THE ROLE OF EMOTIONALLY-SUPPORTIVE TEACHER BELIEFS AND BEHAVIOR IN STUDENT AGGRESSION

by

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ABSTRACT

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Overt aggression is a pervasive problem in schools. In 2017 alone, the US Department of Education reported over 360,000 aggressive incidents. According to the General Aggression Model, emotion regulation plays a key role in aggression. Teachers play a role in student regulation through their supportive (e.g., expressive-encouragement) and unsupportive (e.g., punitive) responses to students. This study examined the role of the classroom teacher in student aggression. Teacher emotion-focused beliefs about both the reasons for aggression and the effectiveness of emotionally-supportive responses to aggression, were explored. Teacher likelihood of mental health referral for anger and fighting (i.e., an emotion and behavior linked to aggression) was examined as a predictor of aggression. An additional predictor for student aggression, student perception of teacher response to student emotion (i.e., supportive, unsupportive) was examined. Participants consisted of fourth and fifth-grade students (n = 398) and their teachers (n = 22) from eight schools (five public, three charter) across five school districts in a midwestern state. The teacher-report assessed student aggression, emotion dysregulation, and general beliefs about aggression. The child-report assessed perception of teacher responses to student emotion. Data was analyzed using non-parametric analysis and hierarchical linear modeling. Teachers reported believing that emotion expression was the most

likely reason for student aggression and that supportive responses to aggressive behavior (i.e., emotion discussion, referral for mental health support) were more effective than punitive responses. Student perception of teacher supportive response to student emotion (i.e., problem-focused, expressive encouragement) was negatively associated with student aggression, and student perception of teacher unsupportive response to student emotion (i.e., minimization, punishment) was positively associated with student aggression, after accounting for student emotion dysregulation, sex, race, and a race by emotion dysregulation interaction.

Keywords: aggression, teacher beliefs about aggression, teacher response to student emotion, effective responses to aggression, mental health support in schools, emotion dysregulation, teacher referrals, supportive response to emotion, unsupportive response to emotion, punitive response, emotionally-supportive response, reasons for aggression

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CHAPTER ONE

The Role of Emotionally-Supportive Teacher Beliefs and Behavior in Student Aggression

Research is warranted to address the significant gap on the role of the classroom teacher in student aggression. This gap is concerning as aggression is a significant problem in schools nationwide and teachers are in unique roles to directly (e.g., in the classroom) and indirectly (e.g., refer) intervene. The ways in which teachers intervene are likely influenced by their beliefs about aggression. Broadly speaking, aggression can be defined as a behavior likely to harm peers physically or verbally (e.g., fights, bullies, threatens; Cooley & Fite, 2016; White & Kistner, 2011; Lansford et al., 2012; Winter & McKenzie, 2017). According to the US Department of Education's 2017-2018 School Survey on Crime and Safety (SSOCS), in 2017 alone, 962,300 violent incidents occurred in US schools. Additionally, approximately 60% of aggressive peer offenses take place in the school environment (Turner et al., 2018). Understanding how classroom factors, such as teacher beliefs and behavior, influence aggression is important because childhood aggression is a risk factor for several negative outcomes, such as depression, suicide, substance use, relationship problems, and abuse (Booij et al., 2010; Rohlf et al., 2017).

Aggression is associated with dysregulated emotion (Rohlf et al., 2017; McLaughlin et al., 2011). Emotion regulation is a complex process and is defined as optimal management of emotions in order to meet one's goals (Denham et al., 2012; Röll et al., 2012); emotion dysregulation represents a deficit in this process. Emotion dysregulation is defined by emotions that shift abruptly or persist, despite ineffective attempts to regulate, which may interfere with appropriate behavior and be unsuitable for the situation (Röll et al., 2012). The General Aggression Model asserts that aggression occurs in individuals who are ineffective at regulating uncomfortable emotions (Roberton et al., 2012; Anderson & Bushman, 2002). Although various

emotions may be dysregulated during displays of aggression, anger is the most commonly cited mismanaged emotion (Rohlf et al., 2017; Hou et al., 2017; Lindsey et al., 2017; Wilkowski & Robinson, 2010; Cooley & Fite, 2016; Eisenberg et al., 2001). Dysregulated anger is associated with higher levels of aggression because anger creates an impulse to act (Lewis, 2010). Maladaptive anger regulation strategies are typically used by aggressive children, such as focusing on the target of frustration instead of using distraction (Rohlf et al., 2017). These ineffective anger regulation strategies contribute to aggressive behavior because aggressive behavior is a primary way that children externalize their anger (Kerr & Schneider, 2007).

According to the Bio-Ecological Model (Bronfenbrenner & Morris, 2006; Bassett et al., 2017), teacher behavior influences children's emotional and behavioral development. Therefore, teacher responses to student aggression may influence the continuation or extinction of aggression. Consistently, empirical evidence indicates that teacher response to aggression is associated with classroom levels of aggression (Troop-Gordon & Ladd, 2015). Troop-Gordon and Ladd (2015) found that teacher use of the punitive response of reprimand was associated with higher classroom levels of aggression in the fall and the spring. Teacher responses to aggression can generally be categorized as supportive or punitive. Examples of supportive responses to aggression include emotion-focused strategies, such as, talking to children about their emotions and referring them for mental health support; Examples of punitive responses to aggression include assigning detentions and removing privileges.

When children are provided with supportive, emotion-focused responses to aggression, aggressive behavior may decrease (White & Kistner, 2010). Teacher supportive responses may be negatively associated with aggressive behavior by providing opportunities to learn emotion regulation. However, in extant research, punitive responses to aggression have received more

focus than supportive responses (O'Brennan et al., 2014), despite evidence suggesting that punitive responses are ineffective (Rigby et al., 2010). When teachers respond to children's aggressive behavior with punitive strategies, rather than emotionally supportive strategies, children may miss out on opportunities to learn effective emotion management skills. Therefore, punitive responses may maintain aggression by not addressing underlying emotional dysregulation. Given the widespread use of punitive responses, and the potential of supportive responses to be better suited for addressing aggression, it is advantageous to understand teacher perspectives on responses to aggression. However, there is a lack of research on teacher beliefs regarding the effectiveness of supportive and punitive responses to aggression.

Teacher referral for mental health support is a supportive response to children's aggressive behavior. Teachers who are more likely to refer aggression-related emotion (i.e., anger) and behavior (i.e., fighting) for mental health support may have less aggressive children in their classrooms because those children may be more likely to receive mental health support to address issues of emotion dysregulation. However, it is unknown whether teacher likelihood of mental health referral for aggression-related emotions (i.e., anger) and behaviors (i.e., fighting) is associated with aggression, when compared to teachers who are less likely to refer aggression-related emotions and behaviors. The impact of teacher likelihood of mental health referral is important, as student support may depend on teacher beliefs about which emotions and behaviors warrant emotional support. For example, if a teacher does not believe that children who display chronic anger are as deserving of mental health support as children who display chronic sadness, then children with chronic anger may not get the support they need.

Teacher beliefs about aggression are important to consider when examining teacher responses to aggression, as attribution theory suggests one's beliefs about the causes of a

behavior influence their response to it (Weiner, 1974). Consistently, research suggests that teacher responses to aggression are directly influenced by their beliefs (Andreou & Rapti, 2010; Wang & Hall, 2018). For example, teacher responses to aggression are likely influenced by the reasons for aggression (e.g., attention, emotion-expression) that teachers believe to be most salient. For instance, if a teacher believes a child's aggressive behavior is a reason of emotion dysregulation, they may be more likely to use a strategy to calm or soothe the child and avoid punishing him. However, if the teacher believes a child's aggressive behavior is a reason of gaining peer attention, they may be less likely to use emotionally supportive responses. Certain reasons for aggression, such as attention (Trussell et al., 2016), have received more focus than reasons related to emotion-expression. This lack of focus on emotion expression as a reason of aggression may be because functional analysis of behavior is based on behavioral theory (McIntosh & Av-Gay, 2007) which is less focused on internal processes like emotion regulation. Therefore, comparatively, there is less literature on the association between teacher emotion-focused beliefs about children's aggression.

Lastly, it is important to understand not only how teachers respond to anger, a characteristic emotion of aggression, but also more generally how teachers respond to student negative emotion. Understanding teacher response to children's various negative emotions is informative because several emotions can be involved in a display of aggressive behavior. Therefore, examining teacher response to children's negative emotions may also be helpful towards addressing and preventing aggression. It is important that teachers not only use supportive strategies to anger, but also more generally to children's negative emotions to prevent aggression. According to the Emotion-Socialization Model (Eisenberg et al., 1998), the ways that teachers respond to children's emotions significantly influences children's emotion beliefs and

regulation (Bassett et al., 2017). Examples of teacher supportive responses to children's negative emotion are acceptance of emotion, encouragement to express emotion, or problem-solving the cause of emotional distress (Swartz et al., 2012; Denham et al., 2012). Supporting student emotion is preventative toward the development of aggression because supportive responses promote emotion regulation, which is associated with less aggression (Bassett et al., 2017). Teacher unsupportive responses to children's emotions, such as minimizing or punishment, may promote emotion dysregulation (Cole et al., 2009) and be associated with higher levels of aggression.

Overall, understanding teacher emotion-focused beliefs about reasons and effective responses to aggression may aid in understanding to what extent teachers believe emotion is involved in aggression. When aggression is viewed as an emotional experience, it may be more likely that teachers will use emotionally supportive, rather than punitive responses. Emotionally-supportive responses are more likely to address a core problem associated with aggression, emotion dysregulation. When emotion dysregulation is addressed the cycle of aggression may be more effectively interrupted.

Purpose

The purpose of this study is to examine the role of the classroom teacher in student aggression. This study has four objectives. The first objective is to examine whether teacher likelihood of mental health referral for aggression-related emotions (i.e., anger) and behaviors (i.e., fighting) predicts student aggression. The second objective is to examine teacher beliefs regarding the effectiveness of punitive and emotionally-supportive responses to aggression (e.g., talking about emotions, assigning detentions). The third objective is to examine teacher beliefs about the likelihood of emotion-expression as a reason of aggression compared to other reasons.

The fourth objective is to examine whether teacher response to student emotion (i.e., supportive, unsupportive) predicts student aggression, as measured by student ratings of teacher behavior. Results from this study will assist school staff in understanding how classroom factors, such as teacher beliefs and behaviors, influence aggression.

Definition of Terms

Teacher Beliefs about Effective Responses to Aggression: teacher beliefs about which strategies are effective towards reducing aggression, such as emotionally-supportive (i.e., talking to children about emotions, referring for mental health support) or punitive (i.e., assigning detention, removing privileges)

Teacher Beliefs about Reasons for Aggression: teacher beliefs about the likelihood of the following specific reasons for aggression: gaining attention, proving oneself, expressing emotion, social learning

Referral for mental health support: contacting or suggesting contact with counseling or psychoeducation focused on mental health in schools or by outside agencies

Aggression: intent to physically, or socially, harm oneself or another, through a variety of actions, such as, hitting, kicking, threatening, ignoring, or spreading rumors

Overt Aggression: a behavior that directly harms peers physically or verbally (e.g., fighting, bullying)

Mental Health Problems: chronic emotional or behavioral maladjustment

Emotion Dysregulation: the inability to flexibly respond to and manage emotions

Negative Emotions: emotions associated with being angry, sad, or over-excited

Teacher Supportive Response to Emotion: responses to children's emotion that communicate problem-solving (problem-focused) and attempts to improve mood (expressive-encouragement)

Teacher Unsupportive Response to Emotion: responses to children's emotion that communicate dismissive (minimization) and unaccepting (punitive) opinions of emotion

CHAPTER TWO

Theoretical Framework

This study draws from several key theories regarding the influence of the school environment on children's behavioral development. Specifically, this study focuses on the impact of teacher beliefs and behaviors, such as, teacher beliefs about aggression, and teacher response to student emotion, on student aggression. The foundational theory for this study is Bronfenbrenner's Social Ecological Model which suggests that children's environments, or their social ecology, influence the development of their emotional and behavioral skillset (Bronfenbrenner & Morris, 2006). More specifically, research on school climate, of which teachers are vital components, suggests school environments influence children's academic and behavioral outcomes (Gregory et al., 2010). Taken together, these theories indicate that teachers may impact student aggression by their beliefs and responses to children's emotions and behavior.

