school's administrator was given access via a web link to a survey uniquely coded for their specific school. This allowed the evaluator to organize student responses based on the specific school they attend to track response rates. It was asked that each participating school administrator determine a specific day and time to have students complete the survey. School administrators informed each teacher of the evaluation and the student perceptions of safety survey and provided them the web link to the survey. Each teacher distributed the survey to their students during the specific class period determined by the school administrator (e.g., homeroom). Student responses to the survey were automatically sent to and stored in the evaluator's Qualtrics admin page.

In order to ensure adequate student survey response rates, the evaluator offered the incentive of obtaining their school's perceptions of safety data and developed a follow-up

schedule with each of the participating administrators. Each school provided their student enrollment numbers to assist with ensuring maximum response rates and to determine if a follow-up with the principal was needed. School A administered the SRSS to their students as part of their monthly PBIS class that all students attended at the same time. The principal of School A chose to administer the survey this way to promote the maximum number of responses. The evaluator did not follow-up with the principal of School A because the response rate was considered high (n= 887, 73%) after the initial administration day. School B administered the SRSS to their students throughout a week period. The evaluator followed-up with this principal of School B due to lower response rates. Two business days after the initial survey administering date, the evaluator sent a follow-up email to the principal of School B as less than 40% of their students had responded. The school's percent of student responses and a request to administer the survey to the students who have not yet taken it was included in the follow-up email. By the end of the school week, 1,313 students responded which equated a 49% response rate.

The SRSS contains items that indicate accuracy and truthfulness of student responses. These two items read "my answers to these questions accurately reflect my feelings" and "I am reading and responding to this survey carefully." These items exist to identify respondents that may not be paying attention to and carefully reading and answering each item. Student responses with an average response score between these two items of two or less were eliminated from the data analyses. An average of two or less indicates below "neutral" responses or a lack of accurate or truthful answers. The number of students' responses eliminated due to low response scores for this study was 43, leaving 2,152 student responses used in the data analyses. The sociodemographic characteristics of the participating students are found in Table 2.

Table 2

Sociodemographic Characteristics of Participants

	Total		School A		School B	
Characteristic	n	%	n	%	n	%
Total Participants	2,152	100	865	40	1287	60
Racial/ethnic identity						
White	294	14	62	7	232	18
Hispanic/Latinx	1,628	75	716	83	912	71
Black	20	1	7	1	13	1
Asian	60	3	14	2	46	4
Other	150	7	66	7	84	6
Grade level						
Middle School	865	40	865	100	0	0
Underclassmen	848	39	0	0	848	66
Upperclassmen	439	21	0	0	439	34

Data Analyses

Descriptive data analyses were utilized to present the group sizes, means, standard deviations, skewness, and kurtosis of the data collected. Additionally, a multiple analysis of variance (MANOVA) was utilized for the first two evaluation questions and a factorial analysis of variance (ANOVA) was utilized for the third study question.

Study Questions 1 and 2

In order to investigate differences in student-level predictors (i.e., grade level and racial and ethnic identity) and student perception of school safety, the evaluator utilized an MANOVA. A MANOVA is used to simultaneously evaluate and identify group differences when investigating multiple outcome variables. For the purposes of this study, student grade level and racial and ethnic identity served as the independent variables. Student grade level was grouped into three groups based on the grade the individual student reported. The Middle School group consisted of 7th and 8th grade students, Underclassmen consisted of 9th and 10th grade students,

and Upperclassmen consisted of 11th and 12th grade students. Student grade level was coded by defining each group with a specific number (i.e., Middle School = 1; Underclassmen = 2; and Upperclassmen = 3). Student racial and ethnic identity was coded simply by defining each category with a specific number (i.e., White = 1; Hispanic/Latinx = 2; Black = 3; Asian = 4; Other = 5). Each of the four domain scores served at the dependent variable and were entered in as each student's average response score across each item within each of their specific domains. A Tukey HSD post hoc analysis was conducted if outcomes of a MANOVA were found to be statistically significant in order to determine between which pairs of the independent variable within a domain were significantly different from each other. To account for Type I errors, Bonferroni adjustments were made. Alpha for grade level was set at $p = .0167$ as there were three total comparisons. Alpha for racial and ethnic identity was set at $p = .005$ as there were ten total comparisons.

Study Question 3

In order to investigate the combined effects of student grade level and student racial and ethnic identity on perceptions of safety, a factorial ANOVA was utilized across all four survey domains. As described in the previous paragraph, student grade level and racial and ethnic identity served as the independent variables. Levels of each variable were coded the same as for Questions 1 and 2. Each of the four domain scores served at the dependent variable and were entered in as each student's average response score across each item within each of their specific domains. The alpha was set at .05 for each of the four analyses. The evaluator recognizes the risk for Type I errors by setting the alpha at .05; however, due to the exploratory nature of this study, minimizing the risk of committing a Type II error, or a false nonsignificant difference, should be

prioritized (Jaeger & Halliday, 1998). This allowed the evaluator to develop additional questions and directions for more rigorous research in the future.

Chapter Four: Results

This chapter summarizes the results of the analyses described in the previous chapter which were conducted to answer the questions posed in the current study. This chapter will first review the preliminary analyses, including evaluating assumptions of the statistical models and descriptive statistics. Then the chapter reviews the results of each of the analyses conducted to answer each of the three study questions. The evaluator utilized the Statistical Analysis Software (SAS) 9.4 package to run all analyses.

Preliminary Analysis

Assumptions

Before conducting the descriptive analyses, the assumptions necessary for conducting a MANOVA were examined. First, despite the convenience sampling and the fact students were nested within two schools, the evaluator determined there were no consequential violations that would likely impact analyses given that the grade-level variable was, in part, intended to control for school-level differences as School A only had participants in the Middle School group (i.e., middle school students) and School B only had participants in the Underclassmen and Upperclassmen groups (i.e., high school students). Additionally, each groups' skewness and kurtosis estimates mostly demonstrated acceptable ranges (i.e., skewness and kurtosis between -2.0 and +2.0; see Tables 3 on page 7 and 4 on page 58). Although there were a couple exceptions, each group's sample size was considered large enough for robustness and it appears the multivariate normality assumption was not violated. Lastly, a test of homogeneity of within covariance matrices was conducted through Box's M (see Tables 5 and 6 on page 59). Although

a p-value of .05 was obtained, the evaluator determined that for some groups there was not a consequential violation of equal covariance matrices in the population that likely would substantively impact analyses.

