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Self-Serving Cognitive Distortions, Externalizing Behaviors, and School Exclusion Among Adolescents with Emotional Disturbance

Claudia Hernandez
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SELF-SERVING COGNITIVE DISTORTIONS, EXTERNALIZING BEHAVIORS,

AND SCHOOL EXCLUSION

AMONG ADOLESCENTS WITH EMOTIONAL DISTURBANCE

A DISSERTATION SUBMITTED TO

THE FACULTY OF THE GRADUATE SCHOOL

IN CANDIDACY FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

PROGRAM IN SCHOOL PSYCHOLOGY

BY

CLAUDIA M. HERNANDEZ

CHICAGO, IL

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For my mother, Margarita Ismary Hernández,
who did the impossible to make my life possible.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

Over the past two decades, the number of students suspended or expelled from school has more than doubled. Currently, approximately one in nine middle and high school students are suspended at least once per year (Losen & Martinez, 2013). An extensive body of research suggests that suspensions are associated with increased academic and behavioral problems (Skiba & Rausch, 2006). Exclusionary discipline practices do not improve school climate or school safety (American Psychological Association, 2008; Skiba, 2014). Additionally, suspension is disproportionally used with students of color and students with disabilities receiving services under the Individuals with Disabilities Education Act (IDEA, 2004; U.S. Department of Education, 2014). Students receiving services under the emotional disturbance (ED) category of the IDEA are especially at risk for suspension. The disproportionate use of exclusionary discipline with students of color and students with ED may contribute to their overrepresentation in the juvenile justice system (Kim, Losen, & Hewitt, 2010).

The school-to-prison pipeline is a construct used to describe a trajectory wherein school policies and practices, especially suspension and expulsion, place students at increased risk for contact with the juvenile justice system. Suspension and expulsion are associated with short-term negative outcomes, such as reduced academic engagement and achievement that may cascade over time, ultimately increasing a student's risk of more severe outcomes, such as dropout and juvenile justice involvement. The school-to-prison pipeline literature demonstrates that school

exclusion ultimately creates an increased risk for contact with the juvenile justice system. Youth in the juvenile justice system have higher levels of self-serving cognitive distortion than other adolescents (Barriga & Gibbs, 1996; Gini & Pozzoli, 2013). Self-serving cognitive distortions protect the individual from self-blame and a negative self-concept (Barriga, Landau, Stinson, Liau, & Gibbs, 2000). The self-serving cognitive distortions literature demonstrates that these distortions are associated with externalizing behavior, delinquency, and juvenile justice involvement. Studies across multiple decades and countries have consistently demonstrated that self-serving cognitive distortions are associated with delinquency and differentiate between offender and non-offender groups (Gini & Pozzoli, 2013).

The current study aims to bridge the school-to-prison pipeline and cognitive distortion literatures and proposes that self-serving cognitive distortions are associated with externalizing behavior, and externalizing behaviors are, in turn, associated with school exclusion. These relationships will be investigated in a sample of racially and ethnically diverse high school students with ED who are at increased risk for exclusionary discipline practices, dropout, and involvement with the juvenile justice system. These students are particularly vulnerable to the school-to-prison pipeline, and interventions are needed to prevent this negative life trajectory. If self-serving cognitive distortions are related to externalizing behaviors, and externalizing behaviors are related to school exclusion, then interventions targeting students' cognitive distortions may reduce their externalizing behaviors and prevent entry into the school-to-prison pipeline.

CHAPTER TWO

REVIEW OF THE LITERATURE

Exclusionary discipline practices are becoming increasingly common in schools across the country. In the last two decades, the number of students suspended or expelled more than doubled. Estimates from 1993 indicate that approximately 1.5 million students were suspended or expelled per year (U.S. Department of Education, 1993). During the 2011-2012 school year, nearly 3.5 million students were suspended or expelled (U.S. Department of Education Office of Civil Rights, 2014). Specifically, 1.9 million students received one suspension, an additional 1.55 million students received two or more suspensions, and 130,000 students were expelled (U.S. Department of Education Office of Civil Rights, 2014). These data suggest that the number of students suspended or expelled from schools is growing at an alarming rate.

Negative Outcomes Associated with Exclusionary Discipline

The rise in exclusionary discipline practices is troubling given the extensive body of research demonstrating that suspensions are associated with a wide range of negative educational and behavioral outcomes including future disciplinary infractions, repeated suspension, school disengagement, poor academic achievement, and dropout (Arcia, 2006; Scott, Nelson, & Liaupsin, 2001; Skiba & Noam, 2001; Skiba, Arredondo & Williams, 2014; Sullivan, Van Norman, & Klingbeil, 2014). Suspensions have not been found to reduce problem behaviors or foster prosocial behaviors (Bear, 2008; Farner, 1996; Skiba & Rausch, 2006). Of students

3

suspended during the 2011-2012 school year, approximately 45% had more than one suspension (U.S. Department of Education Office of Civil Rights, 2014). That is, for nearly half of students who received a suspension, the suspension did not deter or prevent them from reengaging in behaviors that lead to suspension.

Research has shown that students who have been suspended are more likely to have subsequent behavioral difficulties and suspensions (Bowditch, 1993; Costenbader & Markson, 1998). Suspensions remain a significant predictor of future suspensions even after controlling for socioeconomic status, race, special education status, teacher ratings of student behavior, and academic achievement (Raffaele Mendez, 2003). Suspensions may even increase the likelihood of future antisocial behavior such as violence and crime (Hemphill, Toumbourou, Herrenkohl, McMorris, & Catalano, 2006). This negative effect on behavioral trajectory suggests that, "suspension functions as a reinforcer…rather than as a punisher" (Tobin, Sugai, & Colvin, 1996, p. 91).

Proponents of exclusionary discipline practices contend that the removal of disruptive students leads to safer schools for other students (Ewing, 2000). However, research has not supported this assertion. Studies have consistently found that the vast majority of out-of-school suspensions are for non-violent minor to moderate violations of school rules, such as disobedience, disrespect, and attendance problems, rather than for violent or illegal behaviors that jeopardize school safety (Losen & Martinez, 2013; Raffaele Mendez & Knoff, 2003; Skiba, 2000). Additionally, exclusionary discipline is associated with more negative perceptions of school climate (Skiba, Horner, Chung, Rausch, May, & Tobin, 2011; Skiba & Rausch, 2006; Wallace, Goodkind, Wallace, & Bachman, 2008).

Exclusionary discipline practices are also associated with lower academic engagement and achievement. By definition, students who are suspended are removed from the classroom environment and lose instructional time. These lost educational opportunities appear to predict a concomitant loss in school engagement and bonding (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001). Higher rates of disciplinary referrals are associated with more negative attitudes and dispositions toward school (Toldson, McGee, & Lemmons, in press), and lower levels of school bonding (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001). In schools that expel students for relatively minor infractions, students report lower levels of school connectedness (McNeely, Nonemaker, and Blum, 2002).

Suspension is not only related to poor academic achievement among students who are suspended (Arcia, 2006), but it is also associated with lower academic achievement at the school-wide level (Davis & Jordan, 1994; Skiba & Rausch, 2006). In a longitudinal study of middle school students, Arcia (2006) found a significant negative relationship between reading growth and the number of days suspended over a three-year period. Prior research has also found that schools with higher suspension and expulsion rates have lower outcomes on state standardized test scores, even when controlling for demographic variables such as socioeconomic status (Davis & Jordan, 1994; Skiba & Rausch, 2006). Additionally, there is extensive evidence that being suspended increases the probability of school dropout (Balfanz, Byrnes, & Fox, 2012; Raffaele Mendez, 2003; Suh & Suh, 2007). This finding is especially troubling given that students who drop out of school are eight times more likely to be incarcerated than students who graduate from high school (Christle, Jolivette, & Nelson, 2005).

Disproportionate Impact of Exclusionary Discipline on Students of Color

Exclusionary discipline practices are not applied fairly (Skiba, 2014). Students of ethnic and racial minority groups and students with disabilities are suspended at higher rates than their peers, beginning in preschool (U.S. Department of Education Office of Civil Rights, 2014). Recent data from the 2009-2010 and 2011-2012 school years consistently demonstrates that the suspension rate for Black students (17%) is more than three times higher than the suspension rate for White students (5%).

Racial disproportionality in the use of suspension and expulsion has been found consistently for Black students since the 1970s and less consistently for Latino students (e.g., see, American Psychological Association, 2008; Fenning & Rose, 2007; Gordon, Della Piana, & Keleher, 2000; Kaeser, 1979; McCarthy & Hoge, 1987; McFadden, Marsh, Price, & Hwang, 1992; Wu et al., 1982). These racial disparities have increased over the last 30 years and cannot be explained by differences in poverty or economic disadvantage (Skiba, 2014). Even though low socioeconomic status is a risk factor for suspension, race continues to be a significant predictor of suspension even when socioeconomic status is held constant (Skiba et al., 2011; Skiba, Michael, Nardo, & Peterson, 2002). Balfanz and colleagues found that, even after controlling for poverty, the suspension rates for Black students remained significantly higher than the rates for White students and other minority groups in their study (Balfanz, Byrnes, & Fox, 2012). Additionally, racial disproportionality in school discipline is just as likely to occur in high and low income school districts (Wallace, Goodkind, Wallace, & Bachman, 2008).

Research across several decades refutes the claim that racial disparities in exclusionary discipline simply reflect group differences in behavior; these racial disparities are not explained by more frequent or more serious misbehavior by students of color (Losen & Skiba, 2010).

Research has demonstrated that exclusionary discipline practices are used more frequently with students of color even though these students do not engage in more severe behaviors (Skiba et al., 2011). Some studies have found that the behavior of Black and White students is not significantly different, and other studies have found that Black students receive harsher consequences than White students for similar behaviors or more minor offenses (Carter & Jackson, 1982; McCarthy & Hoge, 1987; McFadden et al., 1992; Shaw & Braden, 1990; Skiba et al., 2011; Skiba, Michael, Nardo, & Peterson, 2002; Wu et al., 1982).

One recent national study examined the office disciplinary referrals of students in 364 elementary and middle schools during the 2005-2006 school year (Skiba et al., 2011). Black elementary school students were more than two times as likely to be referred to the office for problem behavior as their White peers. The racial disparity appeared to grow in middle schools with Black students being nearly four times more likely to be referred than their White counterparts. Further, when Black, Latino, and White students were referred for similar problem behaviors, the Black and Latino students were more likely to be suspended or expelled than their White peers (Skiba et al., 2011).

Okonofua and Eberhardt (2015) designed two controlled experimental studies to examine the influence of student race on teachers' responses to minor infractions. In the first study, 53 teachers viewed office discipline referral records for a student who misbehaved twice. The student had one behavioral infraction for insubordination, and a second infraction for class disturbance. The researchers manipulated the student's race by using stereotypically Black (Darnell or Deshawn) or White (Greg or Jake) names. After each infraction, teachers were asked to rate the severity of the student's misbehavior, the extent to which the student hindered the maintenance of order in the classroom, and how irritated the teacher felt by the student. Ratings

for perceived infraction severity, hindrance, and irritation were highly correlated and combined to create one composite variable, "feeling troubled." The results indicated that teachers felt more "troubled" after the second infraction committed by a Black student than after the second infraction committed by a White student. After each infraction, teachers were also asked to rate how severely the student should be disciplined. After the second infraction, teachers thought the Black student's misbehavior should be met with more severe discipline than the White student's misbehavior. After only two behavioral infractions, racial disparities in discipline emerged. Additionally, teachers were significantly more likely to ascribe the label "troublemaker" to the Black student than the White student.

In the second Okonofua and Eberhardt (2015) study, 191 teachers viewed the same office discipline referral records with the same race manipulation, but in this experiment, teachers were also asked to rate the extent to which they could imagine themselves suspending the student at some point in the future. The findings from the first study were replicated. After the second infraction, teachers felt more "troubled," indicated more severe discipline was appropriate, and were more likely to label the student a "troublemaker" if the student had been given a stereotypically Black name compared to a stereotypically White name. Additionally, in the second study, teachers were significantly more likely to imagine themselves suspending the Black student than the White student.

A growing body of research suggests that the greatest racial disparities are evident for behavioral offenses that require a high degree of subjectivity. The offenses used in the Okonofua and Eberhardt (2015) experiments were insubordination and class disturbance, two types of subjective offenses. Compared to their White peers, Black students are referred to the office more often for offenses such as disrespect, loitering, defiance, disruption, and noncompliance

(Gregory & Weinstein, 2008; Skiba et al., 2002; Skiba et al., 2011). The authors of a study that tracked three cohorts of students over an eight-year period and analyzed millions of school and juvenile justice records concluded: "High rates of disciplinary involvement among African-American students were driven chiefly by violations that are subject to the discretion of school employees" (Fabelo, Thompson, Plotkin, Carmichael, Marchbanks, & Booth, 2011, p. 46). When disciplinary infractions require subjective judgment, the ambiguity can activate implicit biases (Staats, 2014).

Implicit bias, also known as implicit social cognition, refers to the "attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner" (Staats, 2014, p. 7). Implicit biases are activated involuntarily, without intentional control, and are most likely to be activated in ambiguous situations. Consequently, implicit biases influence subjective decision-making (Hoffman et al., 2008). Ogletree, Smith, and Wald (2012) describe the implications of implicit biases in school settings:

> "These subjective impressions can (and often do) mean the difference between one student being sent back to the classroom and another student being sent to the principal's office, or between one student getting a warning for a fistfight and another getting arrested and referred to juvenile court on assault and battery charges" (p. 54).

Disproportionate Impact of Exclusionary Discipline on Students with Disabilities

Exclusionary discipline is also disproportionately applied to students with disabilities relative to students who do not have disabilities. Out-of-school suspension of students with disabilities has increased over time (Krezmien, Leone, & Achilles, 2006; Zhang, Katsiyannis, & Herbst, 2004). Currently, the suspension rate for students with disabilities (13%) is more than two times higher than the suspension rate for students without disabilities (6%; U.S. Department of Education Office for Civil Rights, 2014). Students with disabilities are not only more likely to

be suspended than their non-disabled peers, but they are also more likely to be suspended multiple times in one school year (Losen & Gillespie, 2012).

Students of color with disabilities are especially at risk for exclusionary discipline. During the 2011-2012 academic year, the suspension rates of Black, Pacific Islander, American Indian, and multi-racial boys with disabilities ranged from 25% to 34%; that is, more than one in four of these ethnic minority boys with disabilities were suspended (U.S. Department of Education, 2014). Prior research has found that Black students with disabilities were about three times more likely to be removed from school than other students with disabilities (Rausch, 2006). A recent study conducted with a sample of 2,750 students with disabilities in a Midwestern school district found that Black students with disabilities were 3.6 times more likely to be suspended than other students with disabilities (Sullivan, Van Norman, & Klingbeil, 2014).

Exclusionary discipline practices may have an especially detrimental effect on the academic outcomes of students with disabilities. One recent study analyzed the state standardized test scores of over 30,000 students receiving special education services under the Emotional Disturbance (ED), Learning Disability, and/or Other Health Impairment (OHI) IDEA categories. For each disability group, students who were suspended had lower mean reading and math scores than their peers within the same disability group who were not suspended (Allman & Slate, 2013).

Among secondary students identified under the IDEA category of ED, in particular, rates of suspension have risen nearly 50% since the 1980s (Wagner, Newman, & Cameto, 2004). Estimates of suspension rates for these students are above 44% (Achilles, McLaughlin, & Croninger, 2007; Wagner, Newman, & Cameto, 2004). It is important to note that the intersectionality of race and disability status is critical to the discussion of discipline outcomes

among students with ED. Black students are overrepresented in the ED category and are at higher risk of being labeled ED than any other racial/ethnic group (National Research Council, 2002).

Previous research has shown that students with ED were over 10 times more likely to be removed from school than students with other types of disabilities (Rausch, 2006). In Sullivan et al.'s (2014) study conducted with a sample of 2,750 students with disabilities in a Midwestern school district, 19.5% of students were suspended at least once in an academic year; 8.8% of students were suspended once, 10.7% were suspended twice or more. Students receiving services under the ED special education category had an increased likelihood of being suspended compared to other disability groups. Across all other disability groups, suspension rates ranged from 7% (speech-language impairment) to 22% (other health impairment). Nearly half of the students with ED were suspended at least once; 30% were suspended multiple times. Repeated use of suspension with students with disabilities may indicate a denial of procedural protections and equal access to public education (Kim, Losen, & Hewitt, 2010).

The School-to-Prison Pipeline

The school-to-prison pipeline is a construct used to describe a trajectory wherein school policies and practices, especially suspension and expulsion, place students at increased risk for contact with the juvenile justice system. Suspension is considered a key contributor to later incarceration of youth (Christle et al., 2005). Retrospective studies with incarcerated youth and prospective longitudinal studies provide strong empirical support for links between exclusionary discipline practices and juvenile justice involvement (Skiba, Arredondo & Williams, 2014). In a retrospective study of youth found in juvenile justice detention facilities, Sedlak and McPherson (2010) found that 61% of youth reported being expelled or suspended from school the year prior

to entering juvenile justice custody. Krezmien, Leone, and Achilles (2006) found that, in a sample of over 500 males in a juvenile correctional facility, more than 80% had been suspended from school and more than 50% had been expelled from school. In a prospective longitudinal study that tracked students from seventh through twelfth grade, Fabelo et al. (2011) found that suspension and expulsion for a discretionary school violation nearly tripled a student's likelihood of juvenile justice contact within the subsequent year.

The school-to-prison pipeline literature supports a claim of directionality: suspension and expulsion themselves create further risk for negative school and life outcomes. Current studies present a strong case that, above and beyond individual, family, and community risk factors, exclusionary school discipline makes a significant contribution to negative developmental outcomes (Skiba, Arredondo & Williams, 2014). Suspension and expulsion are associated with short-term negative outcomes, such as reduced academic engagement and achievement, that may cascade over time, ultimately increasing a student's risk of more severe outcomes, such as dropout and juvenile justice involvement.