Attribution theory suggests that teacher's beliefs about children's behavior influence their responses (Weiner, 1985; Dobbs & Arnold, 2009). Therefore, in order to understand teacher behavior, teacher beliefs are an important piece to the puzzle. Specifically, teacher beliefs about reasons for, and effective responses to, aggression may influence student aggression. Whether teachers believe that emotionally-supportive responses to aggression are effective, as well as whether they perceive emotion-expression to be a reason of aggression, may impact their response to aggression. In this way, teacher beliefs are important to consider and explore.

The Emotion Socialization Model suggests that teachers impact children's emotions and emotion regulation in positive or negative ways (Eisenberg et al., 1998). Teacher unsupportive responses to children's emotions may contribute to aggression, and teacher supportive responses

to children's emotions may prevent aggression. Teacher supportive responses to children's emotions include attempts to cheer up, validate or problem-solve negative emotions. By promoting emotion regulation, supportive responses to emotions are preventative toward behavior problems. Unsupportive teacher responses attempt to punish or minimize the child's emotions. Unsupportive responses promote emotion dysregulation and thereby may increase the likelihood of resulting aggressive behavior.

The general aggression model (GAM; Anderson & Bushman, 2002) and the frustration-aggression model (Dollard et al., 1939; Berkowitz, 1989) suggest that emotion is a vital component of aggression by proposing that aggression occurs as a result of dysregulated, uncomfortable emotions. According to the frustration-aggression model (Dollard et al., 1939) the origins of aggression are rooted in goal-blockage, causing frustration, which leads to emotional arousal and negative affect (Berkowitz, 1989). In 1989, Berkowitz reformulated the frustration-aggression theory to include that any sort of negative affect can result in aggression. However, anger, specifically, was cited as the most basic negative affect associated with aggression (Berkowitz, 1989). The General Aggression Model (GAM) asserts that aggression occurs in individuals who are ineffective at regulating emotion, either by underregulating or overregulating, as an effort to manage uncomfortable internal states (Roberton et al., 2012; Anderson & Bushman, 2002). Specifically, GAM describes aggression as a result of a consideration of three components specific to a person and his environment: 1) routes: internal states which further increase likelihood of aggression (e.g., emotions, thoughts), 2) inputs: individual characteristics (e.g., personality traits) and situational factors (e.g., provocation) that set a person up to be more likely to aggress, and 3) outcomes: automatic and effortful decisions to engage in aggression (Roberton et al., 2012). Thus, in general, the GAM suggests that

aggression happens as a result of three interrelated components of internal states, personal and situational characteristics, and decision-making. The relationship between internal states (i.e., emotions) and aggression are a focus of this study.

Therefore, because emotions are a core component in the development of aggression it is plausible that teacher supportive responses to student emotions may prevent aggression. Teachers influence not only children's aggression, but also the underlying emotional processes involved in its development. Taken together, the theoretical foundations of this study suggest that teachers may have the capacity to not only intervene on, but to also prevent, problematic aggression by addressing underlying factors, such as dysregulated negative emotion.

Aggression in Schools

Reducing aggression is a leading concern in schools because aggressive behaviors create an unsafe climate for learning and development (O'Brennan et al., 2014; Rosen et al., 2017). It is estimated that about 10-25% of children display problematic aggression (Kronenberger et al., 2007). Additionally, student discipline problems, such as aggression, create unfavorable work conditions for teachers and are a leading cause of teachers leaving the field (Lui & Meyer, 2005). Aggression is one type of problem behavior that deserves attention due to its widespread prevalence, damaging impact on school climate, and connection with long-term problems for the aggressor (e.g., delinquency, depression, school dropout, antisocial behavior; White & Kistner, 2011; Barhight et al., 2017).

Schools are common environments where aggression occurs. The US Department of Education found in its 2017-2018 School Survey on Crime and Safety (SSOCS) that 962,300 violent incidents occurred in US schools nation-wide, and 71% of schools reported having at least one violent incident (Dilberti et al., 2019). In a national study by Turner and colleagues in

2011 it was reported that close to 60% of aggressive peer offenses take place in the school environment and that most types of peer assault are more prevalent at school than at children's homes. However, teacher beliefs about effective responses to chronic aggressive behavior is a topic that has received little attention.

Definition of Aggression

Broadly speaking, aggression is defined as intent to physically, or socially, harm oneself, or another, through a variety of actions, such as, hitting, kicking, threatening, or ignoring (Cooley & Fite, 2016; White & Kistner, 2011; Lansford et al., 2012; Winter & McKenzie, 2017). More specifically, aggression can be described based on the means in which one inflicts harm (physical v. relational), the interaction between the aggressor and the victim (overt/direct v. covert/indirect) and the amount of planning involved (proactive/instrument v. reactive/hostile). Aggressive behavior can also be understood through the lens of bullying, as well as part of broader behavioral categories, such as externalizing problems, conduct problems, disruptive behavior or most nebulously, "problem behavior" (Liu, 2004; Orpinas et al., 2015; Ballard et al., 2014; Little & McLennan, 2010).

Physical aggression involves use of physical force to harm another and is typically considered overt or direct because harm is directly inflicted on the victim by the aggressor. Overt aggression includes physical actions, such as, pushing, kicking, fighting, throwing, or breaking things, as well as some social actions, such as yelling at or threatening someone (Swit et al., 2018; Lansford et al., 2012). Relational aggression involves using social means to damage someone's reputation or relationships and is typically considered covert (i.e., indirect), as direct contact may not be made between the aggressor and the victim. Covert aggression typically refers to social isolation, ignoring, and spreading rumors, as well as rule-breaking behaviors like

cheating (Coley & Fite, 2016). This review will focus on overt student aggression in the classroom.

Overt aggression can be reactive or proactive. Reactive aggression is an immediate, emotional response to a provocation. Proactive aggression is a pre-planned, unprovoked response aimed to gain something (Cooley & Fite, 2016; Swit et al., 2018; Ostrov & Crick, 2007). Historically, reactive aggression was more closely linked to emotion dysregulation, hostile attribution bias, and the threatened egotism hypothesis (Baumeister et al., 1996). The threatened egotism hypothesis suggests anger and frustration drive aggression to protect against the experience of negative emotions, or harm to inflated self-concept (Barhight et al., 2017; White & Kistner, 2011; Rohlf et al., 2017). Proactive aggression was primarily associated with social learning theory (White & Kistner, 2011) and less associated with emotion. However, because reactive and proactive aggression are now both recognized as being associated with negative emotion, overt aggression can be understood as typically being emotionally fueled (Rohlf et al., 2017; Barhight et al., 2017).

Development of Aggression

Influences on the development of overt, physical aggression are multifaceted and include self, peers, family, school, and neighborhood (Chang et al., 2016). Contextual factors associated with aggression include school climate/teacher behavior, low parental warmth, stress exposure, parent modeling of aggression, and overly punitive parenting (Underwood et al., 2009; Cooley & Fite, 2016; Rosen et al., 2017; Turner et al., 2018). Children who are aggressive are more likely to have individual characteristics, such as, difficulties with emotional regulation, academic problems, impulsivity, low IQ, and lack of social skills (Underwood et al., 2009; Cooley & Fite, 2016; Rosen et al., 2017; Eisenberg et al., 2001).

School climate is an important contextual factor associated with childhood aggression. Understanding how classroom factors, like teacher behavior, influence aggression is important because children with high levels of aggression are at risk for several negative outcomes, such as depression, substance abuse, suicide, problems in peer relationships, and abuse (Booij et al., 2010; Rohlf et al., 2017). Turner et al. (2018) suggest that school classrooms are important to consider, because although individual characteristics may have the largest influence on problem behavior (O'Brennan et al., 2014), they cannot fully explain the development of aggression. Therefore, consideration of contextual factors on the development of aggression is warranted. A study by Li, Zong, and Liu (2013) on over 750 students in 4th through 10th grade in China found that supportive classroom climate is a protective factor for children with externalizing problems. Turner and colleagues (2018) had similar conclusions from a state-wide survey on school climate and aggression over 9,000 middle-school teachers which found that that schools high on warm emotional climate, structure, and support were associated with lower levels of student aggression. Therefore, emotionally-supportive teacher behavior in classrooms is a contextual factor that may prevent the development of aggression.

Developmental trends regarding overt aggression show differences by age. Some research reports that overt aggression increases with age (Turner et al., 2011), while others report that it decreases (Booij et al., 2010). Whether aggression increases or decreases with age may be specific to the age range of focus. Very young children show normative aggressive behavior, peaking around age two, which becomes less prevalent as children age (Dayton et al., 2017), and dramatically decreases in the subsequent years before entering elementary school (Booij et al., 2010). Hitting others, which is highly prevalent for children ages 2-3 (70%), decreases dramatically around ages 4-5 (20%), and continues to decrease until ages 8-9 (12%; Olson et al.,

2013). According to a national study on children's exposure to overt aggression, with approximately 3,000 youth, ages 6-17, children's aggression is problematic across all age ranges. Exposure to overt aggression increases in late elementary/middle and high school-aged children compared to younger children (i.e., ages 6-9), with the following exposure rates: 15% for ages 6-9 (i.e., 1st-4th grade), 24.6% for ages 10-13 (i.e., 5th-8th grade), 27% for ages 14-17 (i.e., 9th -12th grade; Turner et al., 2011). Therefore, the relationship between childhood aggression and age may be multi-modal, peaking around age two and again around age 14 to 17.

Sex may play a role in the development of aggression (Lansford et al., 2012). Sex differences are especially robust regarding displays of overt, physical aggression (Lansford et al., 2012; Underwood et al., 2009; Verlaan et al., 2018), with males repeatedly shown to engage in overt, physical aggression more often than females across all ages and cultures (Archer, 2004). Because physical aggression is overt, this suggests that males engage in overt aggression more often than females. For example, Kistner et al., (2010) demonstrated that overt aggression was significantly higher for males than females across each grade 3rd-5th via peer nomination report, with a moderate to large Cohen's *d* effect size ranging from .46 to .91. Although, overt aggression was significantly higher for males than females, overt aggression in females did increase toward the end of elementary school (5th grade) compared to younger grades (Kistner et al., 2010). Kistner et al., (2010) was single-method (i.e., peer-nomination) study which is a limitation.

Reasons for Aggression

Behavior theory suggests that behaviors, such as aggression, are predictable and serve a purpose (McIntosh & Av-Gay, 2007). The purpose that a behavior serves for an individual, or the reason why a behavior occurs, is also known as its function (Hanley et al., 2003; Iovanonne

et al. 2013). This study will consider functions of behavior in a more general sense, including other influences on aggression and discussing these impacts as reasons for aggression. Common functions for behavior in functional behavior assessments are gaining or avoiding attention, tangible rewards (e.g., preferred food or materials), escape from demands, and gaining or avoiding sensory stimulation (automatic reinforcement; Gable et al., 1995; Hanley et al., 2003; Lloyd et al., 2016; Beavers et al., 2013). These reasons are derived from the functional behavior analysis literature. Other influences on behavior in the aggression literature include protecting self-esteem (i.e., proving one's social standing) based on the threatened egotism theory (Rohlf et al., 2017) and modeling by others in the child's environments based on social learning theory (Little et al., 2003b).

Aggressive behavior fueled by negative emotions (i.e., reactive aggression) is reported by school and clinical staff to occur much more frequently (e.g., 72% of the incidents) than proactive aggression (13.5%; McAdams, 2002), across all developmental periods in youth. This finding suggests that aggressive behavior associated or motivated by emotion expression is more common than pre-planned aggressive behavior to gain resources, and indicates that emotion expression may be a reason for aggression. Aggressive behavior fueled by emotion was reported to be more prevalent in younger children than in older children (McAdams, 2002).