In addition to the MANOVA assumptions, the assumptions necessary for conducting a factorial ANOVA were examined. First, based on the convenience sampling and the fact students were nested within two schools, the evaluator cannot assume the independence of observation vectors. Further, this study did not control for school-level influencers. This violated assumption is discussed further in the limitations section. However, each groups' skewness and kurtosis estimates mostly demonstrated acceptable ranges (i.e., skewness and kurtosis between -2.0 and +2.0). Although there were a couple exceptions, each group's sample size was considered large enough for robustness and it appears the multivariate normality assumption was not violated. Lastly, group standard deviations are similar enough to assume equal variance (Tables 7 through 10, see pages 61 and 62). It is important to note that the 20 students who identified as Black and the 60 students who identified as Asian were not included in the analysis because, when broken down by grade level, the sample size for Black and Asian students became too small to analyze within each of the three grade levels.

Descriptive Analyses

The descriptive statistics shown in Tables 3 (see page 57) and 4 (see page 58) provide details regarding students' perceptions of school safety across racial and ethnic identity as well as grade level. Middle School scores within the Climate and Connectedness and Personal Safety Domains were positive (M = 3.39, SD = 0.58; M = 3.45, SD = 0.61, respectively), indicating students have a positive perception within those domains. Scores within the Delinquency and Major Safety were relatively positive and, on average, below neutral (M = 2.70, SD = 0.86).

Table 3

Descriptive Statistics for Grade Level

Grade Level	n	M	SD	Skewness	Kurtosis
Middle School	865				
CC		3.39	0.58	-0.16	0.45
ID		3.29	0.76	-0.21	-0.01
PS		3.45	0.61	-0.12	0.28
DMS		2.70	0.86	0.26	-0.43
Underclassmen	848				
CC		3.34	0.63	-0.44	0.48
ID		3.03	0.75	-0.10	0.01
PS		3.54	0.59	-0.61	1.59
DMS		2.89	0.88	-0.08	-0.44
Upperclassmen	439				
CC		3.38	0.59	-0.46	0.83
ID		3.12	0.70	-0.04	0.25
PS		3.50	0.63	-0.58	1.33
DMS		3.12	0.89	-0.30	-0.29

Note: CC=Climate and Connectedness; ID=Incivility and Disruption; PS=Personal Safety; DMS=Delinquency and Major Safety

This indicates Middle School students perceived fewer incidents of delinquency or incidents that pose serious threats to school safety. Scores within the Incivility and Disruption domain were, on average, above the neutral score of 3.00 (M = 3.29, SD = 0.76) indicating concerns regarding minor disruptions, such as harassment, fighting, and arguments in the school. Underclassmen scores reflected those of the Middle School scores. Scores within the Climate and Connectedness, Personal Safety, and Delinquency and Major Safety domains were positive (M = 3.34, SD = 0.63; M = 3.54, SD = 0.59; M = 2.89, SD = 0.88, respectively) and scores within the Incivility and Disruption domain were, on average, above the neutral score of 3.00 (M = 3.03, SD = 0.75). Upperclassmen scores within the Climate and Connectedness and Personal Safety Domains were positive (M = 3.38, SD = 0.59; M = 3.50, SD = 0.63, respectively). However,

scores in both Incivility and Disruption and Delinquency and Major Safety domains were above the neutral score of 3.00 (M = 3.12, SD = 0.70; M = 3.12, SD = 0.89, respectively) indicating concerns regarding incidents of both minor and major safety.

Table 4

Descriptive Statistics for Racial and Ethnic Identity

Race/Ethnic Identity	n	M	SD	Skewness	Kurtosis
White	294				
CC		3.34	0.59	-0.56	1.03
ID		3.39	0.80	-0.32	0.13
PS		3.44	0.65	-0.45	0.89
DMS		3.18	0.94	-0.24	-0.55
Hispanic/Latinx	1,628				
CC		3.37	0.61	-0.33	0.48
ID		3.09	0.74	-0.10	0.05
PS		3.51	0.61	-0.39	0.79
DMS		2.78	0.87	0.07	-0.48
Black	20				
CC		3.51	0.64	1.15	0.23
ID		2.90	0.97	0.20	-1.01
PS		3.57	0.75	0.12	-1.25
DMS		2.48	0.96	0.11	-1.29
Asian	60				
CC		3.47	0.43	-0.38	0.73
ID		3.26	0.63	0.02	-0.42
PS		3.51	0.47	0.02	2.45
DMS		3.09	0.77	-0.28	0.62
Other	150				
CC		3.33	0.64	-0.33	0.23
ID		3.34	0.74	-0.25	0.16
PS		3.41	0.57	-0.68	2.73
DMS		3.03	0.88	-0.20	-0.51

Note: CC=Climate and Connectedness; ID=Incivility and Disruption; PS=Personal Safety; DMS=Delinquency and Major Safety.

Table 5

Box's M – Grade Level

Grade Level	Covariance Matrix Ranked	Natural Log of Determinant
Middle School	4	-4.59
Underclassmen	4	-4.66
Upperclassmen	4	-4.78
Pooled	4	-4.63

Table 6

Box's M – Racial and Ethnic Identity

Race/Ethnic Identity	Covariance Matrix Ranked	Natural Log of Determinant
White	4	-4.36
Hispanic/Latinx	4	-4.51
Black	4	-4.20
Asian	4	-5.99
Other	4	-4.34
Pooled	4	-4.48

Regarding racial and ethnic identity, White-identifying student scores within the Climate and Connectedness and Personal Safety Domains were positive (M = 3.34, SD = 0.59; M = 3.44, SD = 0.65, respectively). However, scores in both Incivility and Disruption and Delinquency and Major Safety domains were above the neutral score of 3.00 (M = 3.39, SD = 0.80; M = 3.18, SD = 0.94, respectively) indicating concerns regarding incidents of both minor and major safety. Hispanic/Latinx-identifying student scores within the Climate and Connectedness, Personal Safety, and Delinquency and Major Safety domains were positive (M = 3.37, SD = 0.61; M = 3.51, SD = 0.61; M = 2.78, SD = 0.87, respectively) and scores in the Incivility and Disruption domain were, on average, above the neutral score of 3 (M = 3.09, SD = 0.74). Black-identifying student scores were overall the most positive. Ratings provided by Black-identifying students within the Climate and Connectedness and Personal Safety domains were highest of the racial

and ethnic groups (M = 3.51, SD = 0.64; M = 3.57, SD = 0.75, respectively). On the other hand, scores provided by Black-identifying students within the Incivility and Disruption and Delinquency and Major Safety domains were the lowest among the racial and ethnic groups (M = 2.90, SD = 0.97; M = 2.48, SD = 0.96, respectively). Asian-identifying student scores within the Climate and Connectedness and Personal Safety Domains were positive (M = 3.47, SD = 0.43; M = 3.51, SD = 0.47, respectively). However, scores in both Incivility and Disruption and Delinquency and Major Safety domains were above the neutral score of 3.00 (M = 3.26, SD = 0.63; M = 3.09, SD = 0.77, respectively). Students who identified as another race and/or ethnicity reported scores within the Climate and Connectedness and Personal Safety Domains that were positive (M = 3.33, SD = 0.64; M = 3.41, SD = 0.57, respectively). However, scores for this group in both Incivility and Disruption and Delinquency and Major Safety domains were above the neutral score of 3.00 (M = 3.34, SD = 0.74; M = 3.03, SD = 0.88, respectively).