The disproportionate use of exclusionary discipline with students of color and students with disabilities may contribute to their overrepresentation in youth detention (Kim, Losen, & Hewitt, 2010). The racial disproportionality in exclusionary discipline is mirrored in the juvenile justice system. Wald and Losen (2003) argued, "the racial disparities within the two systems are so similar—and so glaring—that it becomes impossible not to connect them" (p. 11). If recent trends continue, one of every three Black teenage boys born in 2001 will go to prison in his lifetime, as will one of every six Latino boys, compared to one of every 17 White boys (Ghandnoosh, 2015).

Students identified under the IDEA category of ED are also at increased risk for incarceration. Twenty percent of students with ED are arrested at least once before they leave school, and 58 percent of youth with ED are arrested within five years of leaving school (Wagner, 1995). More than half of students with ED drop out of school (National Council on Disability, 2004). Of those students with ED who drop out of school, 73 percent are arrested within five years of leaving school (Wagner, 1995). In a nationally representative study of incarcerated youth, Quinn, Rutherford, Leone, Osher, and Poirier (2005) found that over a third of youth had received special education services under IDEA. Of those students identified with a disability under IDEA, nearly half (47.7%) had emotional disturbance as their primary disability.

The Role of Cognitive Distortions

Given the relationships between the educational and criminal justice systems, bridging school discipline and juvenile justice research is critical. Within school discipline research, students' disciplinary referrals are frequently examined, but students' thinking patterns or cognitive distortions remain largely unexplored. In the juvenile justice literature, however, the cognitive distortions of incarcerated youth have been widely studied. Since the 1970s, research has shown that incarcerated youth have higher levels of self-serving cognitive distortion than high school students (Ball 1973b). Cognitive distortions are inaccurate and biased thoughts, attitudes, and beliefs (Barriga & Gibbs, 1996).

Factor analytic studies of problem behaviors have consistently revealed two distinct fundamental behavioral syndromes that Achenbach (1998) termed internalizing behavior (e.g., withdrawal, somatic complaints, anxiety, and depression) and externalizing behavior (e.g., aggressive and delinquent behaviors; Barriga, Hawkins, & Camelia, 2008). Self-debasing cognitive distortions are associated with internalizing behaviors (e.g., misattributing helplessness

to oneself is associated with depression), whereas self-serving cognitive distortions are associated with externalizing behaviors (e.g., misattributing threat to the actions of others is associated with aggression; Dodge, 1993).

The line of theorizing on cognitive distortions and externalizing behavior developed independently from theories on distorted thinking and internalizing phenomena (Barriga, Hawkins, & Camelia, 2008). Beck (1967) proposed a model of automatic thoughts that reflected underlying distorted and 'depressogenic' belief systems regarding self, world, and future. Within Beck's model of cognitive therapy, self-debasing cognitive distortions have been defined as habitual, erroneously negative automatic thoughts. Studies have consistently found evidence of a relationship between self-debasing cognitive distortions and internalizing behavior problems (Quiggle, Garber, Panak, & Dodge, 1992).

Sykes and Matza (1957) conceptualized self-serving cognitive distortions as rationalizing attitudes and beliefs that served to neutralize potential empathy or guilt. Because self-serving cognitive distortions protect the individual from self-blame and a negative self-concept, these distortions are associated with externalizing and antisocial behaviors, including aggression and delinquency (Barriga et al., 2000).

The first measure to address self-serving cognitive distortion in terms of Sykes and Matza's (1957) construct was Ball's (1966, 1973a) Neutralization Scale, which correlated with self-reported delinquency (Ball & Lilly, 1971) and differentiated incarcerated youth from high school students (Ball, 1973b). Other measures derived from Ball's Neutralization Scale, such as the Neutralization Index (Mitchell & Dodder, 1983) and the Tendency to Neutralize Measure (Mitchell, Dodder, & Norris, 1990) were found to correlate with self-reported delinquency.

In the late 1970s, Gendreau, Grant, Leipciger, and Collins (1979) developed another measure of self-serving cognitive distortion, the Criminal Sentiments Scale (CSS). The CSS was found to correlate with adjustment problems, differentiate between predatory and non-predatory incarcerated young offenders, and predict recidivism (Shields & Simourd, 1991; Shields & Whitehall, 1994). However, the CSS is not solely a measure of cognitive distortion because it includes items that elicit evaluative judgments toward law enforcement and law violators (Barriga, Gibbs, Potter, & Liau, 2001).

In the 1990s, Walters and colleagues developed a measure of self-serving cognitive distortion exclusively designed for incarcerated populations, the Psychological Inventory of Criminal Thinking Styles (PICTS; Walters, 1995a; Walters, 1995b; Walters, Elliot, & Miscoll, 1998). However, the PICTS is not applicable to non-incarcerated populations.

The How I Think (HIT) Questionnaire was developed to provide a reliable and valid measure of self-serving cognitive distortion (Barriga & Gibbs, 1996; Gibbs, Barriga, & Potter, 2001) that focuses exclusively on cognition—not emotion or behavior—and allows for practical application across a wide variety of settings and populations (Barriga et al., 2001).

The HIT Questionnaire is based on Gibbs, Potter, and Goldstein's (1995) four-category typology of self-serving cognitive distortion: Self-Centered, Blaming Others, Minimizing/ Mislabeling, and Assuming the Worst. According to this typological model, primary cognitive distortions comprise the Self-Centered category, and these distortions involve valuing one's immediate views, feelings, and desires to such a degree that the views of others are ignored or disregarded. Secondary cognitive distortions serve to support the primary distortions and comprise the remaining three categories: Blaming Others consists of misattributing blame to innocent others; Minimizing/Mislabeling involves perceiving one's antisocial behavior as

acceptable or harmless; and Assuming the Worst involves assuming that the worst-case scenario is inevitable and that improvement in one's own or others' behavior is impossible (Barriga & Gibbs, 1996). These secondary cognitive distortions have been characterized as rationalizations that "neutralize" conscience or guilt.

The preliminary validation study for the HIT Questionnaire was conducted in the Midwest region of the U.S. with a sample of 147 male adolescents ages 14 to 20 years (Barriga & Gibbs, 1996). The test-retest reliability for scores on the HIT was high, with a statistically significant correlation of 0.91 between the two administrations. The estimate of the reliability of scores on the HIT was also high, with a Cronbach's alpha coefficient of .96. The researchers hypothesized that HIT scores would be positively correlated with measures of delinquency and externalizing behavior. HIT scores were also positively correlated with delinquency as measured by the Nye-Short Self-Reported Delinquency Questionnaire and positively correlated with scores on the Externalizing Scale of the Youth Self-Report (YSR; Achenbach, 1991). Self-serving cognitive distortions accounted for 30% of the variance in externalizing behavior. HIT scores correlated significantly more highly with the Externalizing Scale than the Internalizing Scale of the YSR (i.e., discriminant validity evidence). Despite the high comorbidity between externalizing and internalizing behaviors, Barriga and Gibbs (1996) found that self-serving cognitive distortions are more closely associated with externalizing behaviors than internalizing behaviors. Additionally, Barriga and Gibbs (1996) found that the incarcerated adolescent males in their sample had significantly higher levels of self-serving cognitive distortions than the adolescent males attending a suburban upper middle class public high school.

Barriga et al. (2000) conducted a subsequent study with a mixed gender sample of 96 incarcerated youth (13-19 years old) and 66 high school students (15-19 years old). As in their

previous study, the estimate of the reliability of scores on the HIT was high, with a Cronbach's alpha coefficient of .96. The results of this study provided additional criterion-related and discriminant validity evidence. The incarcerated youth had significantly higher levels of cognitive distortion (self-serving and self-debasing) and problem behavior (externalizing and internalizing) than the high school students. No significant differences in cognitive distortion or problem behavior were found by gender, age, or ethnicity. The key finding of this study was that self-serving cognitive distortions were specifically related to externalizing behaviors, whereas self-debasing distortions were specifically related to internalizing behaviors.

Barriga, Hawkins, and Camelia (2008) conducted a follow up study to determine whether the key finding from their 2000 study could be replicated in a different country, specifically with youth from schools on the island of Curaçao. As in the previous study, self-serving cognitive distortions were associated with externalizing behaviors whereas self-debasing cognitive distortions were associated with internalizing behaviors. The authors concluded that the degree of cognitive-behavioral specificity documented by this study suggests that cognitive interventions designed for externalizing versus internalizing behaviors should differ in therapeutic approach.

In a meta-analysis of 71 studies reporting data on 20,685 participants, Helmond, Overbeek, Brugman and Gibbs (2014) examined decades of research on self-serving cognitive distortions and externalizing problem behaviors. The researchers used externalizing problem behaviors as an overarching term to refer to the broad range of problem behaviors directed toward damaging others, including antisocial behavior, delinquent behavior, aggressive behavior, externalizing behavior, and bullying behavior (Achenbach, McConaughy & Howell, 1987). The results of the meta-analysis showed a significant, medium to large effect size ($d = .70$) for the

association between self-serving cognitive distortions and externalizing problem behavior. In correlation studies, higher levels of cognitive distortions were associated with higher levels of externalizing problem behavior. In group-comparison studies, (a) offenders reported higher levels of cognitive distortion than non-offenders, and (b) non-offenders with externalizing problem behavior reported higher levels of cognitive distortions than non-offenders without externalizing problem behavior. The meta-analysis also found that gender and ethnicity did not moderate the relationship between cognitive distortions and externalizing problem behaviors, which suggests that the relationship is equally strong among boys and girls, as well across ethnic groups (Helmond et al., 2014). There is a lack of consensus in the literature regarding gender differences in self-serving cognitive distortions. No gender differences were found in three validation samples for the HIT questionnaire (Barriga et al., 2001) or in the refinement sample (Barriga et al., 2000). Other studies, however, have found that male adolescents have higher levels of cognitive distortions than female adolescents (Peña Fernandez, Andreu Rodriguez, Barriga, & Gibbs, 2013; Owens, Skrzypiec & Wadham, 2014). Race/ethnic group differences in self-serving cognitive distortions have not been found in previous studies (Barriga et al., 2000; Barriga et al., 2001). However, these studies included relatively small numbers of Latino, Asian Americans, and Native Americans, and the researchers only investigated differences in cognitive distortions between participants who identified themselves as Caucasian or African American (Barriga et al., 2000; Barriga et al., 2001).

Self-Serving Cognitive Distortions Across Cultures and Languages

The modified version of the HIT (Gibbs, Barriga, & Potter, 2001) has been translated and validated in different languages, including Spanish, Swedish, Dutch, and French. Peña Fernandez, Andreu Rodriguez, Barriga, and Gibbs (2013) developed the Spanish version of the

measure and administered it to a sample of adolescents attending public and private schools in Madrid (Spain). Participants were drawn from the community, not from the juvenile justice system. In this sample, self-serving cognitive distortions were positively correlated with self-reported reactive-proactive aggression.

The Swedish version of the questionnaire was used to measure the self-serving cognitive distortions of two groups of adolescents in Sweden: incarcerated youth and non-offender students (Lardén, Melin, Holst, & Långström, 2006). In the overall sample, self-serving cognitive distortions were negatively correlated with measures of moral judgment and empathy. The group of incarcerated youth reported significantly higher levels of cognitive distortion and less mature moral judgments than their non-offender counterparts.

Nas, Brugman, and Koops (2008) used the Dutch version of the questionnaire to measure the self-serving cognitive distortions of male adolescents (incarcerated youth and high school students) in the Netherlands. Self-serving cognitive distortions were positively correlated with delinquency, aggression, and externalizing behavior as reported by adolescents' teachers and mentors. Adolescents incarcerated in juvenile correctional facilities had significantly higher levels of distortions than the high school students.

Plante et al. (2012) translated, adapted, and validated the French version of the HIT with a sample of French-speaking adolescents with externalizing behaviors in Québec (Canada). These adolescents manifested externalizing behaviors that warranted services under the Youth Criminal Justice Act or the Youth Protection Act (e.g., participants were either in closed detention facilities, open rehabilitation units, or on probation in the community). Self-serving cognitive distortions were positively correlated with self-reported delinquency and negatively correlated with compliance with social norms. Additionally, adolescents placed in closed

detention facilities had significantly more self-serving cognitive distortions than youth in open

rehabilitation units or on probation in the community.

As described above, studies conducted in four countries (the U.S., Sweden, the

Netherlands, and Canada) found that incarcerated youth had higher levels of cognitive distortions

than their non-detained counterparts. The estimates of the reliability of scores on the HIT were

high, with a Cronbach's alpha coefficients above .90 across all samples. Findings were

remarkably consistent in spite of inherent differences across cultures and criminal justice

systems.

A meta-analysis of the psychometric properties of the HIT examined the variability in

reliability estimates across samples and languages (Gini & Pozzoli, 2013). Cronbach's alpha

coefficients were obtained for HIT scores from 29 independent samples ($N = 8,186$), with a mean

alpha of .93. This meta-analysis revealed medium to large correlations between self-serving

cognitive distortions and externalizing, aggressive, antisocial, and delinquent behavior, and

(lower) empathy (Gini & Pozzoli, 2013). Additionally, based on 11 samples of offenders and 15

samples of non-offenders, the HIT successfully discriminated between the offender and non-

offender groups.

HIT Norms and Cutoffs

The HIT subscale and summary scores were normed with reference to five subsamples of

non-referred high school adolescents and college students. The resulting normative sample

included 412 youth (226 male and 186 female) aged 14-19 (M = 17.27, SD = 1.30). The sample

was 65% Caucasian, 22% African American, 9% Asian American, 2% Latino, and 1% Native

American, with 2% not reporting race (Barriga et al., 2001). Scores below the 73rd percentile

represent the "nonclinical" range, whereas scores between the 73rd and 83rd percentiles were

defined as representing the "borderline-clinical" range, and scores above the 83rd percentile

considered in "clinical" range (Barriga et al., 2001).

Treatment Planning and Evaluating Therapeutic Progress

If a youth's HIT scores fall within the "clinical" range, a detailed analysis of a youth's

profile facilitates treatment planning. Examining scores on the cognitive distortion subscales

provides a method for directly assessing the particular cognitive style endorsed by a youth.

Knowledge of a youth's particular cognitive style permits clinicians to individualize treatment

approaches more effectively (Barriga et al., 2001).

The HIT is increasingly used to assess changes after interventions for incarcerated

adolescents such as the Juvenile Cognitive Intervention Program (Bogestad, Kettler, & Hagan,

2010; McGlynn, Hahn, & Hagan, 2013) and the EQUIP cognitive-behavioral program

(Helmond, Overbeek, & Brugman, 2012; Helmond, Overbeek, & Brugman, 2014). One study

used the HIT to assess the effectiveness of the Corrective Thinking Program implemented with

at-risk youth attending an alternative high school (Bye & Schillinger, 2005). However, no

reliability or validity data have been reported with samples of students attending alternative or

therapeutic high schools.

The previously discussed meta-analysis on cognitive distortions and externalizing

problem behavior also investigated the effectiveness of interventions in reducing cognitive

distortions, and subsequently, externalizing problem behavior (Helmond, Overbeek, Brugman &

Gibbs, 2014). First, the researchers examined 18 intervention studies that reported data on 2,037

participants and assessed whether the intervention could effectively reduce cognitive distortions.

Almost all programs incorporated cognitive behavioral components ($n = 17$), and the most

frequently studied programs were EQUIP ($n = 6$) and Stop and Think ($n = 2$). The results of this

meta-analysis showed that the interventions studied had a significant, small effect ($d = .27$) in the reduction of cognitive distortions. Then, the researchers examined a smaller subset of 9 studies that assessed whether the intervention could reduce both cognitive distortions and externalizing behavior. Overall, across these nine-studies, the meta-analysis results indicated that neither cognitive distortions nor externalizing behavior were effectively reduced. The researchers concluded that, although interventions have been shown to reduce cognitive distortions, the question of whether a decrease in cognitive distortions successfully leads to the expected decrease in externalizing behavior still needs to be answered in future high-quality treatment studies.

Bridging the School-to-Prison Pipeline and Cognitive Distortion Literatures

The school-to-prison pipeline literature demonstrates that school practices and policies that remove students from school for disciplinary reasons make a significant contribution to negative developmental outcomes. Specifically, current studies make a strong case that suspension and expulsion ultimately create increased risk for contact with the juvenile justice system. Skiba, Arredondo and Williams (2014) represented the model in its simplest form as shown in Figure 1.

Figure 1. Simple Representation of the School-to-Prison Pipeline

However, as Skiba, Arredondo and Williams (2014) posit, it is unlikely that suspension and expulsion create a direct link to juvenile justice involvement; rather, the effects of exclusionary discipline are mediated by short-term negative outcomes that increase the risk of

long-term negative outcomes, such as dropout and juvenile justice involvement. Figure 2

represents the more fully articulated model with short-term, mediating variables (Skiba,

Arredondo & Williams, 2014).

Figure 2. School-to-Prison Pipeline Model with Mediating Variables

The self-serving cognitive distortions literature demonstrates that these rationalizing

attitudes and beliefs that protect the individual from self-blame and a negative self-concept are

associated with externalizing behavior, delinquency, and juvenile justice involvement. Studies

across multiple decades and countries have demonstrated that self-serving cognitive distortions

are associated with delinquency and differentiate between offender and non-offender groups. The

relationship between cognitive distortions and juvenile justice involvement is represented in its

simplest form in Figure 3.

Figure 3. Simple Representation of Cognitive Distortions and Juvenile Justice Involvement
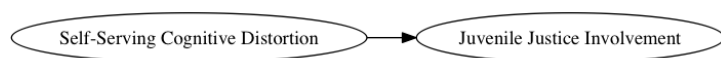
The current study aims to bridge the school-to-prison pipeline and cognitive distortion

literatures and posits a model that synthesizes Skiba, Arredondo and Williams' (2014) model

(see Figure 2) and the model demonstrated in Figure 3. The expanded model (see Figure 4)

depicts two additional variables that are hypothesized to relate to school exclusion (e.g., self-

serving cognitive distortions and externalizing behaviors). That is, this model demonstrates the relationship between self-serving cognitive distortions and externalizing behaviors, as well as the relationship between externalizing behavior and school exclusion.