Aggression is one of the most common behaviors to which reason is considered in order to develop functional behavior assessments (FBA), second only to self-injurious behavior (Hanley et al., 2003). Functional behavior assessments inform behavior intervention plans (BIP). However, Little et al. (2003) suggest a better understanding of the reasons for aggression is necessary in order to have adequate conceptualization and treatment of aggression. In a study of BIPs based on FBAs in Wisconsin, Van Acker et al. (2005) discovered that 46% of behavior

intervention plans advised use of solely punitive strategies in response to problem behavior and almost half of the BIPs did not use any positive, supportive strategies at all. This may suggest that the typical reasons for behavior (e.g., attention, escape) do not lend themselves well to creating plans that are emotionally-supportive towards behavior. Therefore, considering emotion expression as a reason of behavior may shift perspectives regarding supportive behavioral responses from teachers.

Iovanonne et al. (2013) suggest that schools are increasingly using internal experiences like power and control incorrectly as reasons for aggression in functional behavior assessments. Iovanonne and colleagues (2013) indicate that functional behavior assessments must include only reasons that are observable. However, the ABA literature routinely cites "automatic reinforcement", which serves a purpose of providing positive feelings to an individual, as a valid reason. "Automatic" is often listed as a reason of a behavior despite the fact that it is not observable. Therefore, it may be incorrect to conclude that reasons can only exist if they are observable. If automatic reinforcement is a valid internal reason perhaps there are other reasons that are internal which could be helpful to recognize. If so, perhaps emotion expression could be considered a valid reason for behavior. For example, if a child is crying in their room alone, one might argue the reason of behavior is emotion expression. An additional problem with the claims in the 2013 Iovanonne et al. article includes differing protocols for FBAs for students with and without mental health problems. Given the extensive prevalence of mental health problems in children and the types of students who are typically receiving the intensive process of an FBA in understaffed school systems, it may not make sense to separate children this way given the high likelihood that a child with severe behaviors would have a simple explanation for his behavior. Iovanonne et al. (2013) suggest that teams should strive for parsimony and start with simple

explanations of behavior before considering internal factors like mental health problems. However, revision of FBA/BIP for an individual student may be unlikely given the number of students that schools serve, perhaps speaking to the importance of creating accurate FBA/BIPs that consider complex causes or internal influences in the first place.

Frey and Wilhite (2005) suggest that internal influences should be considered when analyzing the function of a challenging behavior. They suggest that because internal basic needs drive behavior they are essential to consider during the FBA process in order to design interventions which fulfill these basic needs. Internal needs such as belonging, freedom and power/self-worth should be considered reasons for behavior (Frey & Wilhite, 2005). Therefore, it is reasonable that emotion expression could be a reason of aggression which could have significant positive implications on the interventions in which schools design for aggressive children.

Emotion (Dys)regulation and Aggression

Emotion dysregulation can be described as the inability to flexibly respond to and manage emotions to achieve goals (Röll et al., 2012). Deficits in awareness, understanding and acceptance of emotions are hallmarks of emotion dysregulation (Gable et al., 1995; Fruzzetti et al., 2009). Emotion dysregulation may also interfere with information processing (Dodge, 1991). Individuals who are chronically dysregulated often experience intense, negative, emotional reactions to situations and extreme mood fluctuations (Fruzzettti et al., 2009) which can interfere with many aspects of their lives. Inability to control impulsive behaviors, such as aggression, is a marker of emotion dysregulation (Fruzzetti et al., 2009). Aggression may serve as an attempt to regulate dysregulated negative emotions that one perceives as distressing and unbearable (Donahue et al., 2014). Because aggressive behavior may offer an escape from a person's own

internal state, as well as a possible escape from unwanted social situations or interactions, aggression may be negatively reinforced (Beauchaine, 2015). That is, when aggression is effective to escape painful feelings or situations, it may be more likely to continue. When a child is in an emotionally dysregulated state, they may be more likely to escalate their behavior to aggressive interactions (Snyder et al., 1997).

Cross-sectional studies have found a direct relationship between emotion dysregulation and externalizing behaviors like aggression (i.e., lower emotion regulation associated with higher externalizing problems) in children aged 6-12 via counselor report (Kim & Cicchetti, 2010). Additionally, longitudinal studies on adolescents have demonstrated that emotion dysregulation is a predictor, rather than an outcome, of aggression (McLaughlin et al., 2011). Therefore, the idea that aggressive children are emotionally dysregulated solely due to negative consequences of their behavior (i.e., lack of friends, adult disapproval) is not supported. Emotion dysregulation should be considered as a contributor to the development of aggression, as much as it is seen as a result of negative experiences associated with aggressive behavior.

Understanding emotion regulation is important in order to understand emotion *dys*regulation, because dysregulated children have emotion regulation processes which are dysregulated (Cole et al., 1994) and emotion regulation is the goal for a dysregulated child (Cole et al., 1994). Emotion regulation may develop dysregulatory aspects when individuals are in stressful situations in which they believe normal emotion regulation processes will not facilitate goal attainment (Cole et al., 1994). It is important to understand that emotion dysregulation is not merely the absence of emotion regulation, or under-regulation, but rather a more complex dysfunction in the emotion regulation process. Emotion regulation is a process that can take place internally (e.g., within oneself) and/or interpersonally (e.g., in the context of a social

interaction; Barthel et al., 2018; Zaki et al., 2013; Lopez et al., 2019). Therefore, children can regulate their emotions individually or through interactions with others (e.g., talking to teachers about their feelings). Additionally, emotion regulation can occur either automatically or deliberately (e.g., with effort; Roberton et al., 2012). Because emotion regulation can be executed deliberately, children who experience emotion dysregulation can be taught to apply emotion regulation strategies. According to Gross's process model of emotion regulation there are many different emotion regulation strategies that one can use to regulate his own emotions, such as reappraisal, acceptance, problem-solving, suppression, rumination, and avoidance (Gross, 1998; Barthel et al., 2018). Therefore, emotion dysregulation represents dysfunction in application of these strategies. Maladaptive emotion regulation strategies are typically used by aggressive children, such as focusing on the target of frustration instead of using distraction (Rohlf et al., 2017). These ineffective emotion regulation strategies contribute to aggressive behavior because aggressive behavior is a primary way that children externalize emotions, such as anger (Kerr & Schneider, 2007).

Anger and Aggression

In terms of specific emotions that may be dysregulated during displays of aggression, anger is a the most commonly cited emotion (Rohlf et al., 2017; Hou et al., 2017; Lindsey et al., 2017; Wilkowski & Robinson, 2010; Cooley & Fite, 2016; Eisenberg et al., 2001). Kerr and Schneider (2007) found that poor anger control is predictive of aggression in boys. One reason the cycle of aggression may be facilitated by anger is because aggressive behavior towards the source of one's frustration may be effective towards reducing one's anger (Bresin & Gordon, 2013), in other words, aggressive behavior may reduce emotional tension. Sullivan and colleagues (2010) found that for boys, difficulty managing anger was associated with higher

overt aggression. Bohnert et al. (2003) documented an association between higher levels of aggressive behavior and more frequent and intense expressions of anger in 87 children, aged 7-10-years-old, through observation of the disappointment paradigm, interviews, and assessment. Research has found a positive association between better anger regulation strategies and lower externalizing problems (Rydell et al, 2003; Cooley & Fite, 2016). The relationship between the emotion of anger and aggression is further demonstrated by similarities in brain activation areas. Anger has been found to be associated with activation in the same prefrontal brain area as aggression (Harmon-Jones & Sigelman, 2001).

The functional theory of emotion (Garrison, 2003) suggests that anger serves an important adaptive role towards goal attainment in the form of motivation to overcome difficulties. When goals are blocked children often experience anger to motivate them to overcome barriers and reach goals (Tan & Smith, 2018). However, although anger can be adaptive, maladaptive anger is associated with destructive outcomes. Anger becomes maladaptive when it does not facilitate goal attainment or interferes with successful reasoning.

This section highlights the emotion-related origins and processes involved with aggression, with an emphasis on the contributing role of the emotion of anger. Emotion dysregulation, particularly anger dysregulation, influences the development of aggression. Because emotion regulation strategies can be intentionally applied, children can be taught to regulate emotions to prevent aggression. Therefore, teacher referral of children with emotion dysregulation to mental health support may provide opportunities to prevent aggressive behaviors from developing.

Teacher Response to Children's Emotions

As the core figure in a child's educational environment, teachers are undoubtedly present during children's daily expression of emotion. Children spend countless hours per day with their teachers, who witness many of the frustrating academic and social situations that children experience throughout their school years. Therefore, teacher response to children's emotion is critical for shaping adaptive emotion understanding and regulation.

Teachers influence children's emotion management by their responses to children's emotion expression. However, to date, few studies have been conducted on the strategies through which teachers shape the emotions of children (Lopez-Perez & Pacella, 2019). The phenomenon of emotion regulation occurring as a between-person experience is not new. Developmentally, it is widely known that parents play a primary role in regulating emotions of very young children (Röll et al., 2012) and it is common that individuals when upset or excited seek to modulate this experience through others. Focusing not only on individual regulation, but also on the social context in which children's emotions are regulated, such as the classroom, has the potential to increase the chances that children will successfully regulate their emotions.

Teacher response to student emotion can generally be categorized as supportive or unsupportive. Supportive responses include problem-focused or expressive-encouragement strategies which are aimed at helping the child problem-solve the cause of their distress, feel emotionally validated, or improve their mood (Fabes et al., 2002; Niven et al., 2009). Unsupportive strategies include punitive or minimizing strategies which do not provide support or comfort and devalue or attempt to control the child's emotional experience (Fabes et al., 2002). When teachers respond to children's emotions in supportive ways that convey acceptance and comfort, children are encouraged to express their emotions, which is advantageous to their

emotional development (Denham et al., 2012; Bassett et al., 2017). Teacher supportive response to children's emotion may be especially beneficial for children who struggle to regulate their emotions. For children with less developed emotion regulation skills, teacher use of supportive emotion regulation strategies, such as encouraging emotion expression or problem-solving, may provide assistance for children's emotion regulation. For example, if a child frequently becomes emotionally dysregulated a teacher can facilitate the child's emotion regulation skills by using supportive strategies, such as validating their emotions. By facilitating a child's emotion regulation through teacher response, the escalation of emotion dysregulation into aggression may be prevented.

However, unsupportive responses which punish or minimize emotions inhibit healthy emotional development by teaching children to suppress their emotions (Denham et al., 2012) and may contribute to aggressive behavior. When emotions are continually suppressed overtime, it leads to emotion dysregulation and increased intensity of negative emotion (Fabes et al., 2002). Because aggression is linked to emotion dysregulation, when children's emotions are socialized through unsupportive responses, it may facilitate the development of aggression. For example, teachers who respond to their children's sadness or anger with their own anger, demonstrate an unsupportive type of response to children's emotions. This type of unsupportive response communicates to the child that their negative emotion expression is not acceptable, which may lead to emotional suppression and behavioral outbursts.

The relationship between teacher supportive and unsupportive responses to children's emotional and behavioral outcomes is further demonstrated by Bassett et al. (2017). Results from 80 teachers and 337 children in preschools and daycare centers suggested that supportive teacher reactions to children's emotions may promote emotion regulation and that teacher unsupportive

reactions may predict aggression (Bassett et al., 2017). Additionally, Bassett and colleagues (2017) found that validation of children's emotions, a supportive, emotion-focused strategy, resulted in less negative social-emotional behaviors.

The benefits of teacher use of emotion-focused responses to children's emotions is informed by existing literature on parent response. For example, research suggests that parent emotion-focused responses to children's emotions may be more useful than other types of supportive responses, like problem-focused responses. Emotion-focused responses concentrate on dealing with negative emotion to help the child feel better, whereas, problem-focused responses concentrate on solutions to resolve the stimulus creating the negative emotion. When children lack control over a situation, emotion-focused coping strategies demonstrate more effectiveness (Altshuler & Ruble, 1989). Children are often in situations where they do not have much control (e.g., home and school environments), therefore, emotion-focused responses are likely to serve an important role in managing children's emotions, in addition to problem-solving responses.