The descriptive statistics shown in the Tables 7 through 10 (see pages 61 and 62) provide details regarding students' perceptions of school safety across racial and ethnic identities within the three grade level groups. Within the Climate and Connectedness domain, all mean scores across grade levels were consistently positive and ranged from 3.29 (students identifying as another race/ethnicity in the Middle School group) to 3.41 (Hispanic/Latinx-identifying students in the Middle School group) with consistent standard deviations ranging from 0.55 to 0.69. Within the Incivility and Disruption domain, mean scores varied and ranged from 2.96 (Hispanic/Latinx-identifying students in the Underclassmen group) to 3.50 (White-identifying students and students who identified as another race and/or ethnicity in the Middle School group) with relatively consistent standard deviations ranging from 0.64 to 0.81.

Table 7

Descriptive Statistics for Grade Level and Racial and Ethnic Identity – CC

Group Combination	n	M	SD	Skewness	Kurtosis
Middle School					
White	61	3.30	0.69	-0.25	0.21
Hispanic/Latinx	717	3.41	0.57	-0.13	0.44
Other	66	3.29	0.59	-0.29	0.32
Underclassmen					
White	145	3.37	0.55	-0.83	1.03
Hispanic/Latinx	618	3.32	0.64	-0.42	0.45
Other	50	3.35	0.68	-0.04	-0.74
Upperclassmen					
White	88	3.32	0.60	-0.46	1.94
Hispanic/Latinx	293	3.40	0.60	-0.38	0.23
Other	34	3.36	0.66	-0.96	2.19

Table 8

Descriptive Statistics for Grade Level and Racial and Ethnic Identity – ID

Group Combination	n	M	SD	Skewness	Kurtosis
Middle School					
White	61	3.50	0.80	-0.15	-0.44
Hispanic/Latinx	717	3.25	0.75	-0.21	0.06
Other	66	3.50	0.78	-0.34	-0.10
Underclassmen					
White	145	3.31	0.79	-0.40	0.33
Hispanic/Latinx	618	2.96	0.73	-0.07	0.04
Other	50	3.13	0.72	-0.13	0.76
Upperclassmen					
White	88	3.43	0.81	-0.33	0.22
Hispanic/Latinx	293	2.98	0.65	-0.12	0.35
Other	34	3.32	0.64	-0.64	0.91

Within the Personal Safety domain, all mean scores across grade levels were consistently positive and ranged from 3.29 (White-identifying students in the Middle School group) to 3.56 (White-identifying students in the Underclassmen group) with relatively consistent standard deviations ranging from 0.50 to 0.73.

Table 9

Descriptive Statistics for Grade Level and Racial and Ethnic Identity – PS

Group Combination	n	M	SD	Skewness	Kurtosis
Middle School					
White	61	3.29	0.63	0.33	-0.14
Hispanic/Latinx	717	3.48	0.62	-0.14	0.23
Other	66	3.34	0.50	-0.83	2.22
Underclassmen					
White	145	3.56	0.59	-0.52	1.55
Hispanic/Latinx	618	3.54	0.59	-0.72	1.76
Other	50	3.50	0.60	-0.10	1.21
Upperclassmen					
White	88	3.36	0.73	-0.64	0.93
Hispanic/Latinx	293	3.55	0.60	-0.40	0.69
Other	34	3.38	0.63	-1.51	5.13

Table 10

Descriptive Statistics for Grade Level and Racial and Ethnic Identity – DMS

Group Combination	n	M	SD	Skewness	Kurtosis
Middle School					
White	61	2.86	0.83	0.20	-0.08
Hispanic/Latinx	717	2.68	0.87	0.29	-0.39
Other	66	2.87	0.85	0.18	-0.87
Underclassmen					
White	145	3.17	0.92	-0.27	-0.57
Hispanic/Latinx	618	2.81	0.86	-0.05	-0.38
Other	50	3.02	0.86	-0.25	-0.29
Upperclassmen					
White	88	3.41	0.98	-0.63	-0.09
Hispanic/Latinx	293	2.99	0.85	-0.23	-0.38
Other	34	3.36	0.89	-0.99	1.70

Finally, within the Delinquency and Major Safety domain, mean scores varied and ranged from 2.68 (Hispanic/Latinx-identifying students in the Middle School group) to 3.41 (White-identifying students in the Upperclassmen group) with relatively consistent standard deviations ranging from 0.83 to 0.98.

Study Question 1

Are there significant mean differences in student perceptions of safety for individuals of different racial and ethnic identities in secondary schools implementing SWPBIS with high fidelity? If so, which racial and/or ethnic identities differ within each domain of school safety? To answer the first question of the current study, a MANOVA for each of the four domains on the SRSS was conducted. An overall significant multivariate effect was found across the five racial and ethnic identity groups (Λ=.96, F(16, 6550.7) = 4.95, p = <.0001). Univariate ANOVAs of each dependent variable showed that there were significant differences across racial and ethnic identities in the school safety domains of Incivility and Disruption (F(4, 2147) = 13.12, p < .0001) and Delinquency and Major Safety (F(4, 2147) = 16.16, p < .0001). However, the univariate tests showed that there were no significant differences across racial and ethnic identities in the school safety domains of Climate and Connectedness (F(4, 2147) = 1.04, p = .3835) and Personal Safety (F(4, 2147) = 1.81, p = .1245) suggesting all students across racial and ethnic identities perceived personal safety and climate and connectedness similarly.

To better understand the specific significant differences between racial and ethnic identities within each of the two school safety domains, a Tukey HSD post hoc analysis was conducted. Within the Incivility and Disruption domain, Hispanic/Latinx-identifying students reported significantly lower scores, or reduced concerns regarding incidents of incivility and disruption in their school, than White-identifying students (mean difference [MD] = 0.39, confidence interval [CI] = 0.24 - 0.55, p < .0167) as well as students that identify as another race and/or ethnicity (MD = 0.25, CI = 0.04 - 0.45, p < .0167). Additionally, Black-identifying students reported significantly lower scores within this domain than White-identifying students (MD = 0.70, CI = 0.15 - 1.25, p < .0167). Within the Delinquency and Major Safety domain,

Hispanic/Latinx-identifying students reported significantly lower scores, or reduced concerns regarding incidents of delinquency and major safety in their school, than White-identifying students (MD = 0.29, CI = 0.16 - 0.42, $p < .0167$) as well as students that identify as another race and/or ethnicity (MD = 0.25. CI = 0.07 – 0.42, $p < .0167$). Additionally, Black-identifying students reported significantly lower scores within this domain than White-identifying students (MD = 0.49, CI = 0.02 - 0.96, $p < .0167$).