As previously described, numerous studies within the criminal justice literature have found positive correlations between self-serving cognitive distortions and externalizing behaviors in samples of incarcerated youth and high school students. In school settings, students' externalizing behaviors are often monitored through the collection and analysis of office disciplinary referral (ODR) data (Irvin et al, 2006; Irvin, Tobin, Sprague, Sugai, & Vincent, 2004). Previous research has found that ODRs were strongly correlated with ratings of externalizing behaviors on the Behavior Assessment Scale for Children (McIntosh, Campbell, Carter, & Zumbo, 2009). Compared to their peers, students with two or more ODRs were rated by their teachers as having significantly more disruptive behaviors and concentration problems, and fewer prosocial behaviors as measured by the Teacher Observation of Classroom Adaptation Checklist (Pas, Bradshaw, & Mitchell, 2011).

Therefore, externalizing behaviors are associated with ODRs, which are in turn a significant predictor of suspension. In a study of 433 urban, high poverty high schools, Mcloughlin and Noltemeyer (2010) found that the number of ODRs per 100 students predicted the number of suspensions per 100 students. As Skiba, Arredondo and Williams' (2014) assert, once school exclusion occurs, its effects are mediated or moderated by a series of short-term outcomes that increase the ultimate risk of juvenile justice involvement.

Figure 4. Expanded Model of Cognitive Distortions and School-to-Prison Pipeline
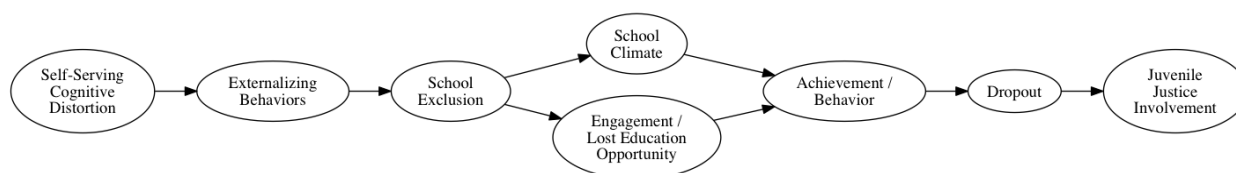
Conceptual Overview of Study

The current study examined the first two links in the proposed model: 1) the relationship between self-serving cognitive distortions and externalizing behaviors; and 2) the relationship between externalizing behaviors and school exclusion. These relationships were investigated in a sample of racially and ethnically diverse high school students with ED who are at increased risk for exclusionary discipline practices, dropout, and involvement with the juvenile justice system. These students were particularly vulnerable to the school-to-prison pipeline, and interventions are needed to prevent this negative life trajectory. Although interventions to interrupt the school-to-prison pipeline may target any of the variables displayed in the proposed model, the current study hypothesized that self-serving cognitive distortions are related to externalizing behaviors and externalizing behaviors are related to school exclusion. Interventions targeting students' self-serving cognitive distortions may prevent them from entering this trajectory.

Cognitive behavior therapy (CBT) is commonly used in schools to address students' internalizing behavior problems such as anxiety and depression, and the identification and modification of self-debasing cognitive distortions is a key component of these interventions (Creed, Reisweber, & Beck, 2011). Interventions aiming to reduce students' externalizing behaviors by targeting their self-serving cognitive distortions have been developed (e.g., EQUIP program), but these interventions are not as widely used within schools.

In the current study, if students' self-serving cognitive distortions are found to predict referrals for externalizing behaviors in this population, then administration of the HIT may enable clinicians to use HIT scores to develop individualized treatment plans and interventions that address students' cognitive distortions and prevent their externalizing behaviors. If students' externalizing behaviors are minimized, the likelihood that these students will be suspended or expelled will be reduced, and entry into the school-to-prison pipeline will be prevented.

Research Questions and Hypotheses

The following research questions will be investigated in a sample of students with ED attending a therapeutic high school:

HIT Scales

1. What are the mean scores for each scale on the How I Think (HIT) questionnaire?

2. What percent of students have scores in the "clinical" range?

3. What is the reliability (i.e., internal consistency) of scores on the HIT scales?

4. What are the inter-correlations between scores on the HIT scales?

The mean scores for each scale on the HIT questionnaire are hypothesized to be higher than the mean scores in the general population as measured in Barriga et al.'s (2001) normative sample. The percent of students scoring in the "clinical" range is expected to be higher than the percent of individuals scoring in the "clinical" range in the normative sample (16%). That is, the sample of students with ED attending a therapeutic high school is hypothesized to have higher levels of cognitive distortions than the general population. Further, the reliability estimates for the HIT scales in the study sample were expected to be similar to the reliability estimates for HIT scales in the normative sample. The HIT scales in the study sample were expected to be highly inter-

correlated given the strong inter-correlations between HIT scales in the normative sample (Barriga et al. (2001).

Disciplinary Referrals for Problem Behaviors and Suspensions

1. What percent of students receive at least one Office Discipline Referral (ODR) for each problem behavior?

2. What percent of students receive at least one out-of-school suspension (OSS)?

Although high rates of ODRs and OSS are expected in this sample, no specific hypotheses were made related to the percent of students who receive one or more ODR and OSS.

Gender

1. Do scores on the HIT cognitive distortion scales differ by gender?

2. Is there an association between gender and receiving an ODR for each problem behavior?

3. Is there an association between gender and receiving an OSS?

Given the lack of consensus in the literature regarding gender differences in self-serving cognitive distortions, no specific hypotheses were made as to whether male or female students would receive higher scores on the HIT cognitive distortion scales. Based on the school-to-prison pipeline literature, male students were expected to be at particularly high risk for ODRs and suspension. Gender was hypothesized to be associated with both ODRs and OSS.

Race/Ethnicity

1. Do scores on the HIT cognitive distortion scales differ by race/ethnicity?

2. Is there an association between race/ethnicity and receiving an ODR for each problem behavior?

3. Is there an association between race/ethnicity and receiving an OSS?

Because race/ethnic group differences in self-serving cognitive distortions have not been found in prior studies, Black, Latino, and White students were expected to demonstrate similar levels of self-serving cognitive distortions. Based on the school-to-prison pipeline literature, students of color were expected to be at particularly high risk for ODRs and suspension. Race/ethnicity was hypothesized to be associated with both ODRs and OSS.

HIT Scales, Problem Behaviors, and Suspensions

1. Is there a relationship between HIT cognitive distortion scale scores and receiving an ODR for each problem behavior?

2. Is there an association between receiving an ODR for each problem behavior and receiving an OSS?

Self-serving cognitive distortions were hypothesized to be associated with receiving an ODR for each problem behavior. Receiving an ODR for each problem behavior was hypothesized to be associated with receiving an OSS.

CHAPTER THREE

METHODOLOGY

Setting

The study participants were drawn from a therapeutic high school located in a suburban, predominantly White community in a Midwestern state. This high school is one of five schools within a special education cooperative. The cooperative services 35 local member school districts, which refer students whose needs cannot be met within the general education environment. All students enrolled in the therapeutic high school are eligible for special education and related services of the Individuals with Disabilities Education Act (IDEA, 2004) and have an Individualized Education Program (IEP). All students have significant emotional and behavioral needs, and most students are eligible for services under the Emotional Disturbance IDEA category. There are typically 7-9 students per class, and the overall student to teacher ratio is 5 to 1. During the 2011-2012 school year, 24 students received one out-of-school suspension, and 19 students received more than one out-of-school suspension. That is, a total of 43 students were suspended, and 44% of those students were suspended at least once again during the same school year. The school also had 34 referrals to law enforcement and 19 school-related arrests (U.S. Department of Education Civil Rights Data Collection, 2014).

Measures

How I Think (HIT) Questionnaire

The How I Think (HIT) Questionnaire consists of 54 items, in which respondents rate their responses on a 6-point scale ranging from agree strongly to disagree strongly (Barriga et al., 2001). The HIT requires a fourth-grade reading level (Barriga et al., 2000). Thirty-nine of the items are divided into four cognitive scales and four behavioral scales. The four cognitive scales, based on the typological model, are Self-Centered, Blaming Others, Minimizing/ Mislabeling and Assuming the Worst. The 39 items are divided into the four cognitive distortion scales as follows: The Self-Centered scale consists of nine items; the Blaming Others scale consists of 10 items; the Minimizing/Mislabeling scale consists of 9 items; and the Assuming the Worst scale consists of 11 items.

The same 39 items are also divided into four behavioral referent scales: Opposition-Defiance, Physical Aggression, Lying, and Stealing. The 39 items are divided into the four behavioral referent scales as follows: The Opposition-Defiance scale consists of 10 items; the Physical Aggression scale consists of 10 items; the Lying scale consists of 8 items, and the Stealing scale consists of 11 items. Two summary scales—Overt Scale and Covert Scale—are based on the behavioral referent scales. The Overt Scale consists of the mean of Oppositional-Defiance and Physical Aggression scale scores. The Covert Scale consists of the mean of Lying and Stealing scale scores.

Each of the 39 items is counted on one cognitive scale and one behavioral scale. For example, an item such as "I can't help losing my temper" is counted on the Assuming the Worst cognitive scale as well as the Physical Aggression behavioral scale. The remaining 15 items are not calculated in the HIT total score. Of these, eight make up the Anomalous Responding scale,

which detects insincere or suspect responding. The other seven items serve as prosocial, positive fillers.

An individual's Overall HIT Score is the mean score for all four cognitive distortions scales and all four behavioral referent scales (i.e., the sum of these eight scale scores divided by eight). Across all scales, the minimum score is a 1 and the maximum score is a 6. A high score indicates a stronger adherence to self-serving cognitive distortions.

Office Discipline Referrals (ODRs) and Out-of-School Suspension (OSS)

The host high school for this study used the Schoolwide Information System (SWIS) to collect office discipline referral (ODR) data. SWIS is an electronic database that is used to systematically track behavioral infractions in a school building (May et al., 2006). ODRs monitored through SWIS have been found to be valid indicators of student behavior problems (Pas, Bradshaw, & Mitchell, 2011). Additionally, in a study that included 32 schools using SWIS, Irvin et al. (2006) found evidence of the validity of SWIS for evaluating student behavior throughout the school, planning and implementing interventions, and guiding change in the implementation of Positive Behavior Supports.

SWIS has data entry fields for student name, district identification number, grade, IEP status, and race/ethnicity (i.e., African American, Asian, Native American, Pacific Islander, Hispanic/Latino, and Caucasian). ODRs entered into SWIS include information about (a) the type of problem behavior leading to the referral; (b) the time of day, location, referring adult, and others present during the event; (c) the presumed maintaining consequence (e.g., access to attention, escape from work, response to taunting from peers); and (d) the primary administrative decision (e.g., conversation, detention, loss of privilege, parent report, suspension) resulting from the referral. Problem behaviors are selected from list of 24 operationally defined "major problem

behaviors" and three operationally defined "minor problem behaviors." School-based

consequences for these reported behaviors are coded into 14 categories of "administrative

decisions." Data were collected on out-of-school suspensions (OSS) given to students as

consequences for problem behaviors.

Procedures

All students enrolled at the school were invited to participate in the study. School staff

members described the How I Think (HIT) questionnaire to students. In order to promote

participation, students who participated in the study were given a small incentive of a candy bar

upon completion of the HIT questionnaire. A school social worker administered the

questionnaire to each student individually or in small groups, which included reading the items

aloud if requested by students. The reading skill level required for the measures is reasonably

low (fourth grade level), but the participating students may have academic difficulties, which

interfere with comprehension of the items. Each student was given a copy of the HIT

questionnaire. Students were asked not to write their names on the questionnaire, but they were

asked to write their student identification numbers to facilitate merging of their questionnaire

responses with their disciplinary referral SWIS data.

For each student who completed the HIT questionnaire, SWIS data were exported into

Microsoft Excel. A school social worker removed student names from the Excel file before

sharing it with the researcher. Student identification numbers were retained in the Excel file so

that each student's SWIS data could be matched with his/her HIT questionnaire. The researcher

manually entered each participant's HIT questionnaire responses into an SPSS Statistics

database. SPSS is a software package used for data analysis. The SWIS data Excel file was then

merged with the SPSS database that contained HIT data. The following SWIS variables were

included in the database: student identification numbers, dates of major disciplinary referrals, the

category of the referral (e.g., physical violence), and the disciplinary consequence (e.g.,

suspension). Once the HIT questionnaire data was matched to SWIS data records, the student

identification number was replaced with a participant number in the database in order to maintain

confidentiality. Paper questionnaires were kept in a locked filing drawer and no one other than

the researcher had access to them.

CHAPTER FOUR

RESULTS

Sample

At the beginning of the 2015-2016 school year, 96 students were enrolled at the host school for the current study (U.S. Department of Education Office of Civil Rights Data Collection). Seventy-seven students (80.2% of all students enrolled) volunteered to participate in the current study and completed the HIT questionnaire throughout the months of August and September. Of these 77 participants, 72 were retained in the final sample. The data for five students could not be analyzed: the HIT responses of four students yielded Anomalous Responding scale scores above the recommended cut-off (4.25) and one student's ID number was reported incorrectly on the HIT questionnaire (i.e., HIT data could not be matched with referral data).

For the 72 participants retained in the final sample, responses to the HIT questionnaire were entered into SPSS Statistics, a software package used for data analysis. Schoolwide Information System (SWIS; May et al., 2006) data for these 72 students were exported from SWIS into Excel and then imported into SPSS. HIT data and SWIS data were ultimately merged into one SPSS dataset. In addition to office discipline referral data, SWIS also includes demographic data for students, including grade, gender, race/ethnicity, IEP status, and disability category.

Demographic information for the current sample and the student population enrolled at the school (20th day enrollment) was summarized in Table 1. The data for all students enrolled in the school was publicly available on the Office of Civil Rights website. Due to missing data within SWIS, some demographic information for the sample was unavailable. Only a few ninth graders were included in the sample, but this number was similar to the number of ninth graders enrolled in the school. Twelfth graders were slightly underrepresented in the sample (25%) compared to their proportion of the school population (34%), which suggests that a greater number of twelfth graders may have opted out of the study. The number of male students was higher than the number of female students in the sample, which reflected the population enrolled at the school. In the sample, the numbers of Black and White students in the sample were similar, and the number of Latino students was somewhat lower. Latino and White students were slightly underrepresented in the sample compared to their representation in the school population. About half of the students enrolled in the school were classified as low income students, but this information was not available for the study sample. Most students were eligible for an IEP under the Emotional Disturbance disability category. Students without an IEP had been placed at the school while an evaluation to determine special education eligibility was being conducted.

Table 1. Demographics for Study Sample and the School Population

Variables	Study Sample		School Population	
	N	*%*	*N*	*%*
Grade				
Eighth	0	0	3	3.13
Ninth	4	5.56	5	5.21
Tenth	25	34.72	24	25.00
Eleventh	22	30.56	31	32.29
Twelfth	18	25.00	33	34.38
Unknown	3	4.17	0	0
Gender[a]				
Female	19	26.39	23	23.96
Male	50	69.44	73	76.04
Unknown	3	4.17	0	0
Race/Ethnicity [b]				
Black	24	33.33	24	25.00
Latino	17	23.61	26	27.08
White	27	37.50	40	41.67
Asian	0	0	1	1.04
Bi- or Multi-Racial	0	0	5	5.21
Unknown	4	5.56	0	0
Low Income				
Yes	--	--	49	51.04
No	--	--	47	48.96
Unknown	--	--	0	0
IEP Status[c]				
Yes	65	90.28	--	--
No	4	5.56	--	--
Unknown	3	4.17	--	--
Disability Category				
Emotional Disturbance	58	80.56	--	--
Unknown	14	19.44	--	--
Total	72	100.00	96	100.00

Note. [a]Gender: 1 = *male*, 2 = *female*. [b] Race/Ethnicity: 1 = *Black*, 2 = *Latino, 3 = White*. [c]IEP status: 1 = *Yes, 0 = No*.

HIT Scales

Normality Tests

For each HIT scale, a normality test was run in SPSS. Shapiro-Wilk tests were run to

determine whether the distribution of scale scores significantly differed from normal. The results

of the Shapiro-Wilk tests indicated that all HIT scales were normally distributed (all ps > .05; See Table 2). The Stealing scale data contained one outlier (i.e., z-score more than 3 standard deviations from the mean), and the data for this scale were found to be normally distributed once the outlier was removed.

Table 2. Tests of Normality for HIT Scales

HIT Scales	Kurtosis Statistic	Shapiro-Wilk Statistic	df
Self-Centered	-.295	.988	71
Blaming Others	-.425	.977	71
Minimizing/Mislabeling	-.866	.972	71
Assuming the Worst	-.143	.983	71
Opposition-Defiance	-.120	.980	71
Physical Aggression	-.348	.977	71
Lying	-.648	.983	71
Stealing	-.150	.971	71
Overt	-.051	.977	71
Covert	-.616	.987	71
Overall	-.544	.987	71

Scoring

Responses to items on the HIT questionnaire were scored from 1 for *disagree strongly* to 6 for *agree strongly*. Each item was scored as part of one cognitive distortion scale and one behavioral referent scale. The formulas available in the HIT questionnaire manual (Barriga et al., 2001) were used to write SPSS scoring syntax (see Appendix A). The scoring syntax was used to create an Anomalous Responding (AR) scale and remove participants whose responses yielded elevated AR scores. Consequently, four participants with True AR Scores greater than 4.25 were removed from the sample.

The scoring syntax yielded scores for the four cognitive distortion scales: Self-Centered (SC), Blaming Others (BO), Minimizing/Mislabeling (MM), and Assuming the Worst (AW). Each item was scored on only one cognitive distortion scale, so there were no overlapping items

within these scales. For each cognitive distortion scale, a participant's scale score was the mean score for all items on the scale (i.e., the sum of responses to each item [1 to 6] divided by the number of items on the scale).