An observational study by Ahn and Stifter (2006) suggests that teachers most frequently use a supportive type of response, problem-focused, to young children's emotions. However, teachers used unsupportive strategies, such as punitive and minimizing, more often than other supportive strategies, like emotion-focused responses. This suggests that unsupportive strategies to children's emotion are used more frequently that emotion-focused supportive strategies which focus on helping the child feel better. Specifically, Ahn and Stifter (2006) measured the following categorizations of teacher response to negative emotion in children aged two to five: intervening, ignoring, distraction, negative response, physical comfort, validation, constructive or alternative. For the preschool sample, intervening the cause was the most frequent response,

which reflects an attempt to help the child solve the cause of the stimulus for the negative affect, which is similar to problem-focused. Physical comfort and ignoring were the next most frequent teacher responses to children's negative emotions in preschool. Interestingly, unsupportive responses by teachers, which reflect punishment or minimization/scolding, although not very frequent, were observed more frequently (9%) than the supportive strategy of empathy/validation of emotion (i.e., emotion-focused; 4.8%), or distraction (4.8%; Ahn & Stifter, 2006). While a strength of this qualitative study was its direct observation of teacher response, it should be noted that a limitation to this study was small sample size of 12 teachers at private, childcare centers. Additionally, this study targeted toddlers and preschoolers, not target school-age children, which may limit generalizability to other developmental periods.

Reports of supportive or unsupportive strategies for children's emotions may differ based on whether student or teacher-report is utilized. A teacher may believe they are using a supportive strategy in response to a child's emotion; however, a child may not necessarily perceive the teacher's strategy as supportive. For example, a teacher may believe they are using a supportive strategy to help facilitate positive reappraisal of the situation for the child, however the child may perceive the teacher's strategy as an unsupportive attempt to minimize their emotional experience. Therefore, Dixon-Gordon et al. (2015) suggest researchers must clarify whether the emotion regulation strategy is identified by sender (i.e., teacher) goal or receiver (i.e., student) interpretation. For example, if students are identifying which emotion regulation strategies their teacher uses for their emotions, it would be an example of measurement by receiver effect. One might argue the receiver (i.e., student) represents the most important perspective, because they are the target of emotion regulation. Further, it is reasonable to assume that ultimately whether a strategy is successful is related to how the receiver (i.e., student) of

regulation perceives the sender's (i.e., teacher's) strategy; a positive intent by a teacher which is interpreted negatively by a student is probably less likely to result in the student's emotion regulation. Another reason that receiver effect is an important perspective is because social desirability bias may impact the extent to which teachers report using unsupportive strategies, like minimizing or punitive responses, to children's negative emotions. Desirability bias may be present in extant research which suggests that parents typically report infrequent use of unsupportive strategies (Fabes et al., 2002). The current study examines teacher response to student emotion from the perspective of the student (i.e., receiver).

Teacher Beliefs about Reasons and Responses to Aggression

Understanding and intervening upon teacher beliefs may help facilitate change, allowing students to receive emotionally-supportive responses to aggression from teachers in the classroom or referral to mental health support. If teacher belief systems are ignored, it is likely that interventions for students will not be as effective, given the lack of buy-in, motivation, and understanding from teachers. Understanding which responses to aggression teachers believe are effective is important, as some studies suggest students do not rate current responses to aggression from teachers as effective (Owens et al., 2005; Shute et al., 2002). "Research has advocated for increasing attention to teacher views of aggressors" (Rosen et al., 2017, p. 120) because they are the most environmentally obvious person to intervene in aggressive situations at school. However, there is limited multi-level research on factors that impact teacher beliefs about student behavior (O'Brennan et al., 2014).

Most studies that examine overt aggression overlook the perceptions of frequent observers and responders, such as teachers, focusing instead on perceptions aggressors have about their victims (i.e., hostile attribution bias; Rosen et al., 2017). Of the few studies which

have examined teacher responses to aggression, most focus on the likelihood of a teacher intervening, rather than which types of responses teachers use or believe are effective (Troop-Gordon & Ladd, 2015). Little is known about which responses to aggression teachers believe are most effective, as well as, teacher beliefs about reasons for aggression. This lack of information is concerning as teacher beliefs influence teacher behavior and teachers are in positions of authority in schools to act as catalysts for summoning school-based supports for children. Teacher perceptions about overt aggression may influence the types of interventions they believe are effective (Wang & Hall, 2018; Troop-Gordon & Ladd, 2015). Therefore, understanding teacher beliefs about aggression may increase knowledge on why teachers use certain strategies in response to aggression.

Teacher supportive responses to student behavior are the foundation of positive school climates. Studies that have examined teacher responses to aggression through the lens of school climate have found a relationship between authoritative school climate (i.e., warm emotional support, structure, high expectations) and decreased aggression in high schools as measured via victim report (Gregory et al., 2010). Similar findings emerged from a survey study by Berg and Cornell (2016) on school climate and aggression with over 9,000 middle school teachers from over 400 schools, which found that authoritative school climate was associated with lower levels of student aggression. Therefore, understanding teacher perception about the effectiveness of emotionally-supportive response to aggression, which are part of providing a warm emotional climate, is informative.

The following paragraphs will overview the limited existing literature on teacher beliefs about responses to student aggression. Overall, these studies reflect a likelihood for teachers to respond to student aggressors with punitive, rather than emotionally-supportive, strategies. In

2015, Troop-Gordon and Ladd studied the following seven teacher responses to aggression in a study on bullying, none of which included emotionally-supportive responses, 1) contacting parents, 2) separating students, 3) punishing aggressors, 4) suggesting avoidance, 5) suggesting assertion, 6) advising independent coping (i.e., telling children to work it out on their own), 7) ignoring the incident. Most response options may be considered punitive, or neutral (e.g., ignoring, telling children to work it out), at best. Results indicated that teachers believed a non-emotionally supportive strategy, separating students, was the best strategy for reducing aggression. Additionally, an association between teacher punitive response (i.e., reprimands) and increased classroom-levels of aggression was found. These results were in opposition with previous research in 2000, by Henry et al., which found reprimands to be associated with lower classroom-levels of aggression.

In 2018, Swit and colleagues examined the following categories of teacher responses to overt, physical aggression via teacher interview and survey in early childhood education centers in Australia : 1) discussion (i.e., asking the aggressor to consider possible solutions), 2) encouragement (i.e., encouraging pro-social play), 3) power assertion (i.e., attempt to change the child's behavior) and 4) rule violation (i.e., communication that behavior violated rules). Despite the fact that Swit and colleagues (2018) included more supportive responses to aggression (i.e., encouraging pro-social play, problem-solving) their findings indicated that teachers preferred more punitive (e.g., use of reprimands, communicating violation of a rule) vs. supportive (e.g., discussing solutions, encouraging pro-social play) types of interventions.

A qualitative study by Rosen et al. (2017) with 35 public elementary, middle, and high school teachers from the Southern United States examined hypothetical aggressive situations via focus groups. Rosen and colleagues (2017) found the following responses to aggression reported

by teachers through thematic analysis, (1) working with the victim, (2) working with the aggressor, (3) ignoring the incident, (4) enlisting other adults, and (5) disciplining the bully. Teachers reported being most likely to respond to aggression by disciplining, or punishing, the aggressor compared to other supportive responses such as "working with the aggressor" (Rosen et al., 2017). It is unknown if the response of "enlisting other adults" in response to aggression included mental health professionals, or simply other staff to help contain the situation.

Research conducted by Andreou and Rapti (2010) via vignettes was one of few studies which include referral to mental health support as a teacher response to student aggression. Andreou and Rapti (2010) examined 249 elementary school teacher responses to "behavior problems", like physical aggression. The researchers examined teacher reported responses of rewards and punishment, as well as, whether teachers would use supportive responses, such as summoning support from the school psychologist. Findings diverged from other studies reviewed in that teachers preferred supportive responses over punitive. Whether a teacher would refer a child to counseling services following problem behaviors was predicted by whether the teacher had a high level of self-efficacy related to classroom management and perceived the problems to be unrelated to school-based factors (Andreou & Rapti, 2010, p. 62). This finding may suggest that teachers are more likely to refer students to mental health support when they believe their practices are unrelated to the child's issues. Punitive measures or threats were the least likely intervention teachers reported using following behavior problems, although more likely to be used by teachers who felt less competent. Andreou and Rapti (2010) focused on general behavioral approaches, not immediate response or intervention following a problem behavior. For example, using rewards and incentives was reported as the most likely intervention used by teachers for problem behaviors, however, it is unlikely a teacher would give a child an incentive

or reward as an immediate response to aggression. Additionally, Andrew and Rapti (2010) did not separate aggressive behavior from non-aggressive behavior problems like distractibility and talking out of turn, which may confound generalizability of results.

Across the four studies on teacher responses to aggression reviewed, punishing, or disciplining the aggressor was the only response option common amongst all four. The majority of findings suggest that punishment is widely seen as a plausible or preferred response to aggression and teacher beliefs about supportive responses are less well studied. Rosen et al. (2017) suggested punishment was the most common response by teachers for student aggression; however, Andreou and Rapti (2010) report punishment as the least likely response to aggression by teachers. Swit et al. (2018) suggest that teachers preferred punitive responses like reprimands over supportive methods like encouragement of pro-social play. Troop-Gordon and Ladd (2015) found that the most commonly reported response to aggression between students included separating students, and supportive responses were not an option listed. There were additional commonalities in teacher response across one or more, but not all, available studies. Swit et al. (2018) and Rosen et al. (2017) both included a teacher response of "ignoring." Troop-Gordon and Ladd (2015), Rosen et al., (2017), and Swit et al. (2018) included a teacher response of some sort of discussion with the aggressor on his or her behavior. Andreou and Rapti (2010) was the only study which included an emotionally-supportive response of referring the child for mental health support (i.e., counseling). Extant research suggests a need for further study on teacher beliefs regarding emotionally-supportive responses to aggression.

Andreou and Rapti (2010) assert that it is essential to measure not only teacher beliefs about effective responses to aggression, but also teacher beliefs about the purpose or reason for aggression. Understanding teacher beliefs about the purpose of aggression is important because

teacher responses to aggression are directly influenced by their beliefs about why aggression is occurring (Andreou & Rapti, 2010; Wang & Hall, 2018). Thus, understanding teacher beliefs about the reasons they believe aggression occurs can shed light onto why supportive or punitive responses may be used. For instance, if a teacher believes the reason for a child's aggressive behavior is emotion expression, they may be more likely to use emotionally-supportive responses, like referrals for mental health services. However, if the teacher believes the reason for child's aggressive behavior is gaining peer attention, they may be less likely to use supportive responses, and more likely to ignore in order to deter the behavior. Therefore, investigating teacher beliefs is imperative toward understanding the contextual factors which shape aggression in children.

Extant literature has not examined teacher perceptions of reasons for aggression, however there is literature regarding teacher beliefs about causes of aggression. Teacher beliefs about causes of aggression seem to neglect emotional development as an important consideration. Teacher beliefs about contributing factors to the development of student aggression may vary by student age, as aggression may seem less developmentally normative in older children (Swit et al., 2018). A study on teacher beliefs by Swit, et al. (2018) including 18 teachers from seven early childhood centers in Australia suggests that teachers most commonly believe aggression in children aged three to five is caused by developmental characteristics, such as lack of social skills or language. Emotional development was not considered.

Mavropoulou and Padeliadu (2002) report that by elementary school most teachers believe behavior problems are due to problems outside of the school setting such as the child's personality, need for attention, lack of family stability, and parent level of education. However, contradictory findings were reported by Andreou and Rapti (2010) who found that teachers rated

school-factors as the largest cause of behavior problems. Although Mavropoulous and Padeliadu (2002) included internal reasons for aggression, such as personality and learning problems, they did not include emotional reasons for aggressive behavior.

External factors may be seen as more relevant to the development of aggression in elementary and older children, such as peer groups, family, and neighborhoods (Swit et al., 2018). Children with aggressive peers may be viewed by their teachers as acting aggressively to prove their social standing. Acting aggressively to prove oneself to peers is consistent with the threatened egotism theory of aggression which suggests aggression occurs as a response to self-esteem threats (Baumeister et al., 1996; Bushman & Baumeister, 1998). According to a qualitative study by Rosen et al. (2017) including 35 teachers of public elementary, middle, and high school, teachers perceive aggression to be increasingly related to family factors such as modeling of aggression in the home and lack of rule setting. Children learning aggression from those in their environment is consistent with social learning theory (White & Kistner, 2011).