Study Question 2

Are there significant mean differences in student perceptions of safety for individuals from different grade levels in secondary schools implementing SWPBIS with high fidelity? If so, which grade levels differ within each domain of school safety? To answer the second question of the current study, a MANOVA for each of the four domains on the SRSS was conducted. An overall significant multivariate effect was found across the grade level groups (Λ=.83, $F(8, 4292) = 50.90$, $p = <.0001$). Univariate ANOVAs of each dependent variable showed that there were significant differences across grade levels in the school safety domains of Incivility and Disruption ($F(2, 2149) = 26.69$, $p < .0001$); Personal Safety ($F(2, 2149) = 4.54$, $p = .0108$); and Delinquency and Major Safety ($F(2, 2149) = 33.35$, $p < .0001$). However, the univariate tests showed that there were no significant differences across grade levels in the school safety domain of Climate and Connectedness ($F(2, 2149) = 2.07$, $p = .1269$) indicating all students across the grade levels perceived climate and connectedness similarly.

To better understand the specific significant differences between the grade levels within each of the three school safety domains, a Tukey HSD post hoc analysis was conducted. Within the Incivility and Disruption domain, Underclassmen students and Upperclassmen students reported significantly lower scores, or reduced concerns regarding incidents of incivility and

disruption in their school, than Middle School students (MD = 0.26, CI = 0.17 - 0.34, $p < .005$; MD = 0.18, CI = 0.08 - 0.29, $p < .005$, respectively); however, there were no significant differences between Underclassmen students and Upperclassmen students. Within the Personal Safety domain, Underclassmen students reported significantly higher scores, or more positive perceptions of their own personal safety in their school, than Middle School students (MD = 0.09, CI = 0.02 - 0.16, $p < .005$). Within the Delinquency and Major Safety domain, Middle School students reported significantly lower scores, or reduced concerns regarding incidents of delinquency and major safety in their school, than Underclassmen and Upperclassmen students (MD = 0.18, CI = 0.08 - 0.28, $p < .005$; MD = 0.42, CI = 0.29 - 0.54, $p < .005$, respectively). Additionally, Underclassmen students reported significantly lower scores than Upperclassmen students (MD = 0.23, CI = 0.11 - 0.35, $p < .005$).

Evaluation Question 3

Is there an interaction effect between grade level and racial/ethnic identity? To answer the third question of the current study, a 3x3 factorial ANVOA was conducted for all four domains with an alpha level set to .05 for each effect. Results of the 3x3 factorial ANOVA for Climate and Connectedness (Table 11, see page 66) revealed a nonsignificant main effect for both student grade level ($F(2, 2063) = 0.12$, $p = .8909$) and student racial and ethnic identity ($F(2, 2063) = 0.73$, $p = .4808$). These results align with the previous analyses. Additionally, the interaction effect between student grade level and student racial and ethnic identity was not statistically significant ($F(4, 2063) = 1.19$, $p = .3119$). Thus, additional analyses were not warranted.

Results of the 3x3 factorial ANOVA for Incivility and Disruption (Table 12, see page 66) revealed a significant main effect for both student grade level ($F(2, 2063) = 10.66$, $p < .0001$) and

student racial and ethnic identity (F(2, 2063) = 29.58, p <.0001). These results align with the previous analyses. However, the interaction effect between student grade level and student racial and ethnic identity was not statistically significant (F(4, 2063) = 0.83, p = .5123). Thus, additional analyses were not warranted.

Table 11

Main and Interaction Effect – Climate and Connectedness

Source	SS	df	MS	F	p
Grade	0.08	2	0.04	0.12	.8909
Race	0.54	2	0.27	0.73	.4808
Grade*Race	1.75	4	0.44	1.19	.3119
Within (error)	757.96	2063	0.38		

Table 12

Main and Interaction Effect – Incivility and Disruption

Source	SS	df	MS	F	p
Grade	11.51	2	5.75	10.66	<.0001
Race	31.94	2	15.97	29.58	<.0001
Grade*Race	1.77	4	0.44	0.82	.5123
Within (error)	1113.78	2063	0.54		

Results of the 3x3 factorial ANOVA for Personal Safety (Table 13, see page 67) revealed a significant main effect for both student grade level (F(2, 2063) = 5.23, p = .0054) and student racial and ethnic identity (F(2, 2063) = 5.69, p = .0034). These results align with the previous analyses. However, the interaction effect between student grade level and student racial and ethnic identity was not statistically significant (F(4, 2063) = 0.73, p = .0955). Thus, additional analyses were not warranted.

Results of the 3x3 factorial ANOVA for Delinquency and Major Safety (Table 14, see page 67) revealed a significant main effect for both student grade level (F(2, 2063) = 15.84, p

<.0001) and student racial and ethnic identity (F(2, 2063) = 18.79, p <.0001). These results align with the previous analyses. However, the interaction effect between student grade level and student racial and ethnic identity was not statistically significant (F(4, 2063) = 0.85, p = .4933). Thus, additional analyses were not warranted.

Table 13

Main and Interaction Effect – Personal Safety

Source	SS	df	MS	F	p
Grade	3.88	2	1.94	5.23	.0054
Race	4.22	2	2.11	5.69	.0034
Grade*Race	2.93	4	0.73	1.98	.0955
Within (error)	765.04	2063	0.37		

Table 14

Main and Interaction Effect – Delinquency and Major Safety

Source	SS	df	MS	F	p
Grade	23.99	2	11.99	15.84	<.0001
Race	28.47	2	14.23	18.79	<.0001
Grade*Race	2.58	4	0.64	0.85	.4933
Within (error)	1562.41	2063	0.76		

Chapter Five: Discussion

The current study explored student level differences across four domains of perceptions of safety in school. This evaluation was guided by three questions: are there significant mean differences in student perceptions of safety for individuals of different race/ethnic identities in schools implementing PBIS with high fidelity; are there significant mean differences in student perceptions of safety for individuals of different grade levels in schools implementing PBIS with high fidelity; and is there an interaction effect between grade level and race/ethnic identity? Student perceptions of safety were obtained through a secondary school perceptions of safety self-report survey (i.e., SRSS; Skiba et al., 2006). This chapter first addresses the differences in perceptions of safety across student racial and ethnic identities, the differences in perceptions of safety across student grade level, and the interaction effect between student racial and ethnic identity and grade level. The implications of this evaluation, its limitations, and directions for future research and practice are then discussed. This chapter ends with a summary of the entire evaluation.