The scoring syntax also yielded scores for the four behavioral referent scales: Opposition-Defiance (OD), Physical Aggression (PA), Lying (L), and Stealing (S). Each item was scored on only one behavioral referent scale, so there were no overlapping items within these scales. For each behavioral referent scale, a participant's scale score was the mean score for all items on the scale (i.e., the sum of responses to each item [1 to 6] divided by the number of items on the scale). The scoring syntax also yielded Overt Scale and Covert Scale scores based on the behavioral referent scales. The Overt Scale score was the mean of the Opposition-Defiance and Physical Aggression scale scores, and the Covert Scale score was the mean of the Lying and Stealing scale scores.

The SPSS scoring syntax was also used to compute an Overall HIT score for each participant. The Overall HIT score was the mean of the four cognitive distortion scales and four behavioral referent scales ([SC + BO + MM + AW + OD + PA + L + S] ÷ 8).

The HIT questionnaire manual was used to determine the clinical range cut-offs for each of the HIT scales. Based on the clinical range cut-offs, SPSS syntax was written to compute a "clinical score" categorical variable that was scored as 1 for scale scores that met or exceeded the clinical cut-off and 0 for scores below the cut-off.

Descriptive Statistics

The descriptive statistics for HIT scales were summarized in Table 2. The mean HIT scale scores found in the study sample ($n = 72$) were significantly higher than the mean HIT scale scores found in the normative sample ($n = 412$) for the HIT questionnaire (Barriga et al.,

2001; see Table 3). Among the cognitive distortion scales, mean scale scores ranged from 2.90 to

3.11 in this sample compared to a range of 2.31 to 2.42 in the normative sample. Among the

behavioral referent scales, mean scale scores ranged from 2.53 to 3.32 in this sample compared

to a range of 2.02 to 2.69 in the normative sample. The mean Overall HIT score in the study

sample was 3.03 compared to 2.39 in the normative sample. In the study sample, all mean HIT

scale scores fell above the 80th percentile. In previous research studies with samples of at-risk

adolescents, mean HIT scores have been higher than the scores in the normative sample (e.g.,

Owens et al., 2014).

Table 3. Mean HIT Scale Scores for the Study Sample Compared with Normative Sample

HIT Scales	Group						95% CI for Mean Difference		
	Study Sample			Normative Sample					
	M	*SD*	*n*	*M*	*SD*	*n*		t	df
SC	3.11	.94	72	2.42	.74	412	0.50, 0.88	6.99***	482
BO	3.09	.77	72	2.42	.79	412	0.47 to 0.87	6.66***	482
MM	2.98	.94	72	2.31	.78	412	0.47 to 0.87	6.51***	482
AW	2.90	.74	72	2.35	.72	412	0.37 to 0.73	5.96***	482
OD	3.22	.78	72	2.55	.72	412	0.49 to 0.85	7.19***	482
PA	3.05	.86	72	2.32	.78	412	0.53 to 0.93	7.21***	482
L	3.32	.91	72	2.69	.83	412	0.42 to 0.84	5.86***	482
S	2.53	.91	72	2.02	.75	412	0.32 to 0.70	5.15***	482
Overt	3.14	.77	72	2.44	.71	412	0.52 to 0.88	7.62***	482
Covert	2.95	.86	72	2.34	.74	412	0.42 to 0.80	6.29***	482
Overall	3.03	.78	72	2.39	.69	412	0.46 to 0.82	7.12***	482

*Note.*** $p < 0.001$. Abbreviations: SC: Self-Centered, BO: Blaming Others, MM: Minimizing/Mislabeling, AW: Assuming the Worst, OD: Opposition-Defiance, PA: Physical Aggression, L: Lying, S: Stealing. M: mean. SD: standard deviation.

The percent of students with HIT scale scores in the "clinical range" was computed (See

Table 2). Scores that fell within the clinical range were at or above the 84th percentile based on

the normative sample. On the cognitive distortion scales, the percent of participants with clinical

scores ranged from 46% on the Self-Centered and Assuming the Worst scales to 54% on the

Minimizing/Mislabeling scale. Similarly, on the behavioral referent scales, the percent of

participants with clinical scores ranged from 43% on the Lying scale and 50% on the

Opposition-Defiance scale.

The reliability (i.e., internal consistency) of scores on HIT scales was assessed using

Cronbach's alpha. Cronbach's alpha coefficients ranged from $.74 \leq \alpha \leq .95$ as reported along the

diagonal of Table 4. These coefficients indicated that the reliability of HIT scale scores ranged

from acceptable to excellent. These Cronbach's alpha coefficients obtained for the study sample

were similar to the Cronbach's alpha coefficients reported in the four validation samples for the

HIT questionnaire (Barriga et al., 2001) as these coefficients also ranged from acceptable to

excellent.

Additionally, scale inter-correlations for the study sample were assessed and listed above

the diagonal in Table 4. HIT scales were highly correlated with one another (all ps < .01). In the

normative sample, correlations among cognitive distortion scales (SC, BO, MM & AW) were all

significant at the $p < .001$ level, and correlations among behavioral referent scales (OD, PA, L &

S) were also all significant at the $p < .001$ level (Barriga et al., 2001). As scores on one HIT scale

increased, scores on all other HIT scales also increased. Participants with higher scores on one

cognitive distortion scale also tended to have higher scores on all other cognitive distortion

scales. Similarly, participants with higher scores on one behavioral referent scale also tended to

have higher scores on all other behavioral referent scales. The correlations between cognitive

distortion scales and behavioral referent scales were not clinically or statistically meaningful

given the degree of overlapping items between cognitive distortion and behavioral referent

scales. Each cognitive distortion scale shared items with all behavioral referent scales. Due to the

focus of the current study on self-serving cognitive distortions, only the four cognitive distortion

scales (SC, BO, MM & AW) were included in additional data analyses.

Table 4. HIT Scale Means, Standard Deviations, Minimums, Maximums, Percent of Participants with Clinical Scale Scores, Cronbach's alphas, and Inter-correlations between HIT Scales

HIT Scales	M (SD)	Min	Max	% Clinical	1	2	3	4	5	6	7	8	9	10	11
1. SC	3.11 (0.94)	1.11	5.11	46	.85	.73**	.79**	.83**	.88**	.83**	.74**	.76**	.90**	.83**	.92**
2. BO	3.09 (0.77)	1.30	4.60	47		.74	.76**	.78**	.72**	.84**	.75**	.78**	.83**	.84**	.88***
3. MM	2.98 (0.94)	1.33	5.33	54			.87	.86**	.75**	.80**	.82**	.85**	.82**	.93**	.93***
4. AW	2.90 (0.74)	1.27	4.91	46				.81	.82**	.88**	.81**	.81**	.91**	.89**	.94***
5. OD	3.22 (0.78)	1.40	4.90	50					.77	.78**	.66**	.62**	.94**	.71**	.86***
6. PA	3.05 (0.86)	1.30	5.00	49						.84	.72**	.70**	.95**	.79**	.91***
7. L	3.32 (0.91)	1.50	5.25	43							.83	.67**	.73**	.90**	.86***
8. S	2.53 (0.91)	1.00	4.73	47								.92	.70**	.91**	.87***
9. Overt	3.14 (0.77)	1.40	4.80	51									.89	.80**	.94***
10. Covert	2.95 (0.86)	1.25	4.80	49										.92	.95**
11. Overall	3.03 (0.78)	1.43	4.69	49											.95

Note. ** p < 0.01. n=72. SC: Self-Centered, BO: Blaming Others, MM: Minimizing/Mislabeling, AW: Assuming the Worst, OD: Opposition-Defiance, PA: Physical Aggression, L: Lying, S: Stealing. M: mean. SD: standard deviation. Reliability estimates (Cronbach's alphas) appear on the diagonal. Scale inter-correlations are listed above the diagonal. % Clinical: Percent of participants who obtained a scale score in the clinical range.

Office Discipline Referrals (ODRs)

Office discipline referral (ODR) data were collected through SWIS. SWIS is an electronic database that is used to systematically track behavioral infractions in a school building (May et al., 2006). Problem behaviors are selected from a list of operationally defined "major problem behaviors" and "minor problem behaviors." The host school for this study only entered problem behaviors that were considered "major" in SWIS. The students in the study sample received office discipline referrals for 23 types of major problem behaviors.

When SWIS data were imported into SPSS, continuous variables were created to reflect the number of referrals students received for each type of problem behavior. Participants varied in the number of referrals they received for each type of problem behavior. For example, the "Defiance" variable reflected the number of referrals students received for defiant behavior. The minimum for the Defiance variable was 0, which indicated that some students did not receive any referrals for defiance, whereas the maximum of 44 indicated that a student in the sample received 44 referrals for defiance (See Table 5). The Defiance mean of 5.17 indicated that, on average, students in the sample received approximately five referrals for defiance across the school year.

Table 5. Problem Behavior Disciplinary Referral Means, Standard Deviations, Minimums, Maximums, Percent of Participants with at least one Referral

Problem Behaviors	M (SD)	Min	Max	% with ≥1 Referral
Bullying/ Harassment	1.08 (1.94)	0	8	36
Defiance	5.17 (7.74)	0	44	75
DDIL	7.17 (14.59)	0	90	68
Fight	0.15 (0.43)	0	2	13
Inappropriate Affection	0.39 (1.36)	0	8	14
Lying	0.15 (0.55)	0	4	11
Physical Aggression	1.01 (2.17)	0	12	36
Property Damage	0.40 (1.23)	0	9	19
Theft	0.14 (0.48)	0	3	10

Note. n=72. M: mean. SD: standard deviation. % with ≥1 Referral: Percent of participants who received at least one referral for each problem behavior. DDIL: Disrespect/ Disruption/ Inappropriate Language.

Nine problem behavior variables were retained for data analysis: (1) Bullying/ Harassment; (2) Defiance; (3) Disrespect/Disruption/Inappropriate Language; (4) Fight; (5) Inappropriate Affection; (6) Lying; (7) Physical Aggression; (8) Property Damage; (9) Theft. These nine problem behaviors were retained because 10% or more of participants received at least one referral for these problem behaviors. However, the following problem behaviors could not be included in any of the results reported below due to the small sample sizes of students who received these referrals and assumptions of statistical tests being violated: Fight, Inappropriate Affection, Lying, and Theft.

SWIS allows for one behavioral offense to be coded as more than one type of problem behavior (e.g., "disrespect" and "disruption"). This double coding meant that some categories of problem behaviors could not be analyzed as individual, distinct categories. Instead, problem behaviors were combined with the other problem behaviors with which they commonly overlapped. See Appendix B for the SWIS operationalized definitions for these problem behaviors and decision rules used to code each of the problem behavior categories.

Bullying and Harassment were combined to form one category because the host school for the current study reported that these two problem behavior categories were used interchangeably during data entry in SWIS.

Three problem behaviors–Disruption, Disrespect, and Inappropriate Language—were combined into one category due to substantial overlap between these problem behaviors. Within SWIS, an individual office discipline referral included up to two problem behaviors. In the current sample, 72 referrals were for the combination of Disrespect and Disruption, 50 referrals were for the combination of Disruption and Inappropriate Language, and 11 referrals were for the combination of Disrespect and Inappropriate Language. Given this overlap, Disruption, Disrespect, and Inappropriate language could not be analyzed as three distinct variables. Therefore, the Disruption, Disrespect, and Inappropriate Language (DDIL) problem behavior variable was created to facilitate analysis of office discipline referrals for these types of behaviors.

Several problem behaviors were excluded from data analysis. One type of problem behavior, Out of Bounds, was combined with 14 other problem behaviors and could not be examined as distinct or stand-alone problem behavior. Additionally, the following 10 problem behaviors were removed from the analyses because fewer than 5 students generated these types of referrals: alcohol, arson, bomb, dress code violation, drugs, gang display, technology violation, tobacco, weapons, and other.

Normality Tests

When SWIS data were imported into SPSS, continuous variables were created to reflect the number of referrals students received for each type of problem behavior. For each of the nine problem behaviors that were retained for data analysis, a normality test was run in SPSS.

Shapiro-Wilk tests were run to determine whether the distribution of data significantly differed

from normal. The data for each problem behavior were not normally distributed, as assessed by

Shapiro-Wilk tests (all ps < .001; see Table 6). For each of these problem behaviors, some

students did not receive any referrals whereas some students received a high number of referrals.

Because none of the problem behavior variables were normally distributed, an assumption of

correlation analysis was violated.

Table 6. Tests of Normality for ODRs

ODRs for Problem Behaviors	Kurtosis Statistic	Shapiro-Wilk Statistic	df
Bullying/ Harassment	3.930	.629***	72
Defiance	8.965	.675***	72
DDIL	18.429	.513***	72
Fight	8.596	.396***	72
Inappropriate Affection	21.372	.321***	72
Lying	34.727	.301***	72
Physical Aggression	13.396	.519***	72
Property Damage	34.275	.364***	72
Stealing	19.768	.323***	72

Note.*** p < 0.001. DDIL: Disrespect/ Disruption/ Inappropriate Language.

Categorical Variables

Given that the distribution of the problem behaviors significantly differed from normal,

these variables were transformed into categorical variables. For each problem behavior, students

who did not receive any referrals received a score of 0 whereas students who received one or

more referrals received a score of 1. In other words, the problem behavior variables were

transformed from continuous variables that reflected the number of referrals a student received to

categorical variables that reflected "0" or "no" if the student did not receive a referral for the

problem behavior and "1" or "yes" if the student received at least one referral for the problem

behavior. Table 5 above shows the percent of participants who received at least one referral for

each problem behavior. Only 10% of participants received a referral for theft, but 75% of

participants received a referral for defiance. Due to the non-normal distribution of problem

behaviors, point-biserial correlations were run to assess the relationship between the HIT scale

scores and the categorical problem behavior variables.

Out-of-School Suspension (OSS)

Out-of-school suspension (OSS) data were collected through SWIS. When SWIS data

were imported into SPSS, continuous variables were created to reflect the number of out-of-

school suspensions (OSS) students received. Participants varied in the number of out-of-school

suspensions they received. The minimum for the OSS variable was 0, which indicated that some

students did not receive any out-of-school suspensions, whereas the maximum of 3 indicated that

some students received up to three out-of-school suspensions throughout the school year (See

Table 7). The OSS mean of 0.56 indicated that, on average, students in the sample received

fewer than one out-of-school suspension across the school year.

Table 7. OSS Means, Standard Deviations, Minimums, Maximums, Percent of Participants with
at least one OSS

Disciplinary Consequence	M (SD)	Min	Max	% with ≥1 OSS
Out-of-School Suspension (OSS)	0.56 (0.85)	0	3	36

Note. n=72. M: mean. SD: standard deviation. % with ≥1 OSS: Percent of participants who
received at least one out-of-school suspension.

Normality Tests

For out-of-school suspension data, a normality test was run in SPSS. Shapiro-Wilk tests

were run to determine whether the distribution of data significantly differed from normal. The

out-of-school suspension data were not normally distributed, as assessed by a Shapiro-Wilk test

($p < .001$; see Table 8). Therefore, an assumption of correlation analysis was violated.

Table 8. Test of Normality for OSS

Disciplinary Consequence	Kurtosis Statistic	Shapiro-Wilk Statistic	df
Out-of-School Suspension (OSS)	1.103	.682***	72

Note.*** p < 0.001.

Categorical Variables

Given that the distribution of the OSS variable significantly differed from normal, the OSS variable was transformed into a categorical variable. Students who did not receive any out-of-school suspensions received a score of 0 whereas students who received one or more out-of-school suspensions received a score of 1. In other words, the OSS variable was transformed from a continuous variable that reflected the number of out-of-school suspensions a student received to a categorical variable that reflected "0" or "no" if the student did not receive any OSS and "1" or "yes" if the student received at least one OSS. As shown in Table 7 above, 36% of participants received at least one out-of-school suspension throughout the school year. This categorical OSS variable could be used to examine the association between problem behaviors and out-of-school suspension. Specifically, for each problem behavior, are students who accrue at least one referral more likely to be suspended than students with no referrals? All problem behaviors were hypothesized to be associated with a greater risk for suspension.

Gender

Gender and HIT Scales

T-tests were conducted to determine whether HIT cognitive distortion scale scores differed by gender. Across scales, male participants received significantly higher mean scores than female participants (See Table 9).

Table 9. Results of T-tests and Descriptive Statistics for HIT Scales by Gender

HIT Scales	Female			Male			95% CI for Mean Difference	t	df
	M	SD	n	M	SD	n			
SC	2.67	.83	19	3.29	.95	50	-1.12, -0.13	-2.52*	67
BO	2.80	.81	19	3.26	.71	50	-0.85, -0.06	-2.30*	67
MM	2.49	.94	19	3.20	.88	50	-1.19, -0.23	-2.93**	67
AW	2.60	.69	19	3.05	.74	50	-0.84, -0.06	-2.30*	67

Note. * $p < .05$. ** $p < .01$. SC: Self-Centered, BO: Blaming Others, MM: Minimizing/ Mislabeling, AW: Assuming the Worst.

Gender and ODRs

Chi-square tests of independence were conducted to determine whether gender was associated with receiving at least one referral for each problem behavior. Gender was a categorical variable (1 = *male*, 2 = *female*) and categorical problem behavior variables were also used in the analysis (0 = *no referrals*, 1 = *at least one referral*). The purpose of the chi-square tests of independence was to determine whether or not one variable (i.e., gender) was related to—or independent of—a second variable (i.e., referral for each problem behavior).

An assumption of chi-square tests of independence is that the value of the cell expected values should be 5 or more in at least 80% of the cells, and no cell should have an expected value of less than one (McHugh, 2013; Field, 2013). This assumption was violated for several chi-square tests for gender and ODRs. One cell (25% of the cells) had an expected value of less than five in each of the contingency tables for gender and the following problem behaviors: Defiance; Fight; Inappropriate Affection; Lying; Property Damage; and Theft. This assumption was violated due to the small number of female students in the sample, as well as the limited number of students who received an ODR for each of those problem behaviors. Therefore, the results of chi-square tests of independence can only be interpreted for gender and the following three

problem behaviors: (1) Bullying/Harassment; (2) Disrespect/Disruption/Inappropriate Language; and (3) Physical Aggression. Gender was not significantly associated with receiving a referral for Bullying/Harassment, Disrespect/Disruption/Inappropriate Language, or Physical Aggression.