Lastly, Winter and McKenzie (2017) found that absence of control and need to belong were two themes that emerged from teacher perceptions of causes of female physical aggression in a qualitative study including seven teachers in an all-girls school. These studies demonstrate that teacher beliefs about causes of aggression range from individual factors such as need for attention, personality, and lack of social skills, to external influences such as family modeling, school problems, and desire for peer acceptance. Teacher beliefs about individual emotional deficits represent an important gap in extant research on teacher beliefs about reasons for aggression.

Teacher Mental Health Referrals for Aggression-related Emotion and Behavior

Teachers are key players in children's access of appropriate services because school mental health reform is not a singular task by the mental health providers in the school, but rather a joint effort involving all stakeholders. There are several empirical studies that have looked at teacher referrals to "intervention teams" or for special education services, but less studies have focused on referral to mental health services (Briesch et al., 2013).

Teacher referral is a primary path for student access to mental health support. Teacher referral of children to mental health services is an indirect supportive response to both children's emotions and behaviors. Because teachers spend a considerable amount of time with students and directly observe them for several hours each day they are ideal candidates to identify and refer students for mental health services (Little & McLennan, 2010; O'Brennan et al., 2014). However, according to Toppelberg and colleagues (2013), "Little attention has been devoted to documenting any impact of teachers, and the different roles parents and teachers may play, in identifying mental health needs and facilitating access to services" (p. 3). Because emotional and behavioral problems are under-identified in the United States (Merikangas et al., 2010), and in schools teacher-reports are often used to identify which students are in need of mental health services (O'Brennan et al., 2014), it is important to understand teacher identification and referral of students in an effort to improve accurate identification and access to services. Unfortunately, extant research on 154 elementary and secondary classroom teachers nationwide suggests that teacher referral of students for support does not happen very frequently and when they it does special education assessment may be a more likely outcome than access to mental health services (Briesch et al., 2013). However, Briesch et al. (2013) asked teachers to retroactively recall referrals they had made over the past two years, therefore, the results of their study may have limitations.

Because such a large number of children struggle with mental health problems, it is essential that school staff can identify negative emotions and behaviors that may be indicators of emotion dysregulation (Alegria et al., 2012; Smokowski et al., 2017), such as chronic anger or aggressive behaviors (Lindsey et al., 2017; Turner et al., 2018). It is equally important that teachers can respond to these emotions and behaviors in a supportive way such as referral for mental health support. Appropriate identification of students who are displaying at-risk behaviors for mental health issues is significantly associated with service-use for mild to moderate mental health and behavioral disorders (Green et al., 2013). Therefore, if teachers are properly identifying students in need of mental health services, these students should be receiving services. However, more than half of children with multiple mental health disorders receive no treatment (Copeland et al., 2007). This lack of treatment is even more pronounced among African American children who are 87% less likely than their White peers to receive services for mental health problems (Lindsey et al., 2017). Therefore, teacher identification and referral, as well as availability of services in schools, may be part of the disconnect between identification and treatment of mental health related problems. Because school is the main place where children receive mental health services (Kern et al., 2017) a missed identification in the school may result in a child receiving no services whatsoever. However, little is known about which types of student behaviors (e.g., fighting, crying) or emotions (e.g., anger, sadness) teachers are referring for mental health supports, in order to determine if and where the disconnect exists between problematic behavior and access to support. If teachers are referring certain emotions (i.e., sadness) over other emotions (i.e., anger) for mental health support, the behaviors more closely associated with less-referred emotions may be more prevalent (e.g., aggression associated with anger). Additionally, if teachers are more likely to refer children to mental health support for certain behaviors (i.e., crying) over other behaviors

(i.e., fighting), emotional support may not be provided in situations where it may be helpful. Examining teacher likelihood of referring specific emotions and behaviors for mental health support is a targeted way to understand which emotions and behaviors are a focus for teachers, as well as, which emotions and behaviors are perhaps afforded less attention. This study will examine teacher likelihood of mental health referral for aggression-related emotions and behaviors compared to other common emotions and behaviors by directly asking teachers to choose between two competing options (i.e., anger v. sadness and fighting v. crying).

The adults in children's environments may neglect to recognize the emotional basis of behavior problems, perhaps making it less likely they will refer children to mental health support who display problematic behaviors like aggression. The lack of focus on emotional problems for children who display externalizing behavior is demonstrated from Armbruster et al. (2004). The results suggested that children at an urban-based outpatient clinic often had referrals listing externalizing behavior as the referral concern, however upon clinical evaluation the children were more often diagnosed with internalizing disorders, reflecting internal emotional struggles, than externalizing disorders (Armbruster et al., 2004). Results may suggest that those making mental health referrals of children often may not suspect emotional problems for children displaying aggressive behavior.

However, some extant literature suggests that children who display behavior problems such as aggression are actually more likely to be referred for mental health services than other behavior problems (Briesch et al., 2013) and children with internalizing problems, such as anxiety, and depression (Cunningham & Suldo, 2014; Reddy et al., 2009; Briesch et al., 2013; Bradshaw et al., 2008). However, it is not clear the extent to which higher levels of referral for externalizing problems suggest teacher perception of a child's need for emotional support or desire for removal

of disruptive children from the classroom. Past research has suggested the reason for higher referral for children with externalizing behavior is due to the level of classroom disruption, as well as teacher difficulty observing internalizing problems (Cunningham & Suldo, 2004). This difference between internalizing and externalizing behavior referrals does not mean that a lack of services for those with externalizing problems, such as aggression, does not exist, but simply that those with externalizing problems may be slightly better served than those with internalizing problems. Therefore, a focus on teacher likelihood of mental health referral for externalizing behaviors, like aggression, continues to be merited.

It is unknown if the mental health referral disproportionality between internalizing and externalizing behaviors extends to their characteristic emotions (i.e., anger for externalizing behaviors, sadness for internalizing behaviors). Whether this disproportionality in services exists at an emotional level is important for many reasons, one being that aggressive behavior is an outcome of dysregulated anger (Rohlf et al., 2017; Hou et al., 2017; Lindsey et al., 2017; Wilkowski & Robinson, 2010; Cooley & Fite, 2016; Eisenberg et al., 2001). Therefore, if one could correctly identify and refer children with aggression-related emotions, such as anger, they may prevent the escalation of dysregulated anger to aggression.

However, extant literature suggests that teachers may be more likely to refer children displaying sadness for mental health support compared to anger. Teachers may believe sadness requires supportive responses and that anger deserves punishment (Nelson et al., 2012). In a prior study on parental support in response to specific emotions, parents displayed more supportive responses to sadness than to anger (Nelson et al., 2012) and children were more likely to be punished for expression of anger compared to sadness (Klimes-Dougal et al., 2007).

There may be specific behavioral consequences associated with referral-likelihood of certain emotions over others. For example, if a teacher is more likely to refer anger for emotional support, they may prevent anger from escalating into aggression. If, however, a teacher is more likely to refer another emotion over anger, such as sadness, children who display anger may be less likely to receive support. Although anger and sadness can both be problematic and deserving of mental health support when dysregulated, anger is more closely linked with safety concerns, such as violence, in the classroom (Sattler et al., 2019). Therefore, it may be reasonable to assume that anger should have at least the same likelihood as sadness for a referral for mental health supports. Therefore, assessing teacher emotion-referral priorities helps uncover the emotional basis behind teacher mental health referral decision-making.

This section highlighted teacher mental health referrals for aggression-related emotions and behaviors displayed by students. The types of emotions and behaviors children display may put them on a trajectory toward emotional support or punishment early on. Understanding teacher likelihood of mental health referral informs the field regarding which emotions and behaviors may be less likely to receive emotional support and therefore, perhaps, less likely to improve. Teachers may be likely to overlook the emotional basis of aggression and punish rather than support aggression-related emotions and behaviors. Focusing on the catalyst for children's access to emotional supports — teachers — is critical given the plausible disconnect between children's display of aggression-related emotions and behaviors and their recommendation for mental health support.

Study Objectives and Hypotheses

The general objective of this study was to understand the role of teacher emotionally-supportive beliefs and behaviors on aggression. Specifically, teacher responses (i.e. supportive,

unsupportive) to student emotion and teacher emotionally-supportive beliefs about aggression (i.e., effective responses, reasons, and likelihood of mental health referral) were examined. This study included both objectives associated with formal research questions (objective 2), as well as, descriptive, exploratory questions without hypotheses (objective 1). The research study objectives, questions, and hypotheses are below.

Objective 1: To understand teacher beliefs about reasons for, and effective responses to, student aggression

Research Question 1: Do teachers believe emotionally-supportive responses to aggression are as effective as punitive responses?

Research Question 2: Do teachers believe emotion expression is as likely a reason for aggression as non-emotion related reasons (e.g., attention)?

Objective 2: To examine teacher role (i.e., teacher likelihood of mental health referral and response to student emotion) in student aggression beyond individual student characteristics (i.e., sex, race, emotion dysregulation)

Research Question 3: Does teacher likelihood of mental health referral for aggression-related emotion (anger) and behavior (fighting) predict aggression, after accounting for student emotion dysregulation, sex, and race?

Hypothesis 3: There will be a negative association between teacher likelihood of referral and student aggression.

Research Question 4: Does student perception of teacher *supportive* response to student emotion predict aggression, after accounting for student emotion dysregulation, sex, and race?

Hypothesis 4: There will be a negative association between teacher supportive response to student emotion and aggression.

Research Question 5: Does student perception of teacher *unsupportive* response to student emotion predict aggression, after accounting for student emotion dysregulation, sex, and race?

Hypothesis 5: There will be a positive association between teacher unsupportive response to student emotion and aggression.

CHAPTER THREE

Method

Participants

A total of 398 fourth and fifth-grade students and 22 teachers (90.9% female) participated in this study. Eight schools (public = 5, charter = 3) were sampled across five school districts in one Midwestern state in the United States. The majority of school districts recruited had one participating school. One public school district was disproportionately represented, with 15 of the 22 participating classrooms. The average participating classroom contained 18 students (range = 13 to 28 students). The racial makeup of the student sample was majority racial-ethnic minority with 33.4% Hispanic (*n*=133), 16.3%, Black (*n* = 65), 8% other (*n* = 32), and 42.2% White (*n*=168). Student sex was evenly distributed with 204 males and 194 females. Student ages ranged from nine to 12-years-old ($\bar{x}$ = 10.3). The majority (60%) of students were in 5th grade (*n*= 237), and 40.5% (*n* = 161) of students were in 4th grade. This age group was targeted given a gap in extant literature on pre-adolescent aggression (Liu, et al., 2013) and because elementary teachers may have a higher influence on behavior of students in their class, as these students are with one classroom teacher throughout the day. The minimum number of desired participants was 300 students, and 25 classrooms, to ensure generalization of the study results to the population and a sufficient amount of power to detect an effect. To be eligible to participate, classrooms met a 65% parent consent return rate for the students in their classroom and students signed an assent agreement. The racial makeup of the teacher sample was majority White 86.4% (*n* = 19), 4.5% Black (*n* = 1), 4.5% Hispanic (*n* = 1), and 4.5% "other" (*n* = 1). The average number of years teaching for participating teachers was 10.3 years (*SD* = 10.75), and a range of

experience of 31 years. The modes for years of teaching experience were one and two years. The majority (73%) of teachers were from public schools.