Perceptions of Safety Differences Across Student Racial and Ethnic Identity

The results of this study indicated that there were significant differences in student perceptions of safety across student racial and ethnic identities. Although this finding is consistent with current literature investigating differences in perceptions of safety in schools across student racial and ethnic identity (e.g., Thibodeaux et al., 2013; Voight et al., 2015), they do not align with the claims of Horner and Macaya (2018) who reported a well implemented SWPBIS provides an environment that is safe and equitable. According to the authors, all

students should have had similar strong perceptions of safety in their school, no matter their racial and ethnic identity. It is important to note that both schools in which participating students were enrolled had implemented SWPBIS with high fidelity in the school year during which responses to the SRSS were collected.

Consistent with the literature investigating student outcomes for racial and ethnic marginalized groups in SWPBIS implementing schools (e.g., Heidelburg et al., 2022; McIntosh et al., 2018), the results of this study demonstrated racial discrepancies. One potential hypothesis for this finding is that neither of the participating schools had evaluated culturally responsive practices within their SWPBIS, which suggests that they were not implementing a culturally responsive SWBPIS framework as defined by Leverson and colleagues (2021). School contextual factors, such as teacher beliefs and values, racial and ethnic differences between teachers and students, and district policies, may have also had an impact on the effectiveness of decreasing minor and major safety incidents within the school (Johnson et al., 2018; Voight et al., 2015). Social cultural factors may have also impacted how students perceive incidents of safety. For example, Lai and Kao (2018) found that minoritized racial and/or ethnic identifying students, specifically Black- and Hispanic/Latinx-identifying students, experienced more incidents of bullying behaviors than their White-identifying peers. However, minoritized racial and/or ethnic identifying students were less likely to report the incidents as bullying in fear of being stigmatized as weaker than their majoritized racial and/or ethnic identifying peers. Further, the large differences in the school population size of the minoritized and majoritized racial and/or ethnic identities may have played a role in how students perceived their schools as being safe or not (Graham, 2006; Wright et al., 1986).

Differences Within Domains

The significant mean differences in perceptions of safety across racial and ethnic identity were found within two of the four school safety domains of the SRSS: Incivility and Disruption and Delinquency and Major Safety. Regarding Incivility and Disruption, students who enrolled in secondary schools implementing SWPBIS with high fidelity and who identified as Hispanic/Latinx had significantly lower levels of concern regarding instances of minor interpersonal conflicts that may occur in their school when compared to their White-identifying peers and peers that identify as another race and/or ethnicity. These may have included arguments with other students, threats, and/or physical fighting. Further, students enrolled in secondary schools implementing SWPBIS with high fidelity who identified as Black also had lower levels of concern regarding such incidents in their school when compared to their White-identifying peers. Notably, the mean difference between White- and Black-identifying students was the largest of the racial and ethnic identity differences within the Incivility and Disruption domain.

Regarding Delinquency and Major Safety, students who were enrolled in secondary schools implementing SWPBIS with high fidelity and identified as Hispanic/Latinx had significantly lower levels of concern regarding instances of major conflicts and illegal activity that may occur in their school when compared to White-identifying peers and peers that identified as another race and/or ethnicity. These may have included use of drugs and alcohol, garnishing a weapon, and/or theft. Further, students who were enrolled in secondary schools implementing SWPBIS with high fidelity and identified as Black also had lower levels of concern regarding such incidents in their school when compared to their White-identifying peers. These results reflect those within the Incivility and Disruption domain as the mean difference

between White- and Black-identifying students within the Delinquency and Major Safety domain was the largest.

These findings contrast with the results of Thibodeaux (2013), Voight and colleagues (2015), and Yang and colleagues (2021) where it was found that White-identifying students had stronger, more positive perceptions of safety when compared to their Black- and Hispanic/Latinx-identifying peers. However, these results partially reflect those of Yang and colleagues (2021) in that Hispanic/Latinx-identifying students presented with strong perceptions of safety. Importantly, the schools within each of these studies were not implementing SWPBIS whereas the schools in this study were implanting SWPBIS with high fidelity. Although SWPBIS was being implemented, there were still concerns regarding instances of minor interpersonal conflicts and instances of major conflicts and illegal activity across racial and ethnic identities. As noted previously, neither of the two participating schools utilized the TFI Cultural Responsiveness Companion when evaluating implementation fidelity, which suggests they were not implementing a culturally responsive SWPBIS framework at the time of the data collection for this study.

Specific components that enhance cultural responsiveness within a SWPBIS framework that may have been missing within the frameworks of the two participating schools including (a) prioritizing community, school, teacher, and student identity awareness; (b) prioritizing that the voices of all stakeholders, which include families and community members are heard and are representative of the school and community culture and values; (c) developing and maintaining a supportive environment for all students and staff; (d) training teachers and staff to adapt their practices and behaviors based on cultural differences of students and other staff as well as the environment; and (e) incorporating disaggregated student- and school-level data as part of data-

based decision-making to engage in more equitable action planning (Leverson et al., 2021). Studies have shown that incorporating such culturally responsive components to existing SWPBIS frameworks have a positive impact on schoolwide practices as well as on minoritized racial and/or ethnic identifying student outcomes (Cruz et al., 2021). For example, schoolwide data indicated reductions in problem behaviors and office disciplinary referrals of minoritized racial and/or ethnic identifying students when their parents served as stakeholders in SWPBIS and their input was used in enhancing framework components and teacher practices in the classroom (Lo et al., 20211). Further, a case study conducted in a high school implementing SWPBIS found the use of disaggregated student-level data by grade level and by racial and ethnic identity identified disparities in disciplinary practices which led to enhancements in schoolwide practices to be more equitable, which in turn reduced office disciplinary referrals in overrepresented groups (Scott et al., 2012). Without such enhancements to the SWPBIS core components, disproportionate gaps in student outcomes, including perceptions of school safety, may continue to reflect those demonstrated in the SWPBIS efficacy literature (e.g., McIntosh et al., 2018).