Gender and OSS

A chi-square test of independence was conducted to determine whether gender was associated with receiving an out-of-school suspension. Gender was a categorical variable (1 = *male*, 2 = *female*) and a categorical out-of-school suspension (OSS) variable was also used in the analysis (0 = *no OSS*, 1 = *at least one OSS*). The assumption of chi-square tests of independence that the value of the cell expected values should be 5 or more in at least 80% of the cells was not violated for the gender and OSS chi-square test of independence. All cells had expected values greater than 5.

The test of association results indicated that a student's gender was unrelated to the likelihood that he or she would receive an out-of-school suspension, χ^2 (df = 1, N = 69) = 0.22, p = .64. A majority of both female students (58%) and male students (64%) did not receive an out-of-school suspension.

<div align="center">

Race/Ethnicity

</div>

Race/Ethnicity and HIT Scales

A one-way analysis of variance (ANOVA) was conducted to examine mean differences in HIT scale scores by race/ethnicity (Black, Latino, and White students). There was no statistically significant difference between racial/ethnic groups on any of the HIT cognitive distortion scales: Self-Centered ($F_{(2,65)}$ = 1.087, p = .343), Blaming Others ($F_{(2,65)}$ = 2.179, p = .121), Minimizing/ Mislabeling ($F_{(2,65)}$ = 2.122, p = .128), and Assuming the Worst ($F_{(2,65)}$

= 2.078, p = .133). Overall, Black, Latino, and White students scored similarly across all cognitive distortion scales.

Race/Ethnicity and ODRs

Chi-square tests of independence were conducted to determine whether race/ethnicity was associated with receiving at least one referral for each problem behavior. Race/ethnicity was a categorical variable (1 = *Black*, 2 = *Latino*, 3 = *White*) and categorical problem behavior variables were also used in the analysis (0 = *no referrals*, 1 = *at least one referral*). The purpose of the chi-square tests of independence was to determine whether or not one variable (i.e., race/ethnicity) was related to—or independent of—a second variable (i.e., referral for each problem behavior).

An assumption of chi-square tests of independence is that the value of the cell expected values should be 5 or more in at least 80% of the cells, and no cell should have an expected value of less than one (McHugh, 2013; Field, 2013). This assumption was violated for several chi-square tests for race/ethnicity and ODRs. Two cells (33%) had an expected value of less than five in the race/ethnicity and Property Damage contingency table. Three cells (50% of the cells) had an expected value of less than five in each of the contingency tables for race/ethnicity and the following problem behaviors: Fight; Inappropriate Affection; Lying; and Theft. This assumption was violated due to the limited number of students in each racial/ethnic group in the sample, as well as the limited number of students who received an ODR for each of those problem behaviors. Therefore, the results of chi-square tests of independence can only be interpreted for race/ethnicity and the following four problem behaviors: (1) Bullying/Harassment; (2) Defiance; (3) Disrespect/Disruption/Inappropriate Language; and (4) Physical Aggression.

Race/ethnicity was significantly associated with receiving a referral for Defiance (χ^2 [2, N = 68] = 6.345, p = . 0.042 [See Table 10]) as well as a referral for Disrespect/ Disruption/ Inappropriate Language (χ^2 [df = 2, N = 68] = 7.236, p = 0.027 [See Table 11]). Race/ethnicity was not associated with receiving a referral for Bullying/Harassment or Physical Aggression.

Table 10. Results of Chi-square Test for Defiance Referrals by Race/Ethnicity

Defiance	Race/Ethnicity		
	Black	Latino	White
No Referral	2 (8%)	3 (18%)	10 (37%)
Referral	22 (92%)	14 (82%)	17 (63%)

Note. χ^2 = 6.345*, df = 2. Numbers in parentheses indicate column percentages. *p < .05

These chi-square results suggest that Black students are more likely to obtain a referral for defiance than White students. Nearly all Black students received a referral for defiance, whereas about two-thirds of White students received this type of referral. The effect size for the chi-square test was estimated with Cramer's V and represented a medium to large effect (V = .305).

Table 11. Results of Chi-square Test for DDIL Referrals by Race/Ethnicity

Disrespect, Disruption & Inappropriate Language	Race/Ethnicity		
	Black	Latino	White
No Referral	2 (8%)	6 (35%)	11 (41%)
Referral	22 (92%)	11 (65%)	16 (59%)

Note. χ^2 = 7.236*, df = 2. Numbers in parentheses indicate column percentages. *p < .05

The chi-square results indicated that race/ethnicity was significantly related to receiving a referral for disrespect, disruption, and/or inappropriate language. Black students were more likely to obtain a referral for these behaviors than White and Latino students. Nearly all Black students received a referral for disrespect, disruption, and/or inappropriate language, whereas 65% of Latino students and 59% of White students received this type of referral. The effect size for was estimated with Cramer's V and represented a medium to large effect (V = .326).

Race/Ethnicity and OSS

A chi-square test of independence was conducted to determine whether race/ethnicity was associated with receiving an out-of-school suspension as a disciplinary consequence. Race/ethnicity was a categorical variable (1 = *Black*, 2 = *Latino*, 3 = *White*) and a categorical out-of-school suspension (OSS) variable was also used in the analysis (0 = *no OSS*, 1 = *at least one OSS*). The purpose of the chi-square test of independence was to determine whether or not one variable (i.e., race/ethnicity) was related to—or independent of—a second variable (i.e., OSS). The assumption of chi-square tests of independence that the value of the cell expected values should be 5 or more in at least 80% of the cells was not violated for the race/ethnicity and OSS chi-square test of independence.

The chi-square results indicated that race/ethnicity was significantly related to out-of-school suspension, χ^2 [df = 2, N = 68] = 7.099, p = 0.029 [See Table 12]. More than half of Black students were suspended, whereas less than a quarter of White students were suspended. The effect size for the chi-square test was estimated with Cramer's V and represented a medium to large effect (V = .323).

Table 12. Results of Chi-square Test for OSS by Race/Ethnicity

Disciplinary Consequence	Race/Ethnicity		
	Black	Latino	White
No Suspension	10 (42%)	11 (65%)	21 (78%)
Suspension	14 (58%)	6 (35%)	6 (22%)

Note. χ^2 = 7.099*, df = 2. Numbers in parentheses indicate column percentages. *p < .05.

HIT Scales and ODRs

The current study aimed to assess the relationship between HIT cognitive distortion scale scores and receiving an ODR for each problem behavior. Point-biserial correlations were run to determine the relationships between cognitive distortion scale scores and receiving a referral for

each of the categories of problem behavior that were included in other data analyses: (1)

Bullying/Harassment; (2) Defiance; (3) DDIL, (4) Physical Aggression; and (5) Property

Damage (See Table 13). There was a statistically significant positive correlation between scores

on the Blaming Others scale and receiving a referral for Bullying/Harassment (r_{pb} = .262, n =

72, p = .026, d = .543). The effect size (d) indicates a medium to large effect. There was also a

statistically significant positive correlation between scores on the Assuming the Worst scale and

receiving a referral for Bullying/Harassment (r_{pb} = .317, n = 72, p = .007, d = .668). The effect

size (d) indicates a medium to large effect. These results suggest that students who were referred

for bullying and/or harassment demonstrated a more elevated profile of cognitive distortions than

students who did not receive this type of referral.

Table 13. Results of Point-Biserial Correlations between HIT Scales and ODRs

HIT Scales	Bullying/ Harassment	Defiance	DDIL	Physical Aggression	Property Damage
Self-Centered	.159	.135	.008	.054	-.044
Blaming Others	.262*	.205	.118	.122	.075
Minimizing/ Mislabel	.153	.137	-.085	.144	.025
Assuming the Worst	.317**	.229	.02	.174	.028

*p < .05., **p < .01.

ODRs and OSS

The current study aimed to answer whether students who engaged in a problem behavior

(accrued at least one referral) were more likely to be suspended than students who did not engage

in that problem behavior. That is, what problem behaviors are associated with a greater risk for

suspension? Chi-square tests of independence were conducted to determine whether out-of-

school suspension (0 = *no OSS*, 1 = *at least one OSS*) was associated with referrals for each of

the nine problem behaviors (0 = *no referrals*, 1 = *at least one referral*).

An assumption of chi-square tests of independence is that the value of the cell expected values should be 5 or more in at least 80% of the cells, and no cell should have an expected value of less than one (McHugh, 2013; Field, 2013). This assumption was violated for several chi-square tests for ODRs and OSS. One cell (25% of the cells) had an expected value of less than five in the contingency tables for OSS and each of the following problem behaviors: Fight; Inappropriate Affection; and Lying. Two cells (50% of the cells) had an expected value of less than five in the contingency table for Theft and OSS. This assumption was violated due to the limited number of students who received an ODR for each of those problem behaviors. Therefore, the results of chi-square tests of independence can only be interpreted for OSS and the following five problem behaviors: Bullying/Harassment; Defiance; Disrespect/ Disruption/ Inappropriate Language (DDIL); Physical Aggression; and Property Damage.

Out-of-school suspension was significantly associated with receiving at least one referral for four of these problem behaviors: (1) Bullying/Harassment; (2) Defiance; (3) DDIL; and (4) Physical Aggression. OSS was not significantly associated with receiving a referral for Property Damage.

Bullying/Harassment and OSS

Receiving a referral for bullying/harassment was significantly associated with receiving an out-of-school suspension, χ^2 (df = 1, N = 72) = 13.501, p = 0.000 (See Table 14). These results suggested that students who received at least one referral for bullying and/or harassment were more likely to receive a suspension at some point in the school year than students who did not receive a referral for bullying/harassment. About 20% of students with no bullying/harassment referrals were suspended, whereas 63% of students who were referred for

bullying/harassment were suspended that year. The effect size for the chi-square test was estimated with Cramer's V and represented a medium to large effect ($V = .433$).

Table 14. Results of Chi-square Test for OSS by Bullying/Harassment Referral

Out-of-School Suspension	Bullying/Harassment	
	No Referral	Referral
No Suspension	36 (80%)	10 (37%)
Suspension	9 (20%)	17 (63%)

Note. $\chi^2 = 13.501{***}$ df = 1. Numbers in parentheses indicate column percentages. ***p < .001.

Defiance and OSS

Receiving a referral for defiance was significantly associated with receiving an out-of-school suspension, χ^2 (df = 1, N = 72) = 3.933, p = 0.047 (See Table 15). These results suggested that students who received at least one referral for defiance were more likely to receive a suspension at some point in the school year than students who did not receive a referral for defiance. About 17% of students with no defiance referrals were suspended, whereas 43% of students who were referred for defiance were suspended that year. The effect size for the chi-square test was estimated with Cramer's V and represented a small to medium effect ($V = .234$).

Table 15. Results of Chi-square Test for OSS by Defiance Referral

Out-of-School Suspension	Defiance	
	No Referral	Referral
No Suspension	15 (83%)	31 (57%)
Suspension	3 (17%)	23 (43%)

Note. $\chi^2 = 3.933{*}$ df = 1. Numbers in parentheses indicate column percentages. *p < .05.

DDIL and OSS

Receiving a referral for disrespect, disruption and/or inappropriate language (DDIL) was significantly associated with receiving an out-of-school suspension, χ^2 (df = 1, N = 72) = 14.779, p = 0.000 (See Table 16). These results suggested that students who received at least one of these referrals were more likely to receive a suspension at some point in the school year than students

who did not receive this type of referral. About 4% of students with no referrals for disrespect, disruption or inappropriate language were suspended, whereas 51% of students who received this type of referral were suspended that year. The effect size for the chi-square test was estimated with Cramer's V and represented a medium to large effect ($V = .453$).

Table 16. Results of Chi-square Test for OSS by DDIL Referral

Out-of-School Suspension	DDIL	
	No Referral	Referral
No Suspension	22 (96%)	24 (49%)
Suspension	1 (4%)	25 (51%)

Note. $\chi^2 = 14.779***$ df = 1. Numbers in parentheses indicate column percentages. ***$p < .001$
DDIL: Disrespect/Disruption/Inappropriate Language.

Physical Aggression and OSS

Receiving a referral for physical aggression was significantly associated with receiving an out-of-school suspension, χ^2 (df = 1, N = 72) = 15.116, p = 0.000 (See Table 17). These results suggested that students who received at least one referral for physical aggression were more likely to receive a suspension at some point in the school year than students who did not receive a referral for physical aggression. About 20% of students with no physical aggression referrals were suspended, whereas 65% of students who were referred for physical aggression were suspended that year. The effect size for the chi-square test was estimated with Cramer's V and represented a medium to large effect ($V = .458$).

Table 17. Results of Chi-square Test for OSS by Physical Aggression Referral.

Out-of-School Suspension	Physical Aggression	
	No Referral	Referral
No Suspension	37 (80%)	9 (35%)
Suspension	9 (20%)	17 (65%)

Note. $\chi^2 = 15.116***$, df = 1. Numbers in parentheses indicate column percentages. ***$p < .001$.

Of the four problem behaviors that are significantly associated with out-of-school suspension (bullying/harassment, defiance, DDIL, and physical aggression), two problem

behaviors (i.e., defiance and DDIL) were previously shown to be associated with race/ethnicity, and one problem behavior (bullying/harassment) was associated with HIT scales. Therefore, a model was developed that included race/ethnicity, cognitive distortions, defiance, DDIL, bullying/harassment, and out-of-school suspension.

Hypothesized Model

A series of logistic regressions (Field, 2013) were conducted to test the model below (See Figure 5). The model includes race/ethnicity and HIT scales as predictors of referrals for problem behaviors, and in turn uses referrals for problem behaviors as predictors for out-of-school suspension. The model also includes race/ethnicity as a direct predictor of out-of-school suspension.

Figure 5. Hypothesized Model: Race/Ethnicity, HIT Scales, ODRs, and OSS
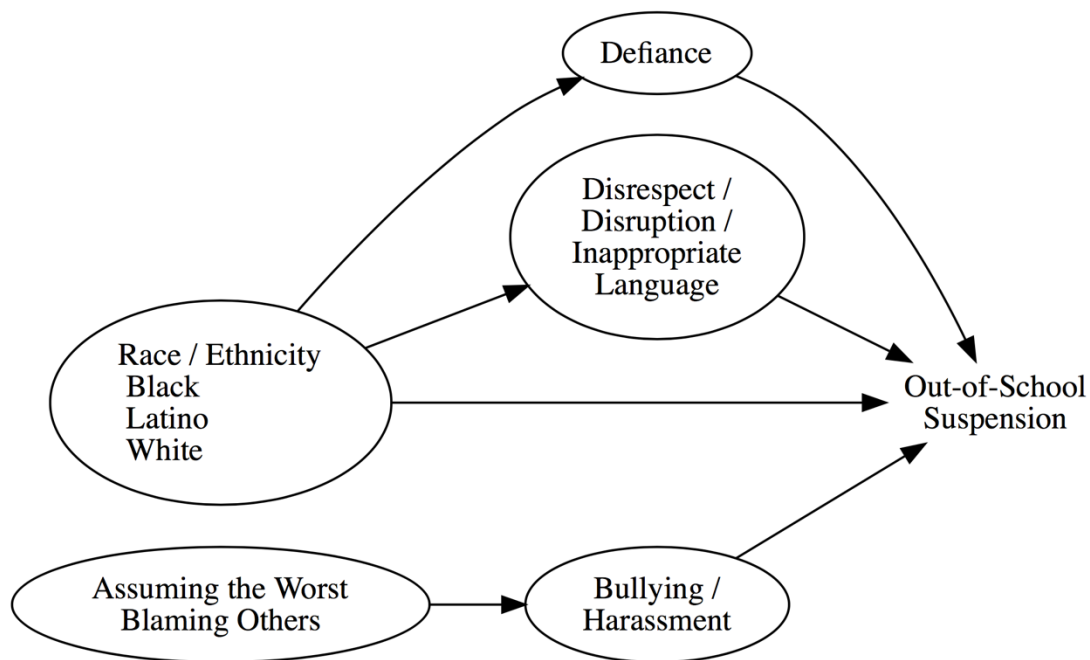
The purpose of logistic regression is to use categorical or continuous variables to predict outcomes associated with a non-linear categorical binary variable (Field, 2013). Logistic

regressions were used to test the model given that both categorical (e.g., race/ethnicity) and continuous (e.g., cognitive distortion scales) predictors were included in the model and the outcome variables were non-linear categorical binary variables (i.e., [0 = *no referrals*, 1 = *at least one referral*] and [0 = *no OSS*, 1 = *at least one OSS*]).

The model (See Figure 5) was based on the results of the previously reported chi-square tests and point-biserial correlations. Chi-square tests indicated a significant association between race/ethnicity and referrals for defiance and DDIL. Therefore, race/ethnicity (1 = *Black*, 2 = *Latino*, 3 = *White*) was hypothesized to be a significant predictor of referrals for both defiance and DDIL (0 = *no referrals*, 1 = *at least one referral*). Point-biserial correlations showed that HIT scale scores were associated with referrals for bullying/harassment. Specifically, point-biserial correlations showed that the Blaming Others scale and the Assuming the Worst scale were both positively correlated with receiving a referral for bullying/harassment. The effect sizes for both correlations were medium to large. Therefore, scores on these HIT scales (continuous variables ranging from 1 for *disagree strongly* to 6 for *agree strongly*) were hypothesized to be significant predictors of referrals for bullying/harassment (0 = *no referrals*, 1 = *at least one referral*).