Procedures

This study was approved by the University's Institutional Review Board (IRB) and was a survey research design (IRB number: 19.A.182). This study was part of a larger project on children's interpersonal emotion regulation which took place in the spring semester of 2019. Convenience sampling was used to recruit school districts based on the ethnically diverse demographics of their student population and willingness to participate. Thirty-five 4th and 5th grade classrooms from eight schools were contacted for recruitment and twenty-two classrooms participated. The average participating classroom included approximately 76% of the students in the classroom. Research was conducted in the Spring to ensure teachers and students spent ample time with each other to produce valid and reliable ratings of behavior. Teachers were informed of the study through a face-to-face meeting with one or more researchers and a letter/consent form. Parents were informed of the study through a letter/consent-form sent home by the teacher. Students with parent permission to participate completed a one-hour survey, which also measured constructs relevant to the larger study on interpersonal emotion regulation not pertinent to this study. A minimum of two researchers were present in each classroom for the administration. One researcher read half of the survey while the other researcher walked around the room checking for student errors or answering student questions. The survey administration began by providing participating students a student assent form that was read aloud and included the nature of the study and confidentiality. The non-participating students in the classroom were instructed to either complete an activity quietly at their seat or leave the room with a staff member. The survey was administered in a read-aloud fashion by researchers to eliminate error

due to reading ability differences between students. Students were given a movement break about half-way through the survey. Upon completion, all students in the participating classroom were given stationary gifts as a reward.

Teachers who met criteria to participate completed a two-part survey independently. The number of part-two surveys completed by each teacher varied by number of participating students in that teacher's classroom. Teachers were given a packet with a list of the participating students, along with the number of necessary surveys for them to complete per student. The total teacher time commitment for both parts of the survey was estimated to be a maximum of two hours and was completed over a time span of approximately two weeks. Upon completion teachers were given a $75.00 gift card.

Measures

Teacher Survey

Part-One. Teachers reported demographics (sex, race, years-teaching) and general beliefs about children's aggression-related emotions and behaviors.

Comparative Likelihood of Mental Health Referral. The likelihood of mental health referral portion of the survey consisted of two items that each asked teachers to identify which of two competing statements (A or B) described them better (see Appendix A). This format was created to the reduce the impact of response bias (Brown & Maydeu-Olivares, 2011), such as acquiescence responding where the rater responds agreeably to all questions. The first item measured teacher likelihood of mental health referral by emotion (i.e., angry v. sad). The first statement for item one read, "I am MORE likely to refer a child for mental health support* who is chronically 'sad' than a child who is chronically "angry" and the competing statement read "I am MORE likely to refer a child for mental health support* who is chronically 'angry' than a

child who is chronically '*sad*.' The term *mental health support** was defined as seeking either school-based mental health professionals (i.e., psychologist/social worker/counselor services) or talking to parents about psychological services (e.g., counseling) for the child. The second item measured teacher likelihood of mental health referral by behavior (i.e., fighting v. crying). The first statement for item two read "I am MORE likely to refer a child who is chronically 'crying' than a child who is chronically 'fighting" and the competing statement read, "I am MORE likely to refer a child who is chronically 'fighting' than a child who is chronically 'crying." A Likert scale of agreement was also included to assess the extent to which respondents agreed with their forced-choice.

The two items on this scale were informed by studies from Briesch et al. (2013) and Cunningham and Suldo (2014) measuring general teacher referral practices and internalizing and externalizing behavior referral differences. Although there are many emotions associated with aggression, certain emotions have been shown to be more strongly associated than others, namely, anger. Many behaviors can be considered aggressive; however, fighting was used because it is an easily recognizable example of aggressive behavior. In order to assess differences in teacher beliefs about the likelihood of referral for aggression-related emotions (i.e., anger) and behaviors (i.e., fighting) for mental health support the competing statements contained alternatives which were highly distinguishable from anger and fighting. Emotions and behaviors associated with internalizing problems, such as sadness and crying, were chosen to contrast the externalizing nature of aggression (Eisenberg et al., 2001; Zeman et al., 2001). It should be noted this measure was not a true measure of overall "likelihood" but rather whether teachers were more or less likely to refer certain behaviors or emotions for mental health support compared to the competing response.

Response to Aggression. The scale on teacher perception of effectiveness of responses to aggression was developed based on extant research regarding teacher responses to aggression in schools (see Appendix A). The teacher response to aggression portion of the survey asked teachers to rate how effective they believe the four responses to chronically aggressive/disruptive behavior to be via a five-point Likert scale, ranging from "1=very ineffective" to "5=very effective." The following response options were included in this scale: 1) assigning consequences like detentions/office referrals (Rosen et al., 2017; Swit et al., 2018; Boxer et al., 2006), 2) removing a privilege, 3) sending for mental health support (Andreou & Rapti, 2010), 4) talking with the student about their emotions (Kolmodin, 2007). Each item represented its own subscale response category; items were not totaled across the scale as they measured different constructs. Talking to students about their emotions has not been studied as a response to aggression in prior studies. Emotion discussion promotes emotion awareness, a central component of emotion regulation and emotion competency (Roberton et al., 2012; Mathews et al., 2016).

Reasons for Aggression. The scale to measure teacher perception of reasons for student aggression was developed based on past research on reasons for aggression (see Appendix A). The teacher perception of reason for aggression portion of the survey asked teachers to rate how likely they believe the following four reasons are that a child would chronically fight others/act aggressively on a five-point Likert scale, ranging from "1 = very unlikely" to "5 = very likely." Responses included in this scale were: 1) "to get attention" (Goldstein et al., 2001; Mavropoulou & Padeliadu, 2002), 2) "to prove themselves" (Baumeister, Smart, & Boden, 1996), "to express an emotion" (O'Hara et al., 2019), 4) "it's just what they've learned from others/no reason" (White & Kistner, 2010; Little et al., 2003; Rosen et al., 2017). Each item represented its own

subscale reason category; items were not totaled across the scale as they measured different constructs.

Part-Two. Teachers rated each participating student on emotion dysregulation and aggressive behavior.

Table 1

Summary of Variables

Report	Construct	Variable Type	Level	Scale
Teacher-Report	Teacher beliefs on aggression Reasons for aggression Response effectiveness	Continuous 1-5 Likert	N/A	Various adapted based on theory and research
	Likelihood of referral	Categorical A or B	Two	Various adapted theory and research
	Student overt aggression	Continuous 1-5 Likert	One	Child Behavior Scale (CBS)
	Student emotion dysregulation	Continuous 1-5 Likert	One	Children's Emotion Management Scale (CEMS)
Child-Report	Teacher response to student emotion[a]	Continuous 1-5 Likert	One	Coping with Children's Negative Emotions (CCNES)

[a] Teacher response to student emotion is a level-one variable as each student's response will be analyzed (i.e., responses will not be aggregated to the classroom level).

Student Emotion Dysregulation. The Children's Emotion Management Scale (CEMS) is a term used to collectively describe a combination of three emotion management scales, the CSMS

(Children's Sadness Management Scale), the CAMS (Children's Anger Management Scale), and the CWMS (Children's Worry Management Scale). The CEMS is a widely used 23-item teacher-report for children ages 7-17. The "Dysregulated-Expression" subscale of the CSMS and CAMS was used for this study (see Appendix A) and consisted of six items, measuring dysfunctional negative emotion management/regulation. The original three-point Likert scale was expanded to a five-point Likert scale for consistency across measures, with "1= never" and "5 = almost always." Dysregulated expression of anger was measured by items such as "does things like slam doors when they are mad" and dysregulated expression of sadness was measured by item such as "whines/fusses about what's making them sad."

Cronbach's alpha for the CAMS and CSMS shows adequate internal consistency with value ranges of .68 to.73 and .60 to .77, respectively (Zemen et al., 2001). Test-retest reliability is also adequate across the CAMS and CSMS ranging from .61 to .73 and .63 to .80, respectively (Zeman et al., 2001). Factor loadings for the CSMS "dysregulated-expression" subscale range from .60 to .81. Test-retest reliability for the dysregulated-expression subscales was adequate for both the CSMS (r =.63, p <.01) and the CAMS (r =.62, p <.01). The coefficient alpha was .68 for the CAMS and .60 for the CSMS suggesting adequate internal consistency (Zemen et al., 2001). This this study, reliability analysis for the "dysregulated expression" subscale of the Children's Emotion Management Scale (CEMS) reflected strong internal consistency, with a Cronbach's alpha coefficient of .83. The mean inter-item correlation was .46, with a variance of .04.

Student Aggression. The Child Behavior Scale (CBS; Ladd & Profilet, 1996) measures aggressive, withdrawn and prosocial behavior in children. The "aggressive with peers*"* subscale of the CBS was utilized for this study (see Appendix A). Teachers rated students on a five-point Likert scale of "1= never true" to "5 = almost always true" on seven items related to

aggressive tendencies, such as “fights with other children” and “is an aggressive child.” Cronbach’s alpha for the “aggressive with peers” subscale of the CBS varies from .89 to .92 (Ladd & Profilet, 1996), reflecting strong internal consistency. The “aggressive with peers” subscale of the CBS is significantly associated with observational ratings of classroom behavior (r = .39, p <.001; Ladd & Profilet, 1996), which suggests convergent validity. Further validity is demonstrated via a significant correlation of .71 with an existing validated rating scale for aggression, the Child Behavior Profile-Teacher Report Form (CBP-TRF). In this study, the reliability analysis for the “aggression with peers” subscale of the Child Behavior Scale reflected strong internal consistency, with a Cronbach’s alpha coefficient of .93. The mean inter-item correlation was .67 with a variance of .01.

Child Survey

Teacher Response to Children’s Emotions. The Coping with Children’s Negative Emotions Scale (CCNES) was originally created to measure parent responses to children’s negative emotions (Fabes et al., 1990; Fabes et al., 2002). The original scale consists of six 12-item subscales rated on a seven-point Likert scale.

In this study, the CCNES was adapted for teachers and measured teacher responses to children’s negative emotions (i.e., anger, sadness, over-excitement; see Appendix A). The scale consisted of 12 total items (i.e., four items for each of three negative emotions) rated on a five-point Likert scale of “1 = not at all true” to “5 = very true.” Students rated the emotion regulation strategies used by their teachers in response to their display of three different negative emotions (i.e., sadness, anger, over-excitement). For example, the section on teacher responses to anger read, “when I get angry at something or someone in school, my teacher…..” Students rated how true each of the following strategies were for describing their teacher’s responses to their

negative emotions: 1) punitive, 2) expressive-encouragement, 3) problem-focused, 4) minimization.

Two strategies measured supportive teacher response to each negative emotion (i.e., anger, sadness, over-excitement). Problem-focused responses reflect the degree to which teachers help the child solve the problem causing the child's distress (e.g., “my teacher helps me think of ways to solve the problem”). Expressive Encouragement responses reflect the degree to which teachers are accepting of children's negative emotional displays (e.g., “my teacher encourages me to talk about my feelings”). The supportive subscale consisted of six items.

Two strategies measured unsupportive teacher response to each type of emotion. Minimization Reaction responses reflect the degree to which teachers discount the seriousness of their children's emotional reactions or devalue their problem or distressed responses (e.g., “my teacher tells me I’m overreacting”). Punitive Reaction responses reflect the degree to which teachers use verbal or physical punishment to control children's negative emotional display (e.g., “my teacher threatens to punish me”). The unsupportive subscale consisted of six items.

Internal reliability is moderate ranging from .69 to .85 for the original parent scale; subscale reliability is as follows: punitive responses = .69, minimization responses = .78, expressive encouragement = .85, emotion-focused = .80, problem-focused = .78 (Fabes et al., 2002). Test-retest reliability, over a span of four months, was significant with correlations between subscales ranging from .56 to .83 (p <.01; Fabes et al., 2002). Construct validity is adequately demonstrated via significant correlations for many subscales in expected directions with the Interpersonal Reactivity Index (IRI), Parental Control Scale, and Parent Attitude Toward Children’s Expressiveness Scale (PACES). In this study, the reliability analysis for teacher unsupportive (punitive, minimizing) response to children’s emotion on the CCNES scale

reflected strong internal consistency with a Cronbach alpha of .83. The mean inter-item correlation was .47, with a variance of .01. Reliability analysis for the teacher supportive response to children's emotions on the CCNES reflected strong internal consistency with a Cronbach's alpha coefficient of .83. The mean inter-item correlation was .46, with a variance of .02.