A possible social-cultural explanation for these differences may lie within the social misfit theory (Wright et al., 1986) in that those students who are a part of the minoritized race and/or ethnicity within a social context may experience more victimization than students of the majority race and/or ethnicity due to the differing physical appearances, cultural practices, and other characteristics from those of the racial and ethnic majoritized identity. Hispanic/Latinx-identifying students made up the majority of the enrolled population across both of the participating schools (75%), whereas White-identifying students and students who identified as another race and/or ethnicity made up 14% and 7% of the student population, respectively. It

may be that students from these racial and ethnic identities experienced increased levels of concern regarding minor and major safety incidents because of having characteristics that differed from the majoritized racial and ethnic identity. In addition to the social misfit theory, these results may be explained through the power in numbers theory (Graham, 2006), which states that students within the majority racial and/or ethnic group or within groups with relatively equal numbers have more positive perceptions of safety when compared to students of racial and/or ethnic groups that have fewer numbers. In the case of these results, Hispanic/Latinx-identifying students were the majority within both participating schools, which may explain why they reported lowered levels of concerns regarding minor and major safety incidents when compared to their White-identifying peers and peers who identified as another race and/or ethnicity.

Notably, these theories are not a strong potential explanation as to why Black-identifying students reported lowered levels of concern regarding minor and major safety incidents as they made up 1% of the student population. This result contrasts the findings of several research studies that found Black-identifying students having lowered perceptions of safety when compared to their White-identifying peers (e.g., Heidelburg et al., 2022; Lacoe, 2015; Thibodeaux, 2013; Yang et al., 2021). It may be that Black-identifying students feel safer within a school population consisting of more minoritized groups (e.g., Hispanic/Latinx) than those school populations with primarily White-identifying students. Whereas White-identifying students reported reduced feelings of safety in settings where the school population is not primarily White-identifying than they do when in settings where White-identifying students are the majority (Thibodeaux, 2013).

Similarities Within Domains

Nonsignificant mean differences were found in the school safety domains of Climate and Connectedness and Personal Safety across all racial and ethnic identities. Regarding Climate and Connectedness, the nonsignificant findings indicate that students, no matter their racial and ethnic identity, reported similar perspectives of their school promoting a welcoming environment that is committed to student success, similar perspectives of their teachers being caring and engaging in open communication and connectedness practices, and similar perspectives of their school's rules being clear, consistent, and fair. The average reported score across all students was 3.37, or above a neutral response. These aspects of the Climate and Connectedness domain align with the outcomes of research demonstrating increased student social skills and enhanced school climate in schools implementing SWPBIS (e.g., Bradshaw et al., 2012). Additionally, schools have recently been called to action by researchers to integrate social-emotional learning curricula within SWPBIS core components to address not only student externalizing and internalizing concerns, but school climate as well (Bear et al., 2015; Bradshaw et al., 2021; Charlton et al., 2021). These initiatives have shown to improve perceptions of school climate.

Regarding Personal Safety, the nonsignificant findings indicate that students, no matter their racial and ethnic identity, reported similar perspectives of their own safety within specific locations of their school as well as specific times of their school day. The average reported score across all students was 3.50, or above a neutral response. Despite the significant differences in students experiencing incidents within Incivility and Disruption and Delinquency and Major Safety domains, students tended to feel safe in and out of their school at a similar and positive level. There may an underlying correlation between feelings of personal safety and the climate and connectedness of the school. As indicated in the literature investigating connectedness and

feelings of safety (e.g., O'Brennan & Furlong, 2013; Whitlock, 2006), increased perceptions of safety contributed to increased feelings of connectedness. It may be that as students report increased school climate and connectedness that feelings of personal safety are also increased.

Perceptions of Safety Differences Across Student Grade Level

The results of this study indicated that there were significant differences in student perceptions of safety across student grade level. Although this finding is consistent with current literature investigating differences in perceptions of safety in schools across student grade levels (e.g., Yang et al., 2018; Yang et al., 2021), as stated in the previous sections, they do not align with the claims of Horner and Macaya (2018) who reported a well implemented SWPBIS provides an environment that is safe and equitable. By this, all students should have had similar strong perceptions of safety in their school, no matter their grade level. It is important to note again that both schools in which participating students were enrolled in had implemented SWPBIS with high fidelity in the school year responses to the SRSS were collected.

As evident in literature investigating SWPBIS in secondary schools (e.g., Flannery & McGrath Kato, 2017; Swain-Bradway et al., 2015), SWPBIS being implemented at the high school level is relatively new and lacks the substantial breadth of research that is seen at the elementary and middle school levels. Further, the current breadth of literature investigating differences within the secondary level (i.e., middle school versus high school) is quite limited, which makes it difficult to align or contrast the grade level outcomes of this study with previous literature. However, there are some studies that indicate concerns within the framework as it is implemented at the high school level. For example, Flannery and McGrath Kato (2017) noted specific school- and student-level factors that influence the components of a SWPBIS framework specific to the high school setting and that warrant adaptations to the framework than what

would typically be implemented in elementary and middle school. For example, the number of students enrolled, the organizational culture, and the developmental level of students typically differ significantly in high schools than they do in middle schools. Despite high implementation fidelity, the components of SWPBIS as a newly implemented framework at the high school level may not impact student outcomes at the levels expected in middle schools. These factors were not taken into consideration as part of this study and should be addressed in future studies investigating grade level differences in perceptions of safety in secondary schools implementing SWPBIS.

Differences Within Domains

The significant mean differences in perceptions of safety across grade levels were found within three of the four school safety domains of the SRSS: Incivility and Disruption, Personal Safety, and Delinquency and Major Safety. Regarding Incivility and Disruption, Underclassmen students and Upperclassmen students had significantly lower levels of concern regarding instances of minor interpersonal conflicts that may occur in their school when compared to Middle School students. As noted in the previous section, this may include arguments with other students, threats, and/or physical fighting. Notably, the mean difference between Underclassmen students and Middle School students was the largest within this domain. No other significant differences were reported between grade levels within this domain. Similarly, within the Personal Safety domain, Underclassmen students had significantly more positive perspectives of their own safety within specific locations of their school (e.g., hallway, bathroom, and classroom) and specific times of their school day (e.g., before school and after school) than Middle School students. These findings reflect the results in the literature investigating grade level differences in perceptions of safety (Yang et al., 2018; Yang et al., 2021), which

demonstrated middle school students experience more incidents of bullying and victimization as well as have more difficulty managing their emotional responses towards bullying and victimization, thereby impacting feelings of personal safety.

Within the Delinquency and Major Safety domain, Middle School students reported significantly lower scores, or lower levels of concern regarding incidents of delinquency and major safety in their school, than Underclassmen and Upperclassmen students. Additionally, Underclassmen students reported significantly lower scores than Upperclassmen students. Notably, the mean difference between Middle School students and Upperclassmen students was the largest within this domain. The contextual factors within a high school setting indicated by Flannery and McGrath Kato (2017) may have had an influence on the participating high school's SWPBIS, thus impacting the results of these analyses. Specifically, the school size difference between the participating middle school (n = 1,221) and high school (n = 2,661) is quite large. The authors proposed that the diverse values and cultural norms across students may be a cause for concern regarding increased conflict between students. In addition to the larger number of students, the high school may not have the resources (e.g., staff numbers, funding, programing) to adequately provide supports and meet the diverse needs of all the students through a SWPBIS framework. This concern has been exacerbated since the state of California return to in-person learning after the COVID-19 pandemic forced schools to close down for nearly two years. Schools in California have experienced an increased rate of teacher turnover and early retirement, and a reduction in resources (Carver-Thomas et al., 2021). This was also evident in the recruitment process for this study as several principals of high schools implementing SWPBIS chose to not participate due to shortages in staff and resources needed to administer the perceptions of school safety survey.