Referrals for bullying/harassment, defiance, and disrespect/disruption/inappropriate language were associated with out-of-school suspensions. Chi-square tests indicated a significant association between each of these problem behaviors (0 = *no referrals*, 1 = *at least one referral*) and out-of-school suspension (0 = *no OSS*, 1 = *at least one OSS*). Race/ethnicity was also hypothesized to have a direct effect on out-of-school suspension based on the chi-square test that showed a significant association between race/ethnicity and out of school suspension.

Predictors of ODRs

Race/Ethnicity as Predictor of Referrals for Defiance

A logistic regression analysis was conducted using race/ethnicity to predict whether or

not students received at least one referral for defiance (See Table 18). A test of the model with

race/ethnicity as a predictor against a constant only model was statistically significant, indicating

that race/ethnicity reliably distinguished between students with no defiance referrals and students

with at least one defiance referral, χ^2 (df = 2, N = 72) = 6.554, p = .038. The Wald criterion

demonstrated that only Black race/ethnicity made a significant contribution to prediction (p =

.026). The e^B (odds ratio) value indicated that a Black student was six times more likely to

receive a defiance referral than a White student, (OR = 6.47, 95% CI [1.25 to 33.52], p =

0.0261).

Table 18. Summary of Logistic Regression Analysis for Race/Ethnicity as a Predictor of
Defiance Referrals

	Defiance Referral				
Predictor	B	$SE\ B$	e^B	$Wald$	$95\%\ CI\ for\ e^B$
Race/Ethnicity					
White				5.61	
Black	1.87*	.84	6.47	4.95	1.25 to 33.52
Latino	1.01	.75	2.75	1.81	0.63 to 11.96
Constant	.53	.40			

Note. *p < .05. e^B = exponentiated *B*. Race/Ethnicity predictors (Black, Latino, White) coded as
1 for *yes* and 0 for *no*. Defiance referrals coded as 1 for *yes* and 0 for *no*. White is the reference
category.

Race/Ethnicity as Predictor of Referrals for DDIL

A logistic regression analysis was conducted using race/ethnicity to predict whether or

not students received at least one referral for disrespect/disruption/inappropriate language

(DDIL) (See Table 19). A test of the model with race/ethnicity as a predictor against a constant

only model was statistically significant, indicating that race/ethnicity reliably distinguished

between students with no DDIL referrals and students with at least one DDIL referral, χ^2 (df = 2, N = 72) = 8.225, p = .016. The Wald criterion demonstrated that only Black race/ethnicity made a significant contribution to prediction (p = .016). The e^B (odds ratio) value indicated that a Black student was seven times more likely to receive a referral for disrespect, disruption, and/or inappropriate language than a White student (OR = 7.56, 95% CI [1.47 to 38.93], p = 0.0155).

Table 19. Summary of Logistic Regression Analysis for Race/Ethnicity as a Predictor of DDIL Referrals

Predictor	DDIL Referral				
	B	SE B	e^B	Wald	95% CI for e^B
Race/Ethnicity					
White				5.98	
Black	2.02*	.84	7.56	5.86	1.47 to 38.93
Latino	.23	.64	1.26	.13	0.36 to 4.43
Constant	.38	.39			

Note. *p < .05. e^B = exponentiated B. Race/ethnicity predictors (Black, Latino, White) coded as 1 for yes and 0 for no. DDIL (Disruption, Disrespect, Inappropriate Language) coded as 1 for yes and 0 for no. White is the reference category.

Cognitive Distortions as Predictors of Referrals for Bullying/Harassment

Based on the results of point-biserial correlations eported above, scores on two cognitive distortion scales (Assuming the Worst and Blaming Others) were hypothesized to be significant predictors of referrals for bullying/harassment. A logistic regression analysis was conducted using the Assuming the Worst and Blaming Others scales to predict whether or not students received at least one referral for bullying/harassment (See Table 20). Scale scores (continuous variables ranging from 1 for *disagree strongly* to 6 for *agree strongly*) were used to predict referrals for bullying/harassment (0 = *no referrals*, 1 = *at least one referral*). A test of the model with the Assuming the Worst scale scores as a predictor against a constant only model was statistically significant, indicating that Assuming the Worst scale scores reliably distinguished between students with no bullying/harassment referrals and students with at least one

bullying/harassment referral, χ^2 (df = 1, N = 72) = 7.533, p = .006. The Wald criterion

demonstrated that only Assuming the Worst scale scores made a significant contribution to

prediction (p = .010). The Blaming Others scale was not a significant predictor. The e^B (odds

ratio) value indicated that the odds of a student receiving a referral for bullying/harassment were

multiplied by 2.62 each time the Assuming the Worst (AW) predictor increased by a value of 1

unit (OR = 2.62, 95% CI [1.23 to 5.45], p = 0.010). In other words, with each incremental

increase in AW, the odds of having a bullying/harassment referral increased by multiples of 2.62.

These odds of having a bullying/harassment referral did not significantly change based on

increases in the Blaming Others (BO) scale.

Table 20. Summary of Logistic Regression Analysis for Cognitive Distortion HIT Scales as Predictors of Bullying/Harassment Referrals

Cognitive Distortion	Bullying/Harassment				
Predictor	B	SE B	e^B	Wald	95% CI for e^B
Assuming the Worst (AW)	0.96*	.37	2.62	6.61	1.23 to 5.45
Constant	-3.35	1.15			

Note. *p < .05. e^B = exponentiated B. Assuming the Worst predictor scored from 1 for *disagree strongly* to 6 for *agree strongly*. Bullying/Harassment referral coded as 1 for *yes* and 0 for *no*. Blaming Others (BO) not included in the model.

Predictors of OSS

Race/Ethnicity as Predictor of OSS

A logistic regression analysis was conducted using race/ethnicity to predict whether or

not students received at least one out-of-school suspension (See Table 21). A test of the model

with race/ethnicity as a predictor against a constant only model was statistically significant,

indicating that race/ethnicity reliably distinguished between students with no suspensions and

students with at least one suspension, χ^2 (df = 2, N = 72) = 7.188, p = .027. The Wald criterion

demonstrated that the Black race/ethnicity variable made a significant contribution to prediction

(p = .011). The e^B (odds ratio) value indicated that a Black student was nearly five times more likely to be suspended than a White student, (OR = 4.90, 95% CI [1.45 to 16.55], p = 0.011).

Table 21. Summary of Logistic Regression Analysis for Race/Ethnicity as a Predictor of OSS

Predictor	B	SE B	e^B	Wald	95% CI for e^B
				Suspension	
Race/Ethnicity					
White				6.71	
Black	1.59*	.62	4.90	6.55	1.45 to 16.55
Latino	.65	.69	1.90	.89	0.50 to 7.34
Constant	-1.25	.46			

Note. *p < .05. e^B = exponentiated B. Race/ethnicity predictors (Black, Latino, White) coded as 1 for *yes* and 0 for *no*. Suspension coded as 1 for *yes* and 0 for *no*. White is the reference category.

Referrals for Defiance as Predictor of OSS

A logistic regression analysis was conducted using whether or not students received at least one referral for defiance to predict whether or not students received at least one out-of-school suspension (See Table 22). A test of the model with the defiance referral categorical variable (0 = *no referrals*, 1 = *at least one referral*) as a predictor against a constant only model was statistically significant, indicating that defiance referrals reliably distinguished between students with no suspensions and students with at least one suspension, χ^2 (df = 1, N = 72) = 4.29, p = .038. The Wald criterion demonstrated that the defiance referral variable made a marginally significant contribution to prediction (p = .057). The e^B (odds ratio) value indicated that a student with at least one defiance referral was nearly four times more likely to receive a suspension than a student with no defiance referrals (OR = 3.71, 95% CI [0.96 to 14.34], p = 0.057).

Table 22. Summary of Logistic Regression Analysis for Defiance Referrals as a Predictor of OSS

Predictor	Suspension				
	B	$SE\ B$	e^B	$Wald$	95% CI for e^B
Defiance	1.31[†]	.69	3.71	3.61	0.96 to 14.34
Constant	-1.61	.63			

Note. [†] $p = .057$. e^B = exponentiated B. Defiance predictor coded as 1 for *yes* and 0 for *no*. Suspension coded as 1 for *yes* and 0 for *no*. White is the reference category.

Referrals for DDIL as Predictor of OSS

A logistic regression analysis was conducted using whether or not students received at least one referral for DDIL to predict whether or not students received at least one out-of-school suspension (See Table 23). A test of the model with the DDIL referral categorical variable (0 = *no referrals*, 1 = *at least one referral*) as a predictor against a constant only model was statistically significant, indicating that DDIL referrals reliably distinguished between students with no suspensions and students with at least one suspension, χ^2 (df = 1, N = 72) = 18.049, p = .000. The Wald criterion demonstrated that the DDIL referral variable made a significant contribution to prediction (p = .003). The e^B (odds ratio) value indicated that a student with at least one DDIL referral was 23 times more likely to receive a suspension than a student with no DDIL referrals (OR = 22.92, 95% CI [2.86 to 183.56], p = 0.003).

Table 23. Summary of Logistic Regression Analysis for DDIL Referrals as a Predictor of OSS

Predictor	Suspension				
	B	$SE\ B$	e^B	$Wald$	95% CI for e^B
DDIL	3.13**	1.06	22.92	8.70	2.86 to 183.56
Constant	-3.09	1.02			

Note. **$p < .01$. e^B = exponentiated B. DDIL (Disruption, Disrespect, Inappropriate Language) coded as 1 for *yes* and 0 for *no*. Suspension coded as 1 for *yes* and 0 for *no*. White is the reference category.

Referrals for Bullying/Harassment as Predictor of OSS

A logistic regression analysis was conducted using whether or not students received at least one referral for bullying/harassment to predict whether or not students received at least one out-of-school suspension (See Table 24). A test of the model with the bullying/harassment referral categorical variable (0 = *no referrals*, 1 = *at least one referral*) as a predictor against a constant only model was statistically significant, indicating that bullying/harassment referrals reliably distinguished between students with no suspensions and students with at least one suspension, χ^2 (df = 1, N = 72) = 13.553, p = .000. The Wald criterion demonstrated that the bullying/harassment referral variable made a significant contribution to prediction (p = .000). The e^B (odds ratio) value indicated that a student with at least one bullying/harassment referral was nearly seven times more likely to receive a suspension than a student with no bullying/harassment referrals (OR = 6.80, 95% CI [2.33 to 19.81], p = 0.000).

Table 24. Summary of Logistic Regression Analysis for Bullying/Harassment Referrals as Predictor of OSS

Predictor	B	SE B	e^B	Wald	95% CI for e^B
			Suspension		
Bullying/Harassment	1.92***	.55	6.80	12.34	2.33 to 19.81
Constant	-1.39	.37			

Note. ***p < .001. e^B = exponentiated B. Bullying/Harassment referral predictor coded as 1 for *yes* and 0 for *no*. Suspension coded as 1 for *yes* and 0 for *no*.

Final Model

The results of the logistic regressions used to test the hypothesized model are summarized below (See Figure 6).

Figure 6. Summary of Logistic Regressions of Race/Ethnicity, HIT Scales, ODRs, and OSS
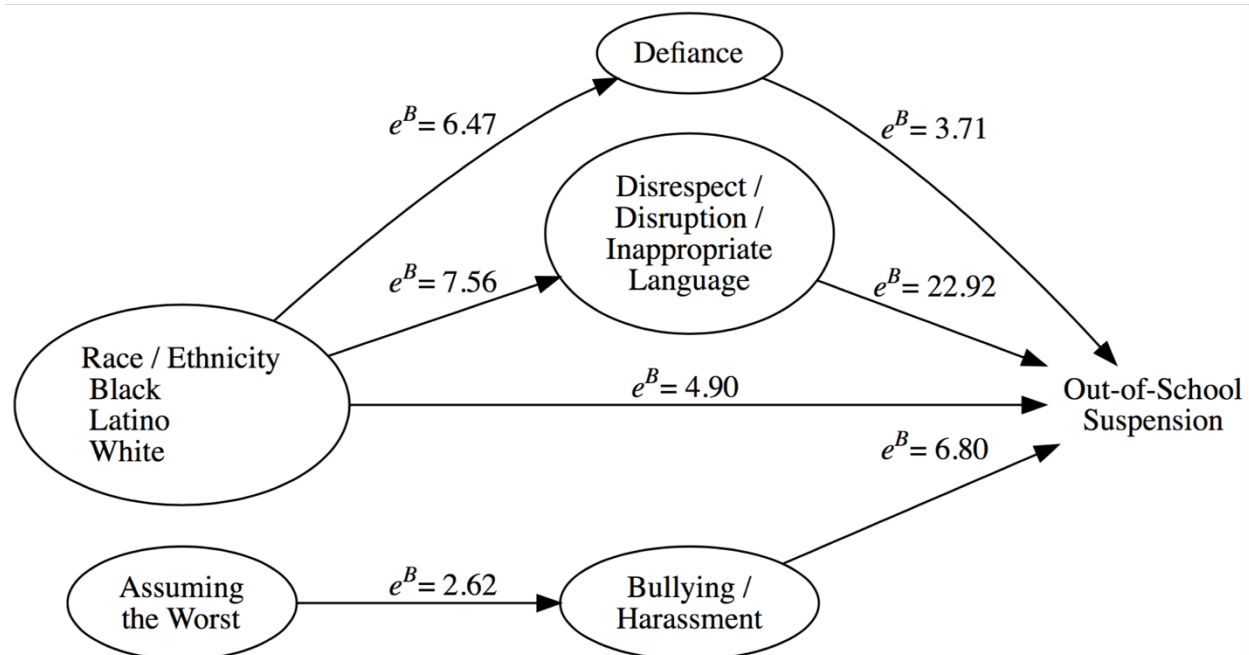
CHAPTER FIVE

DISCUSSION

The overarching hypothesis for the current study was that students' self-serving cognitive distortions would be related to their externalizing behaviors, as measured by office discipline referrals, and these ODRs would be related to out-of-school suspensions. These relationships were investigated in a sample of racially and ethnically diverse high school students with ED who are at increased risk for exclusionary discipline practices, dropout, and involvement with the juvenile justice system. The effects of student demographic variables such as gender and race/ethnicity were explored in the current sample. Based on the cognitive distortions literature, questions remained as to whether boys and girls would demonstrate similar levels of cognitive distortions, as well as whether Black, Latino, and White students would report comparable levels of cognitive distortions. Based on the school-to-prison pipeline literature, male students of color were expected to be at particularly high risk for ODRs and suspension. The chapter that follows will discuss findings on the effects of race/ethnicity and self-serving cognitive distortions on different types of ODRs that predict suspension.

Measuring Self-Serving Cognitive Distortions in a Therapeutic High School

Although the How I Think (HIT) questionnaire has been used extensively to measure the self-serving cognitive distortions of youth involved in the juvenile justice system and students attending regular education high schools, no prior study has used the HIT with students attending

66

a therapeutic high school. Given the lack of previous research using this measure with this population, estimating the reliability of scores on the HIT scales was critical. The reliability of HIT scale scores obtained from a sample of students with Emotional Disturbance in a therapeutic high school was similar to the reliability of scores reported in the four validation samples for the HIT questionnaire (Barriga et al., 2001). In the study sample, Cronbach's alpha coefficients ranged from acceptable to excellent.

The mean HIT scale scores found in the study sample were higher than the mean HIT scale scores found in the normative sample for the HIT questionnaire (Barriga et al., 2001). In the study sample, all mean HIT scale scores fell above the 80th percentile based on the normative sample. This is the first study to demonstrate that students with Emotional Disturbance attending a therapeutic high school tend to have higher levels of self-serving cognitive distortions than youth in the general population. On all HIT scales, approximately half of students in the study sample had scores in the "clinical range." Scores that fell within the clinical range were at or above the 84th percentile based on the normative sample. Therefore, about half of students in the study sample had higher levels of cognitive distortions than 84% of youth in the general population. Across HIT scales, mean scores were similar and the percentages of students with clinical scores were also similar; therefore, youth in this sample did not demonstrate a clear preference for one type of cognitive distortions over others. HIT scales were highly correlated with one another; as scores on one HIT scale increased, scores on all other HIT scales also increased.

Gender and Race/Ethnicity

Gender and race/ethnicity differences in self-serving cognitive distortions were investigated. Given a lack of consensus in the literature regarding gender differences in self-

serving cognitive distortions, gender differences were explored. In the current study, male participants received significantly higher mean scores than female participants across cognitive distortion scales. Boys tended to endorse the self-serving cognitive distortions measured on the HIT to a greater extent than girls. Based on previous research, racial/ethnic groups were expected to demonstrate similar levels of self-serving cognitive distortions. Prior studies have only investigated differences in cognitive distortions between participants who identified themselves as Caucasian or African American (Barriga et al., 2000; Barriga et al., 2001). Therefore, the current study fills a gap in the literature by including Latino students and comparing their levels of cognitive distortions to those of Black and White students. In the current study, no significant differences on cognitive distortion scales by race/ethnicity were found. Black, Latino, and White students demonstrated similar levels of cognitive distortions.

In a meta-analysis of 71 studies, Helmond et al. (2014) found a significant, medium to large effect size for the association between self-serving cognitive distortions and externalizing problem behaviors. Higher levels of cognitive distortions were associated with higher levels of externalizing problem behavior. Additionally, gender and ethnicity did not moderate the strength of the association between cognitive distortion and externalizing problem behavior. That is, the strength of the relationship between self-serving cognitive distortions and externalizing problem behavior is equally strong for boys and girls and equally strong for racial/ethnic groups. Therefore, based on the findings within the current study that boys have higher levels of self-serving cognitive distortions than girls and that racial/ethnic groups have similar levels of cognitive distortions, one would expect to find: (a) an association between gender and ODRs with male students being more likely to obtain referrals than female students; and (b) no association between race/ethnicity and ODRs. However, these patterns were not reflected in the

results of the current study. Instead, the results suggest that other variables beyond students'

cognitive distortions, such as implicit racial biases, have an effect of ODRs within this setting.