Data Analysis Plan

A series of data analysis methods was conducted using the software Statistical Package for the Social Sciences (SPSS) and SAS University Edition. The frequency of missing data was examined; missing data was handled with listwise deletion. The students (n = 398) represent level-1 units and the teachers (n = 22) represent the classroom level-2 units. To account for the nested nature of the data (students nested within classrooms/teachers), which violates the assumption of independent observations, hierarchical linear modeling (HLM) was used for the research questions which were non-exploratory. HLM allows for predictors at varying levels (i.e., individual, group) to explain relationships between variables. HLM also provides more accurate predictions of standard error, confidence intervals and significance tests for multi-level data compared to non-hierarchical regression models.

Data was inspected to ensure that the assumptions of normality, homogeneity of variance, and linearity were met. Visual plots of the data were inspected to understand the relationships between variables. Residual plots were inspected to assess the influence of each classroom on the overall dataset in order to understand if the dataset is overly representative of any one classroom. Any assumption violations were reported and proper steps (i.e., corrective measures) were taken to ensure accurate interpretation of the data. The intra-class correlation (ICC) was calculated to determine the variability in aggression due to classroom membership. If the ICC was extremely

small, then group membership (i.e., classroom) may not influence aggression beyond individual differences. If there were differences in aggression accounted for by classroom membership, moving forward with multi-level models which include predictors was reasonable. Analyses for the research questions will be presented next.

Question 1. Do teachers believe emotionally-supportive responses (i.e., sending for mental health support, talking about their emotions) to aggression are more effective than punitive responses (i.e., removing privileges, detentions)?

A non-parametric repeated-measures analysis was conducted via the Friedman test and Wilcoxon signed-rank tests to analyze whether teacher beliefs about effective responses to aggression differ across the four teacher responses for student aggression. This non-parametric alternative to a one-way repeated measures ANOVA was used due to the small teacher sample size (n = 22) and because the aim to was compare four different types of responses within the overall group of responses to aggression. In this analysis, the mean values for the four teacher responses to aggression were compared to demonstrate differences in teacher beliefs about the effectiveness of each response. Each item (e.g., A. talking to a child about their emotions) represented one type of teacher response (e.g., emotion discussion) and was a subscale for teacher response. Teacher responses to each item (i.e., rating of effectiveness) indicated effectiveness for each group. All items were compared individually to other items.

Question 2. Do teachers believe emotion expression is as likely a reason for aggression as non-emotion related reasons (e.g., attention)?

The same analysis for question one will be used for question two. In this analysis, the mean values for the four related responses (i.e., teacher beliefs about reasons for aggression) were compared to demonstrate differences in teacher beliefs about the likelihood of each reason.

Each item (e.g., A. emotion expression) represented a group. Teacher responses to each item (i.e., rating of reasons) indicated likelihood for each group. All items were compared individually to other items.

Question 3. Does teacher likelihood of mental health referral for aggression-related emotion (i.e., anger vs. sadness) and behavior (i.e., fighting vs. crying) predict aggression, after accounting for student emotion dysregulation, sex, and race?

A random intercept model was fit to predict student aggression from teacher likelihood of mental health referral for anger and fighting, after accounting for student emotion dysregulation, sex, and race. This was a random intercept model (i.e., fixed slopes). In this model, the dependent variable was student aggression, and the independent variables of interest were teacher likelihood of mental health referral for anger (X_1) and teacher likelihood of mental health referral for fighting (X_2). Student emotion dysregulation, race, and sex were covariates. Student aggression was a level-1 continuous variable rated by teachers for each student. Teacher likelihood of mental health referral for anger and fighting are level-2, binary, forced-choice, categorical variables rated by each teacher, coded as follows: anger = 1, sadness=0 and fighting = 1, crying = 0. Male sex was coded as 0. The correlation between teacher likelihood of mental health referral for fighting and teacher likelihood of mental health referral for anger was relatively low and insignificant, indicating they can be fit in the model together without multicollinearity issues (r = .38, p = .08).

The formula for this hierarchical linear model was:

$$AGG_{ij} = \gamma_{00} + \gamma_{01}REFANG_j + \gamma_{02}REFAGG_j\ \gamma_{10}EMDYS_{ij} + -\gamma_{20}SEX_{2ij} + -\gamma_{30}RACE_{3ij} + U_{0j} + R_{ij}.$$

The variable AGG_{ij} represented the aggression level for student "i" in classroom "j." γ_{00} represented the average intercept across all groups, which was the average aggression level (Y)

for a male student with average emotion dysregulation and classroom problematic aggression, with a teacher who was more likely to refer sadness (coded 0) over anger (coded 1) for mental health referral (Z_1) and crying (coded 0) over aggressive behavior (coded 1) for mental health referral (Z_2). The variables REFANG and REFAGG were the predictors for the intercept and the coefficients of interest. $\gamma_{01}\text{REFANG}_j$ represented the between-group effect (level-2 effect) of teacher likelihood of anger for mental health referral (Z_1) on student aggression (Y). $\gamma_{02}\text{REFAGG}_j$ represented the between-group effect (level-2 effect) of teacher likelihood of aggressive behavior for mental health referral (Z_2) on student aggression (Y). $\gamma_{10}\text{EMDYS}_{ij}$, $\gamma_{20}\text{SEX}_{2ij}$, and $\gamma_{30}\text{RACE}_{3ij}$ and represented $X_{1,}$ $X_{2,}$ and X_3 respectively, and were the covariates of student emotion dysregulation, student sex, and race. U_{0j} represented the intercept group effect which was the unexplained variability due to random variability among the classroom intercepts. R_{ij} represented the residual or error prediction of aggression in a student "i" in a classroom "j" when using this model.

To measure model fit, the fixed parameters were tested using a Likelihood ratio test with maximum-likelihood estimation. The chi-square value was computed by subtracting the deviance of a model with one less parameter (D_0) from the deviance of this model (D_1), or $D_0. - D_1$. The degrees of freedom were estimated by subtracting the number of parameters in this model (M_1) by the number of parameters in a model with one less parameter (M_0). In this model, the comparison was between a model with two level-2 predictors for the intercept and a model with one level-2 predictor. The *p*-value for the chi-square test was computed by using an online calculator from Dr. Daniel Soper's website: www.danielsoper.com. This test indicated whether the data fit this model best or whether a less complex model estimated the outcome just as well, in which case the less complex model should be used following the rule of parsimony. The Wald

test was also used to determine relationships (i.e., slopes) between variables.

To test the random intercept, a modified likelihood ratio test was used. The test statistic was computed by subtracting the deviance of the current model from a model with one less random parameter from (D_0 - D_1); a model with zero random effects (i.e., a model without a random intercept). The test statistic followed a chi-squared distribution with df =1. The p-value was calculated by dividing the p-value from the chi-squared distribution (χ_1^2) by two. This indicated whether there was statistically significant variability of aggression across the classrooms, given the predictors in this model. Results of this test indicated whether the fixed and random parameters in the model are statistically justified or whether a different (e.g., simpler) model fit the data better.

Question 4. Does student perception of teacher supportive response to student emotion predict student aggression, after accounting for student emotion dysregulation, sex, and race?

A random intercept model was fit to predict student aggression from supportive teacher response to student emotion, after accounting for student emotion dysregulation, student sex, and race. In this model, the dependent variable was student aggression, and the independent variable of interest was supportive teacher response to student emotion. Student emotion dysregulation, sex and race were covariates.

The formula for the hierarchical linear model was:

$AGG_{ij} = \gamma_{00} + \gamma_{10}TSUPRESPONSE + \gamma_{20}EMDYS_{1ij} + + \gamma_{30}SEX_{3ij} + \gamma_{40}RACE_{4ij} + U_{0j} + R_{ij}$. The models assumed grand-mean centered variables (x and z = 0 = mean construct value) which assisted with meaningful interpretation of results. AGG_{ij} represented the aggression-level for a student “i” in classroom “j.” Y_{00} represented the average intercept across all groups, which was

the average aggression level (Y) for a white, male student with average emotion dysregulation from a classroom with average levels of teacher supportive response to emotion strategies (X_1). γ_{10}TSUPRESPONSE$_j$ represented the main effect coefficient which was the predicted change in student aggression as teacher use of supportive responses to emotion increased by one unit, for a white, male student, with average emotion dysregulation. γ_{20}EMDYS$_{ij}$, γ_{30}SEX$_{3ij}$ and γ_{40}RACE$_{4ij}$ represent $X_{2,}$ X_3 and X_4 respectively, and are the covariates of student emotion dysregulation, student sex, and student race.

The same procedures described for question three was applied to compute statistical significance using likelihood ratio tests for the fixed effects, modified likelihood ratio tests for the random intercept, and the Wald test for relationships (i.e., slopes) between variables.

Question 5. Does student perception of teacher unsupportive response to student emotion predict aggression, after accounting for student emotion dysregulation, sex, and race?

A random intercept model was fit to predict student aggression from unsupportive teacher response to student emotion, after accounting for student emotion dysregulation, student sex, and race. In this model, the dependent variable was student aggression, and the independent variable of interest was unsupportive teacher response to student emotion. Student emotion dysregulation, sex and race were covariates.

The formula for the hierarchical linear model was:

AGG$_{ij}$ = γ_{00} + γ_{10}TUNSRESPONSE + γ_{20}EMDYS$_{1ij}$ -+ γ_{30}SEX$_{3ij}$ + γ_{40}RACE$_{4ij}$ + U_{0j} + R$_{ij}$. The models assumed grand-mean centered variables which assisted with meaningful interpretation of results. AGG$_{ij}$ represents the aggression-level for a student "i" in classroom "j." Y$_{00}$ represents the average intercept across all groups, which was the average aggression level (Y) for a white, male student with average emotion dysregulation from a classroom with average levels of

teacher unsupportive response to emotion strategies (X_1). γ_{10}TUNSRESPONSE$_j$ represented the main effect coefficient which was the predicted change in student aggression as teacher use of unsupportive responses to emotion increases by one unit, for a white, male student, with average emotion dysregulation. γ_{20}EMDYS$_{ij}$, γ_{30}SEX$_{2ij}$ and γ_{40}RACE$_{4ij}$ represent $X_{2,}$ X_3 and X_4 respectively, and were the covariates of student emotion dysregulation, sex, and race.

The same procedures described for question four was applied to compute statistical significance using likelihood ratio tests for the fixed effects, modified likelihood ratio tests for the random intercept and the Wald test for slopes.

CHAPTER FOUR

Results

Data Screening

Data were entered by two independent researchers to check for accuracy. Screening of data revealed no data outside of the range of possible values for any variable. Missing data were also minimal with one or two missing values in the study variables.

Assumptions

Assumptions were checked regarding normality, linearity, and homogeneity of variance. Multicollinearity among predictors and influence was also examined. In terms of normality, frequency distributions inspected via histogram, as well as skewness and kurtosis values, revealed all hierarchical linear model (HLM) variables to show non-normal distributions with the exception of teacher supportive response to student emotion (M = 3.22, SD = 1.02), which appeared normally distributed. With large samples, non-normal distributions are not likely to cause substantial differences in the analysis (Tabachnick & Fidell, 2013) and given the amount of skew the variables appear to be sufficiently understood through means and standard deviations.

Child emotion dysregulation showed positive skewness, indicating a low number of children reported to demonstrate high levels of emotion dysregulation (M = 1.76, SD = .79). Child aggression showed positive skewness, indicating a low number of children reported to demonstrate high levels of aggression *(*M=1.50, SD = .69). The five children with the highest aggression ratings were spread across five separate classrooms, and only fourteen children were rated with total aggression scores of three or higher (e.g., individual scores of three represent aggressive behavior occurring “sometimes”). Teacher unsupportive response was positively

skewed, indicating a low number of children reported teachers with high levels of unsupportive responses (M = 1.68, SD = .83). The boxplot for teacher unsupportive response shows 14 teachers with outlier unsupportive ratings from students between 2 ("slightly true") and 5 ("very true"). Outliers appear to be accurate measurements of unique cases, rather than errors, and will therefore be included. Visual inspection of the teacher-only (i.e., part one) survey variables suggested normality across most items, with negative skew on the emotionally-supportive items (i.e., likelihood of emotion expression as a reason for aggression: M = 4.50, SD =.51; emotion discussion effectiveness: M = 4.45, SD = .60), suggesting high levels of teacher endorsement for emotionally-focused beliefs about aggression.