Alongside differences in SWPBIS frameworks between middles and high schools, other factors may help explain the outcomes within the Delinquency and Major Safety domain. Major safety incidents tend to be more violent and/or dangerous than incidents related to incivility and disruption. It may be that Underclassmen students and Upperclassmen students (i.e., high school students) have increased access to or acceptance of drugs and alcohol (Boyd et al., 2016) and/or weapons (National Center for Education Statistics, 2021) or have an increased desire or need to commit theft in their school. Whereas Middle School students may experience more safety concerns that do not relate to the use of illicit drugs and/or weapons.

Similarities Within Domains

Nonsignificant mean differences were found only in the school safety domain of Climate and Connectedness. The nonsignificant findings indicate that students, no matter their grade level, reported similar perspectives of their school climate and connectedness. As reported in the previous section, the average reported score across all students was 3.37, a positive average response within the domain. As stated previously, these findings from the Climate and Connectedness domain align with the outcomes of research demonstrating increased student social skills and enhanced school climate in schools implementing SWPBIS (e.g., Bradshaw et al., 2012). Additionally, schools have recently been called to action by researchers to integrate social-emotional learning curricula within SWPBIS core components to address not only student externalizing and internalizing concerns, but school climate as well (Bear et al., 2015; Bradshaw et al., 2021; Charlton et al., 2021). These initiatives have shown to improve perceptions of school climate.

Combined Effects of Student Grade Level and Racial and Ethnic Identity

The results of this study indicated that there were no significant interaction effects between student racial and ethnic identity and student grade level on the any of the four domains of the SRSS. Although there were main effects for student grade level and student racial and ethnic identity within the Incivility and Disruption, Personal Safety, and Delinquency and Major Safety domains, the differences between student racial and ethnic identities were not moderated by student grade levels across all domains of school safety. If there are differences in student perception of safety across grade levels, student racial and ethnic identity did not relate to the differences. This indicates that the discrepancies noted between racial and ethnic identities continue as students move through grade levels. There are no evident research studies that address the interaction between grade level and racial and ethnic identity on student perceptions of safety within SWPBIS implementing schools. Fan and colleagues (2011) investigated the interaction effects across multiple student-level indicators; however, racial and ethnic identities were not found to have a significant interaction effect with any of the other student-level factors examined in the study. It may be that racial and ethnic identities and grade levels as individual and separate factors may predict perceptions of safety, but racial and ethnic identities within grade levels do not contribute to understanding school safety beyond their main effects.

Limitations and Future Research

Internal Validity

There are several limitations within the current study that should be addressed in future research. The sampling procedures of the current study lacked randomization. A selection bias occurred due to there not being an assignment phase in which students were randomly assigned to a control group or a treatment group. This methodological limitation hindered the evaluator's

ability to understand the impact implementing SWPBIS has on student perceptions of safety. Future research should investigate the relationship between implementing SWPBIS and student perceptions of safety using treatment and comparisons schools by collecting data from students in schools implementing SWPBIS and schools not implementing SWPBIS.

Another sampling related limitation included other characteristics of the students not being captured in the current study that may impact student perceptions of school safety in schools implementing SWPBIS. Other student-level factors impacting perceptions of safety not captured in the data collection and analysis may have influenced the results if they had been included. Future research investigating SWPBIS impact on perceptions of safety should control for additional student-level factors that impact perceptions of safety in secondary schools including gender identity (Gordon et al., 2018), socioeconomic status (Tippett & Wolke, 2014), sexual orientation (Day et al., 2018; Demissee et al., 2018), and disability status (Rose et al., 2015). The school safety and climate literature and SWPBIS literature may benefit from conducting such a research study by incorporating intersectionality (Winker & Degee, 2011) across all demographics within all analyses as well. This approach has been utilized in recent research investigating student perceptions of safety and the intersectionality of their sex, gender identity, sexual orientation, and grade level (Ioverno & Russell, 2022).

Another limitation of the current study was the lack of independence of observations. All students were nested within two schools. The evaluator was unable to control for possible systems-level effects within the two individual schools. These possibilities may have impacted student responses differently across the two schools within the study. Additionally, the evaluator was unable to collect school-level data which did not allow for rigorous, multi-level analyses that could tease out any school-level factors impacting perceptions of safety. Future research should

address a variety of school-level factors including SWPBIS implementation and fidelity, practices within individual framework components, and other efforts related to enhancing school safety and climate (e.g., social-emotional learning and trauma-informed practices) as potential predictors of student perceptions of safety. Additionally, because SWPBIS is a complex, multicomponent framework, an intervention component analysis should be conducted to identify critical framework components and/or interactions between components within the SWPBIS implementation process that have the most impact on school- and student-level safety outcomes. Findings from such a study may inform areas of need as well as leverageable resources and procedures to allow for the integration of crisis prevention and intervention practices within a SWPBIS framework.

External Validity

Other limitations may have impacted external validity. One limitation to this study is the number of schools evaluated. Students from only two schools in the same district in the same state participated. Results from this study may not generalize outside of the district and outside of the state due to the lack of a more geographically diverse sample. Student demographics tend to differ from district to district and from state to state, impacting the generalizability of the racial and ethnic identity findings of the current study beyond the district of the two participating schools. Additionally, school practices are impacted by their district- and state-level policies which may or may not mandate efforts to enhance safety and school climate and connectedness (e.g., MSDHSPSA; 2018 [CS/SB 7026]). Schools are also influenced by other local and state sociopolitical contexts (e.g., laws, practices, traditions, values, beliefs), which may impact efforts to keep students safe. Future research focusing on perceptions of school safety and SWPBIS implementation should address this limitation by obtaining a more representative sample by

investigating larger, diverse samples of students within schools across multiple districts and multiple states (Orcher, 2014). These district- and state-level predictors should also be controlled for through multi-level analyses.

Another limitation of the current study was based in the self-selection bias. Participating students chose to be a part of the study. What influenced each student to complete the survey could have impacted external validity. For example, a student may have chosen to participate because they had a genuine interest in school safety, or a student may have chosen to participate because have concerns about their safety. It is difficult to generalize the findings to a broader secondary school student population with this potential bias (Orcher, 2014). Further, only middle and high school students completed the surveys regarding perception of school safety. The findings of this evaluation cannot be generalized across all public-school students. Future research should address this limitation by including student-level predictors and perceptions of school safety across both primary and secondary school settings to allow for more generalizability within the findings.