In spite of their higher levels of cognitive distortions, male students were *not* more likely

than female students to receive an ODR for any of the externalizing problem behaviors included

in this study. In the current study, a student's gender was unrelated to the likelihood that he or

she would receive an out-of-school suspension. The hypotheses that male students would be

more likely than female students to receive ODRs and suspensions were not supported by the

data. Given the clear pattern of higher levels of self-serving cognitive distortions among boys

than girls, one might expect that boys would be more likely than girls to engage in externalizing

behaviors that lead to out-of-school suspension. This result, however, was not found in the

current study. Girls were just as likely to be suspended as boys, even though girls demonstrated

significantly lower levels of self-serving cognitive distortions.

Race/Ethnicity, Defiance, and DDIL

A different pattern was found for race and ethnicity. Black students were more likely to

receive ODRs and suspensions than White students, even though Black and White students

demonstrated comparable levels of self-serving cognitive distortions. Black students' cognitive

distortions do not explain the disproportionality in referrals and suspensions. Black students were

significantly more likely than White students to receive ODRs for both defiance and disrespect,

disruption, or inappropriate language (DDIL). Most participants in the current study received at

least one ODR for defiance (75%) and DDIL (68%). These two types of ODRs were by far the

most common types of ODRs. These findings are consistent with previous research that indicates

that most ODRs are for minor infractions (e.g., for insubordination or class disruption), and

Black students are more likely than White students to receive ODRs for minor infractions

(Gregory & Weinstein, 2008; Lewis, Butler, Bonner, & Joubert, 2010, Skiba et al., 2002; Okonofua & Eberhardt, 2015). Even though Black students and White students had similar levels of self-serving cognitive distortions, compared to a White student, a Black student was six times more likely to receive a referral for defiance and seven times more likely to receive a referral for DDIL. Previous research explains why Black students were more likely than White students to receive defiance and DDIL referrals in particular.

Subjective Offenses and Implicit Bias

Studies have shown that the greatest racial disparities in school discipline are evident for behavioral offenses that require a high degree of subjectivity. Compared to their White peers, Black students are referred to the office more often for offenses such as disrespect, loitering, defiance, disruption, and noncompliance (Gregory & Weinstein, 2008; Skiba et al., 2002; Skiba et al., 2011). School staff may interpret ambiguous student behavior differently depending on the student's race. In two controlled experimental studies, teachers viewed office discipline referral records for a student who had two referrals for subjective offenses (insubordination and class disturbance). The researchers manipulated the student's race by using stereotypically Black or White names. After the second infraction, teachers felt more "troubled," indicated more severe discipline was appropriate, were more likely to label the student a "troublemaker," and were more likely to imagine themselves suspending the student if the student had been given a stereotypically Black name compared to a stereotypically White name (Okonofua & Eberhardt, 2015). Therefore, when teachers are presented with repeated subjective offenses, their interpretation and response to the behavior may vary depending on the student's race.

Defiance, disrespect, disruption, and inappropriate language are arguably the most subjective types of offenses included in this study. The current study demonstrates that race

disparities in subjective offenses continue to exist within a therapeutic high school setting where, theoretically, clear and explicit behavioral expectations are set. School staff were not immune to implicit bias in spite of their specialized training and experience addressing the needs of students with emotional and behavioral difficulties. Additionally, the race disparities for subjective offenses were still present in spite of the use of SWIS as a behavior tracking system. Although SWIS provides operationalized definitions of student behavior, the definitions continue to allow for some subjectivity. For example, the definition of defiance is "student engages in refusal to follow directions or talks back." The term "talking back" is subjective, and there will be variation in the number of times a student fails to comply with directions before a behavior is considered "defiance."

Disrespect, disruption, and inappropriate language were often paired together in the SWIS office discipline referral data gathered for this study. Perhaps these behaviors overlap in part because of the subjective nature of all three offenses. For example, if one perceives a behavior to be disrespectful, it is likely that one will also perceive the behavior to be disruptive. The definition of disrespect (i.e., "student delivers socially rude or dismissive messages to adults or students") is subjective given that it is unlikely that all socially rude or dismissive statements stated by students will be met with a referral. School personnel use discretion to decide whether a statement was sufficiently rude or dismissive to warrant a referral. The definition of disruption includes examples of disruptive behavior: "Student engages in behavior causing an interruption in a class or activity. Disruption includes sustained loud talk, yelling, or screaming; noise with materials; horseplay or roughhousing; and/or sustained out-of-seat behavior." Teachers often determine whether a behavior is disruptive enough to warrant a referral; many minor disruptions are tolerated in the classroom. A student's race may have an impact on how a teacher perceives

the magnitude of the disruption. Inappropriate language is defined as "student delivers verbal messages that include swearing, name calling, or use of words in an inappropriate way." The definition of inappropriate language is broad enough to include any language that a staff member thinks should not be used within the school setting. Overall, a student's race may impact the degree to which behavior is perceived to be defiant, disrespectful, and disruptive, as well as the degree to which language is perceived as inappropriate. When disciplinary infractions require subjective judgment, the ambiguity can activate implicit biases (Staats, 2014).

Implicit bias has been identified by scholars as a primary influence in discipline decisions that creates significant disparities for Black students (Rudd, 2014). Implicit bias refers to the "attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner" (Staats, 2014, p. 7). Individuals are typically not consciously aware of the implicit racial biases they develop over the course of their lifetimes. Racial schemas influence what individuals pay attention to, how individuals interpret what they pay attention to, and what individuals remember about a person. This process often occurs in ways that are not consciously controlled (Simson, 2014). Implicit biases are activated involuntarily, without intentional control, and are most likely to be activated in ambiguous situations (Hoffman et al., 2008). Implicit racial biases are most likely to influence decision-making in ambiguous situations that provide the biased decision-maker some ground to justify the biased decision on nonracial grounds (Rudd, 2014).

Ambiguity in discipline categories like "defiance" and "disrespect," as well as the use of discretion in disciplinary consequences like suspensions allow implicit bias to influence disciplinary decision-making. Racial disparities in school discipline cannot be attributed to more frequent or more serious misbehavior by students of color (Losen & Skiba, 2010). Exclusionary discipline practices are used more frequently with students of color even though these students

do not engage in more severe behaviors (Skiba et al., 2011). Misperceptions about higher rates of misbehavior among Black students are rooted in racist stereotypes of inherently deviant or "uncontrollable" Black children (Skiba et al., 2002). Previous research has found that the behavior of Black and White students is not significantly different, and Black students receive harsher consequences than White students for similar behaviors, less severe behavioral infractions, and more subjective offenses (Carter & Jackson, 1982; McCarthy & Hoge, 1987; McFadden et al., 1992; Shaw & Braden, 1990; Skiba et al., 2011; Skiba, Michael, Nardo, & Peterson, 2002; Wu et al., 1982). Skiba et al. (2000, p. 19) concluded that, "In the absence of a plausible alternative hypothesis, it becomes likely that highly consistent statistical discrepancies in school punishment for Black and White students indicate a systematic and prevalent bias in the practice of school discipline."

When educators and administrators find themselves in ambiguous situations that involve the use of discretion and subjective decision-making, their implicit biases may be activated, and they may be more likely to make decisions with negative consequences for Black students. Implicit racial biases stem from U.S. history; hundreds of years of discrimination and oppression created pervasive ideas about "who is valued and who is not, who is capable and who is not, and who is 'safe' and who is 'dangerous'" (Carter, Skiba, Arredondo, & Pollock, 2014, p. 2). Rudd (2014, p. 56) describes how "implicit racial bias often supports the stereotypical caricature of Black youth—especially males—as irresponsible, dishonest, and dangerous." Implicit bias functions in the favor of White students with whom more favorable characteristics are associated, and against Black students, to whom society attributes more negative characteristics based on their race (Simson, 2014).

Suspensions

The race disparities in ODRs for defiance and DDIL, which cannot be explained by race/ethnic group differences in cognitive distortions, have major implications for exclusionary discipline. In the current study, a student with one or more defiance referrals was nearly four times more likely to receive a suspension than a student with no defiance referrals. A student with at least one DDIL referral was 23 times more likely to receive a suspension than a student with no DDIL referrals. It is therefore no surprise that Black students were at increased risk for suspension; compared to a White student, a Black student was five times more likely to be suspended from school. Minor subjective offenses that are disproportionally applied to Black students often result in school exclusion. Out-of-school suspensions are not reserved for dangerous behaviors that threaten school safety. As Simson (2014, p. 515) points out, "out-of-school suspensions are not predominantly used to punish the most dangerous student behavior but rather to punish relatively trivial acts such as disrespect toward a school authority or classroom disruption." Skiba and Rausch (2006) found that only 5% of all out-of-school suspensions were issued for disciplinary incidents typically considered dangerous, such as violence and possession of weapons or drugs. The remaining 95% of out-of-school suspensions fell into two categories: "disruptive behavior" and "other."

The high rates of out-of-school suspensions seen in American schools cannot reasonably be attributed to the necessary responses dangerous misbehavior in schools. Instead, as demonstrated by the current study, a wide-range of problem behaviors are associated with a greater risk for suspension. In addition to defiance and DDIL, bullying/harassment and physical aggression were also significantly associated with out-of-school suspension.

Cognitive Distortions and Bullying

Of the problem behaviors that were significantly associated with suspension, two problem behaviors (defiance and DDIL) were predicted by race/ethnicity, and one problem behavior (bullying/harassment) was predicted by cognitive distortions. Therefore, a model that included race/ethnicity, HIT scales, defiance, DDIL, bullying/harassment, and suspension was developed. While race/ethnicity was a significant predictor of referrals for defiance and DDIL with Black students being significantly more likely to receive these referrals, higher levels of self-serving cognitive distortions was a significant predictor of referrals for bullying/harassment. That is, students' thinking patterns were not found to be related to whether they received referrals for defiance or DDIL; instead, race/ethnicity was found to predict whether students received ODRs for defiance and DDIL. The opposite pattern emerged for bullying/harassment. Race/ethnicity did *not* predict whether students received referrals for bullying/harassment; instead, students' thinking patterns predicted whether they received an ODR for bullying/harassment. Students with ODRs for defiance, DDIL, and bullying/harassment were all significantly more likely to be suspended. Race/ethnicity, but not scores on HIT scales, emerged as a direct significant predictor of suspension. Implicit bias may lead to referrals for defiance and DDIL, and consequently suspensions. However, the current study did not find evidence of implicit bias in referrals for bullying/harassment.

Students with higher levels of cognitive distortions, particularly on the Assuming the Worst cognitive distortion scale, were significantly more likely to receive a bullying/harassment referral. Students with higher scores on the Assuming the Worst scale had a tendency to attribute hostile intentions to others, consider social situations as a worst-case scenario, and believe that improvement in one's own and others' behavior is impossible. Example items on this scale

include, "*You should hurt people first before they hurt you*" and "*If you don't push people around, you will always get picked on.*" Students who endorse these items assume that others will hurt them, and they may engage in bullying or harassment behaviors to preemptively protect themselves from their perceived inevitable victimization. These students may be unable to develop reciprocal trust in relationships. Students with these thinking patterns tended to deliver harmful messages to others within the school setting. In SWIS, bullying is defined as the "delivery of direct or technology-based messages that involve intimidation, teasing, taunting, threats, or name calling," and harassment is defined as "the delivery of disrespectful messages in any format related to gender, ethnicity, sex, race, religion, disability, physical features, or other protected class."

The National Association of School Psychologists (NASP) Position Statement on Bullying Prevention and Intervention In Schools defines bullying as: "(a) the use of force or coercion to negatively affect others; (b) involving an imbalance of social, physical, and/or emotional power; and (c) involving willful and repeated acts of harm. Bullying behaviors may be persistently directed at the target based on a student's actual or perceived race, color, weight, national origin, ethnic group, religion, religious practice, disability, sexual orientation, gender, physical appearance, sex, or other distinguishing characteristics" (2012, p. 1). This broad definition of bullying includes the SWIS definitions of both bullying *and* harassment.

The relationship between self-serving cognitive distortions and bullying or harassment behavior has been largely unexplored in previous research; however, there is some evidence of a link between these thinking patterns and bullying. In the previously described meta-analysis on the association between self-serving cognitive distortions and externalizing problem behaviors, the term *externalizing problem behaviors* was used as an overarching term to refer to the broad

range of problem behaviors directed toward damaging others, including bullying behavior, antisocial behavior, delinquent behavior, and aggressive behavior (Helmond, Overbeek, Brugman & Gibbs, 2014). The type of externalizing problem behavior moderated the relationship between self-serving cognitive distortions and externalizing problem behavior. The strength of the relationship between self-serving cognitive distortions and externalizing problem behaviors was significantly stronger when externalizing problem behavior was measured as bullying or antisocial behavior compared to when externalizing problem behavior was measured as delinquent or aggressive behavior. In other words, the effect size for self-serving cognitive distortions was larger for bullying and antisocial behavior as opposed to aggressive and delinquent behavior. In the current study, self-serving cognitive distortions were found to be related to ODRs for bullying and/or harassment, but self-serving cognitive distortions were unrelated to ODRs that capture aggressive and delinquent behavior (fights, physical aggression, and property damage).

Few studies have investigated the relationship between self-serving cognitive distortions and bullying. In an Australian study at a low socio-economic Adelaide metropolitan school (age range 13–16 years), Owens, Skrzypiec and Wadham (2014) used the HIT questionnaire to measure the students' thinking patterns and investigated how these relate to their bullying behaviors, as measured by the Bullying Experiences Questionnaire (Owens & Slee, 2006). The major aim of this study was to investigate the relationship between self-serving cognitive distortions and bullying behavior. Students were classified into four groups: victims, bullies, bully-victims (i.e., students who bully others and are themselves also victimized), and a "not involved" group (i.e., students who play no part in the bullying). Bullies and bully-victims were more likely than the victim and not involved groups to score in the clinical range on the Overall

HIT; 63% of bullies and 60% of bully-victims obtained Overall HIT scores in the clinical range. Across the four cognitive distortion scales, bullies and bully-victims were more likely than the other two groups to have Self-Centered and Assuming the Worst scores in the clinical range. Among the four cognitive distortion scales, the largest effect size was for the Assuming the Worst scale (Cramer's $V = 0.26$); 75% of bullies and 70% of bully-victims obtained Assuming the Worst scale scores in the clinical range. The results demonstrated that students who bullied others showed more elevated levels of cognitive distortions compared with students who were not involved or who were targets of bullying. These results are consistent with the findings from the current study, as therapeutic high school students with higher levels of self-serving cognitive distortions, particularly on the Assuming the Worst scale, were significantly more likely to receive an ODR for bullying and/or harassment. In the current study, students who tended to interpret others' ambiguous or benign behaviors as having hostile intent, expected the worst-case scenario, and did not believe that improvement in others' behavior is possible were more likely deliver harmful messages within social situations.

To this researcher's knowledge, no peer-reviewed studies conducted in the U.S. have used the HIT questionnaire to assess the relationship between cognitive distortions and bullying or harassment. A study conducted with high school students in Sakarya (Turkey) used the Interpersonal Cognitive Distortions Scale (Hamamcı & Büyüköztürk, 2004) to investigate the relationship between interpersonal cognitive distortions and cyberbullying (Çetin, Peker, Eroğlu, & Çitemel, 2011). Interpersonal cognitive distortions (i.e., interpersonal rejection, unrealistic relationship expectations, and interpersonal misperceptions) were found to positively predict cyberbullying. The question of whether self-serving cognitive distortions predict and perhaps

underlie bullying behavior across general education settings in the U.S. should be explored in future research.

Although limited, the previously described research supports the notion that self-serving cognitive distortions may lead to bullying and harassment behavior. The finding from the meta-analysis that cognitive distortions were more strongly related to externalizing problem behavior when it was measured as bullying behavior (Helmond et al., 2014), evidence from the Australian study that students who bullied showed higher levels of self-serving cognitive distortions (Owens et al., 2014), and the results of the Turkish study that found that interpersonal cognitive distortions predict cyberbullying (Çetin et al., 2011), all support the link between self-serving cognitive distortions and bullying/harassment referrals found in the current study.

Implications

Interventions to Address Cognitive Distortions

This finding has major implications for school psychology practice, as targeting self-serving cognitive distortions may be a critical component of effective interventions to reduce bullying and harassment in schools. These interventions would be based on cognitive-behavioral therapy approaches that link behavior to the way one thinks about situations. When individuals confer meaning to personal experiences through biased means (e.g., hostile attribution bias), their responses may be emotionally and behaviorally problematic (Barriga & Morrison, 2001 from Owens 2014 study).

The previously described Helmond et al. (2014) meta-analysis also investigated the effectiveness of interventions in reducing cognitive distortions, and subsequently, externalizing problem behavior. Almost all 18 intervention programs incorporated cognitive behavioral components, and the most frequently studied program was EQUIP ($n = 6$). The interventions had

a significant, small effect in the reduction of cognitive distortions. Across the nine studies that assessed whether the intervention could reduce both cognitive distortions and externalizing behavior, neither cognitive distortions nor externalizing behavior were effectively reduced. Some interventions have been shown to reduce cognitive distortions, but the question of whether a decrease in cognitive distortions successfully leads to the expected decrease in externalizing behavior, especially bullying and harassment behavior, requires further investigation.

One of the most widely studied programs designed to reduce self-serving cognitive distortions is the EQUIP program. The EQUIP program was developed for youth involved in the juvenile justice system and has been effective in reducing self-serving cognitive distortions and anti-social attitudes (Nas, Brugman, & Koops, 2008), as well as reducing reducing recidivism and improving conduct (Leeman, Gibbs, & Fuller, 1993; Liau et al., 2004). The EQUIP for Educators program is an adapted version of EQUIP specifically designed for high school settings. EQUIP for Educators involves three components: (1) anger management and thinking error correction, (2) social skills and (3) social decision making. Thinking error correction aims to reduce students' self-serving cognitive distortions (DiBiase, 2010)

In one research study, the EQUIP for Educators program was implemented as an intervention to reduce peer bullying and social exclusion (van der Meulen, Granizo, & del Barrio, 2010). The goal of the study was to reduce students' cognitive distortions, as measured by the HIT questionnaire, and study the program's effects on bullying and social exclusion (van der Meulen, Granizo, & del Barrio, 2010). Two groups of students enrolled in two secondary schools in Madrid (Spain) received 36 intervention sessions over six months, and two control groups were also included. In one group of students, the researchers observed a decrease in cognitive distortions after the intervention; and in this group, six types of bullying and social

exclusion were also reduced. The second group of students who participated in the intervention did not demonstrate reductions in cognitive distortions, bullying, or social exclusion. Although this study provides some evidence that a reduction in cognitive distortions may be associated with a reduction in bullying behavior, this question of whether cognitive-behavioral interventions can reduce cognitive distortions and associated bullying and harassment behaviors should be borne out in future studies.

At the same time, while targeting self-serving cognitive distortions may reduce one of the categories of problem behaviors included in the current study (bullying/harassment), the results of this study do not provide evidence that addressing students' self-serving cognitive distortions will reduce ODRs for other types of problem behaviors.

Targeting students' thinking will be insufficient to address most disciplinary problems. Only about a third of students received a referral for bullying/harassment. Defiance and DDIL referrals were much more common than bullying/harassment referrals. Race/ethnicity—not students' level of cognitive distortions—was predictive of whether students would receive a referral for these subjective offenses and whether students would be suspended. Since cognitive distortions did not predict suspension, targeting only students' thinking patterns may not change exclusionary discipline outcomes.

Interventions to change thinking patterns and disrupt the school-to-prison pipeline are necessary at the school-wide level for both students and staff. The cause of race disparities in subjective offenses and exclusionary discipline, implicit bias, must be addressed. The results of the current study suggest that implicit bias training is needed, even within a therapeutic high school setting where staff members have high levels of experience and training in supporting students with significant behavioral and emotional needs.

Interventions to Address Implicit Bias

The first step to combating implicit bias is increasing knowledge and awareness of its existence (Rudman, 2004; Staats, 2014). Although awareness about one's biases is necessary before individuals will be motivated to counter biased responses (Devine, Forscher, Austin, & Cox, 2012), awareness of implicit bias is "not sufficient to reduce the automatic, habitual activation of stereotypes and the subsequent impact of implicit bias" (Chapman, Kaatz, & Carnes, 2013, p. 1508).

While more research is needed to identify effective strategies to reduce implicit bias and race disparities in school discipline, promising school-based interventions have been identified (Gregory, Bell & Pollock, 2014). Interventions for reducing disproportionality include forging supportive relationships, offering cultural responsiveness in instruction and interactions with students, and developing bias-free classrooms and respectful school environments. Trusting and supportive relationships between students and teachers are key to preventing conflict (Osher et al., 2012). However, compared to white students, Black and Latino students report that fewer adults are supportive and fair (Wald & Kurlaender, 2003). Teachers can develop supportive relationships with youth by systematically including instructional activities that help adults and students learn about one another (e.g., daily morning circles or check-ins about students' thoughts, feelings, and experiences). These authentic connections may reduce teachers' implicit biases. Adopting the perspective of others has also shown promise as a debiasing strategy, because it allows individuals to consider multiple viewpoints and perspectives, which can reduce the activation of automatic biases (Galinsky & Moskowitz, 2000; Todd, Bodenhausen, Richeson, & Galinsky, 2011).

Educators will need professional development and training to reduce implicit bias and increase cultural competence. Professional development can focus on the structural nature and historical context of racism and teach that racism is a historic creation rather than a personal flaw. School staff might take the Implicit Association Tests (IAT), discuss the results, and learn how implicit bias affects decision-making (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). Schools can systematically pursue bias-free discipline and respectful school environments by creating opportunities for staff to critically reflect on how implicit bias can affect students in their schools. Teachers can learn to slow down and replace snap judgments about discipline with time to reflect about the interaction and consider the whole context (Sue, 2010). Additionally, through the analysis of disaggregated discipline data, educators can determine if different groups of students routinely receive disparate disciplinary consequences for similar behavioral infractions. The finding in the current study that race/ethnicity disparities were evident for some behavioral infractions (defiance and DDIL), but not others (bullying/harassment and physical aggression) underscores the importance of disaggregating referral data by race/ethnicity and specific types of referrals, instead of relying on global metrics such as total numbers of referrals. If race disparities are found for subjective offenses, educators can examine key discretionary decision points in discipline and implement a multi-step check and balance procedure before issuing discipline referrals for more subjective offenses.

Professional development to increase teachers' cultural responsiveness—the ability to connect with and respond respectfully and skillfully to students' actual lived experiences— is another approach that helps to counter discipline disparities while addressing implicit bias. Culturally responsive teaching involves shaping school practices, classroom materials, and school-wide events to reflect and welcome diversity, including the range of racial, ethnic,

cultural, gender, and sexual identities of the students themselves. For example, the Double-Check program helps teachers self-assess their use of culturally responsive practices in their classrooms (Hershfeldt, Pell, Sechrest, Pas, & Bradshaw, 2012). Other programs aim to improve interactions between teachers and students. In the My Teaching Partner-Secondary (MTP-S) program, teachers are paired with a coach for an entire school year, reflect on video recordings of their classroom instruction, and carefully observe how they interact with students. Gregory, Allen, Mikami, Hafen, and Pianta (2015) found that MTP-S eliminated race disparities in student discipline for teachers in the program.

McIntosh, Girvan, Horner, and Smolkowski(2014) argue that to reduce the effects of implicit bias, it is necessary to identify vulnerable decision points, or the elements of the immediate situation that momentarily increase the likelihood that implicit bias will affect a discipline decision. Research in education has identified vulnerable decision points as situations that involve ambiguity and discretion. Research in other fields indicates that implicit bias has a greater impact on decision making during times of day that coincide with an increase in hunger and mental fatigue. Although this time of day hypothesis has not yet been tested in schools, there may be more disproportionality in ODRs before lunch, at the end of the school day, or even at the end of the school year when fatigue and stress tend to increase. Analyses of discipline data within a school can be conducted to identify school-specific vulnerable decision points. Discipline data systems such as SWIS can be used to drill down on the situational information regarding each incident to determine when disproportionality is more likely to occur. Once these vulnerable decision points are identified, the ambiguity in these specific decision points can be reduced. For example, schools can examine their definitions of subjective offenses (e.g., defiance). Finally, McIntosh et al. (2014) suggest teaching school personnel to identify when

they are in a vulnerable decision point and use a neutralizing routine just prior to a making a discipline decision. Neutralizing routines involve reflecting on questions such as "Is this a vulnerable decision point?" and establishing a set of alternative strategies for all staff to use when they find themselves in these vulnerable decision points.

Limitations

There are several limitations to the current study. The focus on students with Emotional Disturbance attending a therapeutic high school enabled the researcher to study students who are at particularly high risk for school exclusion. However, the size of the sample is relatively limited and it is not representative of the majority of school settings. Female and ninth grade students were particularly underrepresented, but the proportion of these groups of students in the sample corresponded with their enrollment in the school. That is, a small number of girls and ninth graders were enrolled in the school at the beginning of the school year. Future studies could assess the relationships between self-serving cognitive distortions, externalizing behaviors, and suspensions in larger, more diverse settings, including general education high schools.

Another limitation of the current study is that the HIT was only administered at one point in time: at the beginning of the school year. The current study did not assess whether there were naturally occurring changes in self-serving cognitive distortions over time. Changes in cognitive distortions could have also occurred based on the support students received in this setting across the school year. Students were likely receiving a wide-range of interventions as part of their programming in the therapeutic high school. These interventions could have led to changes in both cognitive distortions and externalizing behavior, but data on interventions students may have received were not collected.

A third limitation of the current study is the use of ODRs as a proxy for student externalizing behavior. An ODR is "an event in which (a) a student engaged in a behavior that violated a rule or social norm in the school, (b) the problem behavior was observed or identified by a member of the school staff, and (c) the event resulted in a consequence delivered by administrative staff who produced a permanent (written) product defining the whole event" (Sugai, Sprague, Horner, & Walker, 2000, p. 96). Therefore, an ODR is not just a measure of student behavior, but it also a measure of whether the behavior was identified and resulted in a consequence. An ODR is a measure of both student behavior and adult response to the behavior. The reliability and the validity of ODR data depends on the school staff that are involved (Morrison, Peterson, O'Farrell & Redding, 2004). Several studies have found that teachers vary in their behavior management abilities (Blankemeyer, Flannery, & Vazsonyi, 2002; Reinke & Herman, 2002) and tolerance levels for student activity in the classroom (Wright & Dusek, 1998). Consequently, ODR data may reflect which teachers are struggling with classroom behavior management. Morrison, Peterson, O'Farrell and Redding (2004) argue that a student's ODR may be more a reflection of the teacher's frustration level than the student's behavior. A behavior that results in an ODR in one classroom may receive a different disciplinary response in another classroom (e.g., loss of privileges).

The current study used ODR data collected through SWIS, which introduced both strengths and weaknesses. SWIS includes operationalized definitions of student problem behavior and enables systematic tracking of behavioral infractions (May et al., 2006). ODRs monitored through SWIS have been found to be valid indicators of student behavior problems (Pas, Bradshaw, & Mitchell, 2011). However, SWIS also allows for one behavioral offense to be coded as more than one type of problem behavior (e.g., "disrespect" and "disruption"). This

double coding meant that some categories of problem behaviors could not be analyzed as individual, distinct categories. Instead, problem behaviors were combined with the other problem behaviors with which they commonly overlapped. Questions remain about how the combining of problem behaviors into one broader category may have impacted the results of the current study. In spite of the limitations of using ODRs as a measure of problem behaviors in schools, ODR and suspension/expulsion data are the most naturally occurring data on school misbehavior, and they are the most common markers of school discipline status. Using these data in research studies helps to bridge the research-to-practice gap, as findings from research studies that involve ODR data can be more readily applied to school settings that already collect ODR data.

Future Directions

The current study highlights several possibilities for future research. The race/ethnic disparities in ODRs for subjective offenses (defiance and DDIL) and suspensions are consistent with previous studies, but these disparities have now been identified in a therapeutic high school setting with students who are particularly vulnerable to the school-to-prison pipeline. Future studies may seek to replicate this finding in other comparable settings and incorporate other methods of data collection (e.g., interviews, focus groups, and/or rating scales) to further assess the variables that contribute to these race disparities. For example, how do students and teachers define "defiance," and what discrepancies exist in their perceptions of what constitutes defiant behavior?

The question of whether self-serving cognitive distortions predict and perhaps underlie bullying behavior across special education and general education settings in the U.S. should be explored in larger studies with more diverse samples. These studies can also investigate whether

cognitive-behavioral interventions, such as EQUIP for Educators, can reduce cognitive distortions and associated bullying behaviors.

In the current study, self-serving cognitive distortions among students *and* implicit bias (distorted, unconscious race-based thinking patterns) among school staff appeared to impact disciplinary outcomes. Future studies could measure both students' cognitive distortions *and* school personnel's implicit biases and compare their relative effects on referrals and suspensions. Additionally, the relative impact of interventions to address students' cognitive distortions versus interventions designed to target educators' implicit biases can be borne out in future studies. Interventions to address both students' distorted thinking patterns and educators' implicit biases can be designed, implemented, and evaluated in future research. Future research could consider the intersectionality of gender, race, and disability status through a critical race theory framework.

APPENDIX A

SPSS SCORING SYNTAX FOR HIT SCALE SCORES

COMPUTE anomReport = sum(Item04,Item13,Item20,Item27,Item31,Item38,Item45,Item51)/8.
EXECUTE.

COMPUTE TrueARscore = 7 - anomReport.
EXECUTE.

COMPUTE SCmean =
sum(Item03,Item07,Item10,Item22,Item28,Item37,Item42,Item52,Item54)/9.
EXECUTE.

COMPUTE BOmean =
sum(Item06,Item11,Item21,Item25,Item26,Item36,Item39,Item44,Item46,Item50)/10.
EXECUTE.

COMPUTE MMmean =
sum(Item05,Item12,Item14,Item17,Item19,Item30,Item33,Item40,Item47)/9.
EXECUTE.

COMPUTE AWmean =
sum(Item02,Item08,Item15,Item18,Item23,Item29,Item32,Item35,Item43,Item49,Item53)/11.
EXECUTE.

COMPUTE ODmean =
sum(Item02,Item06,Item12,Item18,Item29,Item37,Item40,Item42,Item46,Item54)/10.
EXECUTE.

COMPUTE PAmean =
sum(Item05,Item10,Item15,Item19,Item23,Item28,Item32,Item36,Item44,Item50)/10.
EXECUTE.

COMPUTE Lmean = sum(Item03,Item08,Item14,Item21,Item26,Item33,Item49,Item52)/8.
EXECUTE.

COMPUTE Smean =
sum(Item07,Item11,Item17,Item22,Item25,Item30,Item35,Item39,Item43,Item47,Item53)/11.
EXECUTE.

COMPUTE OvertScale = sum(ODmean,PAmean)/2.
EXECUTE.

COMPUTE CovertScale = sum(Lmean,Smean)/2.
EXECUTE.

COMPUTE OverallHIT =
sum(SCmean,BOmean,MMmean,AWmean,ODmean,PAmean,Lmean,Smean)/8.

```
EXECUTE.
/* Recoding scale scores to different variables: yes/ no clinical range/

COMPUTE HITclinical = 0.
IF (OverallHIT >= 3.03) HITclinical = 1.
EXECUTE.

COMPUTE OVclinical = 0.
If (OvertScale >= 3.10) OVclinical =1.
EXECUTE.

COMPUTE COVclinical = 0.
If (CovertScale >= 3.03) COVclinical =1.
EXECUTE.

COMPUTE SCclinical = 0.
if (SCmean >= 3.20) SCclinical = 1.
EXECUTE.

COMPUTE BOclinical = 0.
if (BOmean >= 3.15) BOclinical = 1.
EXECUTE.

COMPUTE MMclinical = 0.
if (MMmean >= 3.00) MMclinical = 1.
EXECUTE.

COMPUTE AWclinical = 0.
if (AWmean >= 3.00) AWclinical = 1.
EXECUTE.

COMPUTE ODclinical = 0.
if (ODmean >= 3.26) ODclinical = 1.
EXECUTE.

COMPUTE PAclinical = 0.
if (PAmean >= 3.07) PAclinical = 1.
EXECUTE.

COMPUTE Lclinical = 0.
if (Lmean >= 3.46) Lclinical = 1.
EXECUTE.

COMPUTE Sclinical = 0.
if (Smean >= 2.61) Sclinical = 1. EXECUTE.
```

APPENDIX B

MAJOR PROBLEM BEHAVIOR CODING DECISION RULES AND

SWIS OPERATIONALIZED DEFINITIONS

Major Problem Behavior	Coding Decision Rule	SWIS Definition
Bullying/ Harassment	Coded as Bullying/Harassment except 2 Physical Aggression/ Bullying ODRs, which were coded as Physical Aggression.	The delivery of direct or technology-based messages that involve intimidation, teasing, taunting, threats, or name calling. The delivery of disrespectful messages in any format related to gender, ethnicity, sex, race, religion, disability, physical features, or other protected class
Defiance	Coded as Defiance. If paired with any of the behaviors above, coded as behavior with which Defiance was paired.	Student engages in refusal to follow directions or talks back.
Disrespect, Disruption, Inappropriate Language (DDIL)	Coded as DDIL. If paired with any of the behaviors above, coded as behavior with which DDIL was paired.	Student delivers socially rude or dismissive messages to adults or students. Student engages in behavior causing an interruption in a class or activity. Disruption includes sustained loud talk, yelling, or screaming; noise with materials; horseplay or roughhousing; and/or sustained out-of-seat behavior. Student delivers verbal messages that include swearing, name calling, or use of words in an inappropriate way.
Fight	Coded as Fight.	Student is involved in mutual participation in an incident involving physical violence.
Inappropriate Affection	Coded as Inappropriate Affection. If paired with any of the behaviors above, coded as behavior with which Inappropriate Affection was paired.	Student engages in inappropriate, consensual (as defined by school) verbal and/or physical gestures/contact, of a sexual nature to another student/adult.
Lying	Coded as Lying except 1 Theft/ Lying ODR, which was coded as Theft.	Student delivers message that is untrue and/or deliberately violates rules.

Physical Aggression	Coded as Physical Aggression, except 1 Fight/ Physical Aggression ODR, which was coded as Fight.	Student engages in actions involving serious physical contact where injury may occur (e.g., hitting, punching, hitting with an object, kicking, hair pulling, scratching, etc.).
Property Damage	Coded as Property Damage. If paired with any of the behaviors above, coded as behavior with which Property Damage was paired.	Student participates in an activity that results in destruction or disfigurement of property.
Theft	All coded as Stealing.	Student is involved by being in possession of, having passed on, or being responsible for removing someone else's property; or the student has signed a person's name without that person's permission, or claims someone else's work as their own.

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VITA

Claudia M. Hernandez was born in Matanzas, Cuba on August 16, 1988. She received a

B.A. in psychology from Wellesley College in 2010. After working as a research assistant on

several pediatric psychology studies at the University of Miami, she decided to pursue a career in

school psychology. At Loyola University Chicago, she received an M.Ed. in educational

psychology in 2013 and a Ph.D. in school psychology in 2017. In 2014, Claudia was awarded the

Wellesley College Vida Dutton Scudder Graduate Fellowship.

While at Loyola University Chicago, Claudia gave 14 presentations at national and state

conferences and was invited to speak at the National Association of School Psychologists

(NASP) Diversity Dialogue Special Session. In 2016, she published two journal articles: (1)

Effects of an Alternative to Suspension Intervention in a Therapeutic High School in *Preventing*

School Failure: Alternative Education for Children and Youth and (2) An Investigation of the

Attitudes of Catholic School Principals Towards the Inclusion of Students with Disabilities in

Journal of Catholic Education.

Currently, Claudia is completing an APA-accredited pre-doctoral internship with the

Illinois School Psychology Internship Consortium. She works in the LaGrange Area Department

of Special Education, where she will continue to work next year as a school psychologist.