Implications for Practice

The current study of differences in perceptions of school safety and student-level predictors of students in secondary schools implementing SWPBIS with high fidelity is considered exploratory. It is not intended to determine any level of effectiveness of the framework as the evaluation did not investigate the relationship between implementing a SWPBIS framework with high fidelity and student perceptions of safety across student-level predictors. Because this is not an evaluation of effectiveness, the results presented do not inform guidance of future practice around implementing SWPBIS nor does it inform necessary changes to the SWPBIS framework to better serve all students. However, this evaluation, being

exploratory in nature, can guide how problem-solving or leadership teams use and interpret school safety data in an equitable approach.

The current study utilized a self-report method to measure student perceptions of safety, which is encouraged to be utilized by schools and districts. The Safe and Responsive Schools Survey (Skiba et al., 2004) is grounded in evidence that indicates it is a valid and reliable tool to measure perceptions of school safety. However, it is important to note the complexity of perceptions of safety and how the construct's fluidity impacts data collection and decision-making in the school setting. Capturing student perceptions of safety during one single time point, as it was done in this study, does not provide sufficient information. Perceptions of school safety likely change over time due to a number of internal (e.g., development of social-emotional skills) and external factors (e.g., witnessing school-associated violence). The stability of perceptions of school safety constructs measured by a survey can and will continue to fluctuate across survey takers over time. School-based leadership teams should ensure surveys are administered multiple times throughout the school year in order to observe and track changes to better intervene at the individual- and/or group-level. Ongoing data collection will also inform the need to either begin to implement or adjust school-wide programing and practices that address school safety.

It is also important to highlight how student-level data is used to make decisions around disproportionality. Data that help schools identify disproportionality typically include office disciplinary referrals, suspensions, expulsions, and attendance, but can also include perceptions of safety. More importantly, how schools look at these data impact their ability to reduce any disproportionality gap that exists within student-level factors (i.e., racial and ethnic identity and grade level). As demonstrated in this study, aggregated data may indicate that there are

significant differences in perceptions of safety. However, the data needed to be disaggregated in order to identify the specific differences across student-level factors. Specific to this study, it was found that White-identifying students had lower perceptions of safety than their Black- and Hispanic/Latinx-identifying peers. These results were not consistent with the large body of literature indicating students of color consistently have lower perceptions of safety than their White-identifying peers. Such results speak to the importance of disaggregating student safety data by a variety of student-level predictors and to identify potential factors. Individual schools are unique and exist within sociopolitical contexts that may influence biases in practices, values, and perceptions at both the school- and student-level. The practice of disaggregating student data has been identified by scholars as a necessary step in order to address racial and ethnic disproportionality across a variety of student outcomes including exclusionary practices (e.g., Green et al., 2019; Nguyen et al., 2019) and academic achievement (e.g., Nguyen et al., 2015) within a SWPBIS framework (e.g., Boneshefski & Runge, 2014). Importantly, disaggregating data has also assisted discussions about whiteness and structural racism within the schools with the intent to develop and engage in anti-racist practices (e.g., Swanson & Welton, 2019), which represents an important part of confronting inequities in school safety.

While these exploratory results inform the need for schools to disaggregate student-data to address potential disproportionality, researchers and practitioners have much to learn about the relationship between implementing a SWPBIS framework and student perceptions of school safety and climate in order to better inform practices. In the meantime, school-based leadership teams should consider disaggregating student-level data to better identify disproportionate impacts and disparities in feeling safe across grade levels and across racial and ethnic identities (Leverson et al., 2021; Scott et al., 2012). Additionally, schools should consider using these data

as part of equitable action research (Creswell & Gutterman, 2018; Dana & Currin, 2017) to determine how to best ensure SWPBIS practices positively impact perceptions of safety for all students across grade levels and across racial and ethnic identities. A wide breadth of case studies have utilized action research procedures to evaluate SWPBIS frameworks to better understand impact on student outcomes (e.g., McCurdy et al., 2016), cultural responsiveness (e.g., Betters-Bubon et al., 2016; Walkingstick & Bloom, 2013), and, importantly, bullying and school safety (e.g., Anderson, 2016; Goodman-Scott et al., 2013; Lawrence, 2017).

Conclusion

This study sought out to examine differences in perceptions of safety based on students' grade level and racial and ethnic identity in secondary school implementing SWPBIS with high fidelity. It was found that there were significant differences in perceptions of school safety within both predictors. First, regarding racial and ethnic identity, Hispanic/Latinx-identifying students reported significantly lower levels of concern regarding instances of minor interpersonal conflicts and instances of major conflicts and illegal activity when compared to their White-identifying peers and peers who identify as another race and/or ethnicity. Additionally, Black-identifying students reported significantly lower levels of concern within the same domains when compared to their White-identifying peers. Secondly, regarding grade level, Underclassmen students and Upperclassmen students had significantly lower levels of concern regarding instances of minor interpersonal conflicts when compared to Middle School students. Underclassmen also students reported significantly more positive perspectives of their own safety when compared to Middle School students. Further, Middle School students reported significantly lower levels of concern regarding incidents of delinquency and major safety in their school when compared to Underclassmen and Upperclassmen students, of which Underclassmen

students reported significantly lower levels of concern within the same domain when compared to Upperclassmen students. Lastly, there were no significant interaction effects between racial and ethnic identity and grade level and responses to all four domains of school safety.

Although SWPBIS has been identified as a framework that impacts a variety of student outcomes, these results reflect the historically inconsistent findings in the literature investigating disparities in student outcomes in SWPBIS frameworks. However, the findings provide preliminary support the importance of student-level factors being predictors of perceptions of school safety. Additional research clearly is needed. In the meantime, schools need to ensure their practices within a SWPBIS framework include evaluating school safety through an equitable, culturally responsive lens by adopting data-based decision-making and action research procedures that prioritize disaggregated student-level data based on grade level or racial and ethnic identities. These procedures will allow for school-based leadership teams and other practitioners to evaluate school safety and SWPBIS at a deeper, more equitable level over procedures that only take into consideration aggregated data. Additionally, researchers in the field of Education and School Psychology must continue to advance the literature in school safety and the literature in SWPBIS efficacy. Before adequate guidance to enhancing SWPBIS practices and addressing disproportionality in school safety is offered to our practitioners, researchers need to begin investigating the relationships between framework implementation, perceptions of safety, and student-level predictors (e.g., gender, sexual orientation, disability status).

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