To assess linearity, scatterplots were visually inspected with a focus on the fitted loess line to assess linearity of variable relationships. Residual deviations do not appear to be systematic, and it appears reasonable to conclude that variable relationships are best represented by a linear model.

The assumption of homogeneity of variance appears to be met through visual inspection of scatterplots showing residuals at predicted levels of Y, as there appears to be no systematic relationship among the variance of the predictor values and the values of the outcome variable. The spread of data across values of aggression appears to be consistent. Multicollinearity (i.e., correlations of .70 or higher; Dormann et al., 2013) does not appear to be present, as relationships among predictor variables ranged from - .01 to .28.

Cook's D was used to assess influence of individual classrooms on results. One class showed an unusually large Cook's D value (.38) compared to the other classes in the sample. This classroom included 21 students, which was above average for the sample but was not the largest classroom. Values for this classroom were inspected and do not appear to be the result of

data entry errors, therefore, the data was included.

Intra-Class Correlation

The intra-class correlation (ICC) was calculated for an empty model to determine the variability in aggression due to classroom membership. If the ICC is extremely small, then group membership (i.e., classroom) may not greatly influence aggression beyond individual differences. More recently multi-level modeling is recommended for clustered data even with very low ICCs (e.g., .01; Huang, 2018). The ICC suggested differences in aggression accounted for by classroom membership and therefore moving forward with multi-level models which include predictors is reasonable and necessary. The ICC was .11, which suggests approximately 11% of the variability in student aggression is due to the classroom a child belongs to. The ICC is the effect of classroom on individual student aggression differences.

Model Specification

Random intercept models were chosen for this study as levels of student aggression were expected to vary by classroom, and classroom influence (i.e., teacher response) on aggression was a main focus in this study. Interactions between predictors were checked to make sure interactions were modeled correctly if they exist. An interaction between emotion dysregulation and race was found across HLM models. This suggested that the effect of emotion dysregulation on aggression varied, or was moderated, by race. Specifically, the relationship between emotion regulation and aggression was stronger for Black students than for White students. A cross-level interaction was found between teacher likelihood of mental health referral for fighting and student emotion dysregulation for model 1 (i.e., research question three) of the HLM models, however the *p*-value was rounded to .05 and was therefore considered insignificant. Teacher

supportive response had an interaction with emotion dysregulation for model 2 (i.e., research question 4), however the *p*-value was rounded to .05 and was therefore considered insignificant.

Preliminary Analysis

Teacher comparative likelihood of mental health referral for aggression-related emotion and behavior

Teachers appeared to be more likely to refer children for mental health support who demonstrate aggression-related behaviors compared to non-aggressive behaviors, but not more likely to refer children for aggression-related emotion (i.e., anger) compared to emotions less related to aggression (i.e., sadness). Descriptively, an equal number of teachers indicated being more likely to refer children displaying anger (n = 11) for mental health support as did those who indicated they would be more likely to refer a child displaying sadness (n = 11), when comparing the likelihood of anger versus sadness referrals. That is, teachers showed a similar likelihood of referral for mental health support for a characteristic emotion of aggression (i.e., anger) compared to an emotion less associated with aggression (i.e., sadness). In terms of aggressive behavior, the majority of teachers (i.e., 64%) reported being more likely to refer an aggressive behavior (i.e., fighting; n = 14) for mental health support compared to a non-aggressive behavior (i.e., crying; n = 8).

Correlations between Teacher Beliefs about Reasons for Aggression and Effective Responses

Amongst the reasons for aggression, attention and proving oneself had a significant, positive correlation (r = .64). No other reasons had significant correlations. No significant correlations were found amongst responses to aggression. The following correlations were significant between teacher beliefs about reasons for aggression and effective responses: talking about emotions and attention (r = .60), removing privileges and social learning (r = .56),

detention and social learning (r = .50), removing privileges and proving oneself (r = .44; See table 3). Teachers who believed that punitive responses were effective like detention or removing privileges were more likely to believe that aggression occurs because children have learned it from others (i.e., social learning) or to prove themselves socially. Teachers who believe that the emotionally-supportive response of talking to children about emotions was effective in response to aggression were more likely to believe aggression occurs because children want attention.

Table 2

Correlations for Teacher Belief Variables

Variable	1	2	3	4	5	6	7
Aggression reason beliefs							
1. Emotion Expression	1						
2. Attention	.39						
3. Social Learning	.09	.40					
4. Prove oneself	.33	.64**	.25				
Aggression response beliefs							
5. Talking about emotions	.31	.60**	.09	.34			
6. Mental health support	.07	.07	-.26	-.27	.42		
7. Removing privileges	.41	.32	.56**	.44*	.19	-.35	
8. Detention	.21	.17	.50*	.001	-.12	-.01	.35

[a] $p < .05$. **$p < .01$

Race Effects

Aggression. A one-way ANOVA indicated a statistically significant difference in aggression by race F (3, 394) = 13.91, $p < .001$. The effect size, calculated using eta squared, was .10 indicating a medium effect (Cohen, 1988). Post-hoc comparisons using the Tukey test indicated the mean aggression score for Black students (M = 1.94, SD = .83) was significantly higher than Hispanic (M = 1.32, SD = .70) and White students (M = 1.45, SD = .66). The other racial groups did not significantly differ on aggression.

Emotion Dysregulation. A one-way ANOVA indicated a statistically significant difference in emotion dysregulation by race, F (3, 393) = 7.37, $p < .001$. The effect size, calculated using eta squared, was .05 indicating a small approaching medium effect. Post-hoc comparisons using the Tukey test indicated the mean emotion dysregulation score for Black students (M = 2.02, SD = .86) was significantly higher than the mean emotion dysregulation score for White students (M = 1.45, SD = .66). Additionally, the mean emotion dysregulation score for Hispanic students (M = 1.53, SD = .63) was significantly higher than for White students. The other racial groups did not significantly differ on emotion dysregulation.

Teacher supportive response. A one-way ANOVA indicated insignificant differences in teacher supportive response to student emotion by race, F (3, 392) = 2.72, p = .05.

Teacher unsupportive response. A one-way ANOVA indicated a statistically significant difference in teacher unsupportive response to student emotion by race, F (3, 393) = 9.47, $p < .001$. The effect size, calculated using eta squared, was .07 indicating a medium effect. Post-hoc comparisons using the Tukey test indicated the mean unsupportive teacher response to emotion score for Black students (M = 2.13, SD = 1.09) was significantly higher than White

students (M = 1.65, SD = .72) and Hispanic students (M = 1.50, SD = .70). The other racial groups did not significantly differ on teacher unsupportive response to emotion.

Overall, results suggested students who were Black were rated by teachers as more aggressive than both White and Hispanic students, and as more emotionally dysregulated than White students but not Hispanic students. Hispanic students were also rated as more emotionally dysregulated than White students but not to the extent of Black students. Black students rated teachers as more unsupportive to their emotions than White or Hispanic students. Although race was not a main focus of this study, race effects were analyzed to provide background regarding the data in this study and how it may have been influenced by race as an effort to provide information which may be helplful for other researchers in addressing inequities in education.

Aggression differences across classrooms

The between-group variance (i.e., intercept) of aggression amongst the classrooms was .05. The within-group variance was .42, which represents the differences in aggression within classrooms. Results suggested that the differences in student aggression within classrooms was much larger than the differences in aggression between classrooms.

Model fit for HLM analysis

In terms of model fit, statistical, and theoretical rationale was used to consider the relevance of predictors. Extant research suggests that the covariates of student race (Underwood et al., 2009), sex (Lansford et al., 2012) and emotion dysregulation (Rohlf et al., 2017) are predictive of childhood aggression. Scatterplots and inferential analysis, as well as extant literature on variable relationships, were examined. Models were fit using Snijders and Bosker R^2 values and AICC to understand contribution of predictors in reducing unexplained variability in the outcome variable without overfitting (see Table 3).

Emotion dysregulation as an individual predictor accounted for a significant portion of the explained variation in aggression compared to the other variables ($R^2 = .57$), further suggesting the importance of emotion dysregulation in the model. Although student sex showed a small R^2 (.02), sex was retained in the model for theoretical reasons. Student race showed a small but relatively larger R^2 value(i.e., .07) as an individual predictor than student sex and was retained in the model for both theoretical and statistical reasons (i.e., race was a significant predictor of aggression in further analysis).

Model fit comparisons suggested that, in general, as variables were added to build the models for this study, the AICC decreased and the variance in the outcome variable (i.e., aggression) explained by the model (i.e., R^2) increased, suggesting improved predictions of aggression. The exception was the variables of interest for research question three (i.e., aggressive behavior referral, anger referral) which showed an opposite pattern (i.e., increased AICC, decreased R^2).

The variables of interest for research question three (i.e., aggressive behavior referral and anger referral) demonstrated the same R^2 as did a model with only the covariates of sex, race, emotion dysregulation and the race by emotion dysregulation interaction, suggesting adding the variables of interest to the model did not increase the prediction of aggression. Additionally, the AICC increased with the addition of the variables of interest (i.e., aggressive behavior referral, anger referral) from 444.9 for a model with just the covariates to 445.3 for a model including both aggressive behavior referral and anger referral, suggesting a less well fit model when taking into account model complexity. The variables of interest for research question four and five (i.e., teacher supportive and unsupportive responses to student emotion respectively) increased R^2 slightly and reduced AICC (see Table 3, Models 6, 13, & 14). Reduced AICC suggests increased

prediction of aggression and better model fit when the variables of interest for research question four and five (i.e., teacher supportive response, teacher unsupportive response) were added to the model. Specifically, the addition of teacher supportive response to emotion in the model increased R^2 to .63 from .61 for a model with just the covariates and the AICC reduced to 428.3 from 444.9 in a model with just covariates. The addition of teacher unsupportive response to emotion as a predictor for aggression increased R^2 to .63 from .61 for a model with just the covariates and the AICC reduced to 428.1 from 444.9 in a model with just covariates.

Table 3

Model Fit Comparison for Hierarchical Linear Modeling

Model	# of predictors	Predictors	σ^2	τ_0^2	*S&B* R^2	AICC
1	1	None	.41	.05	0.00	812.1
2	1	Race	.40	.03	.07	791.7
3	1	Sex	.40	.05	.02	804.4
4	1	Emotion dysregulation	.17	.03	.57	460.0
5	2	Race, Sex	.38	.03	.11	781.8
6	3	Race, Sex, Emotion Dysregulation	.16	.02	.61	444.9
7	4	Race, Sex, Emotion Dysregulation, Teacher Unsupportive Response	.15	.02	.63	428.1
8	4	Race, Sex, Emotion Dysregulation, Teacher Supportive Response	.15	.02	.63	428.3
9	4	Race, Sex, Emotion Dysregulation, Aggressive Behavior Referral	.16	.02	.61	445.8

10	4	Race, Sex, Emotion Dysregulation, Anger Referral	.16	.02	.61	446.1
11	5	Race, Sex, Emotion Dysregulation, Aggressive Behavior Referral, Anger Referral	.16	.02	.61	445.3
12	6	Race, Sex, Emotion Dysregulation, Emotion Dysregulation*Race, Aggressive Behavior Referral, Anger Referral	.16	.02	.61	437.2
13	5	Race, Sex, Emotion Dysregulation, Emotion Dysregulation*Race, Teacher Supportive Response,	.15	.02	.63	421.4
14	5	Race, Sex, Emotion Dysregulation, Emotion Dysregulation*Race, Teacher Unsupportive Response	.15	.02	.63	421.2

Note. Slopes are fixed.

Correlations among individual-level, hierarchical linear model variables

Aggression was significantly correlated with emotion dysregulation (r = .76), teacher unsupportive response to student emotion (r = .33), and student sex (r = -.15), with males scoring higher than females. Student sex was also significantly correlated with emotion dysregulation (r = -.18), and student perception of teacher unsupportive response to student emotion (r = -.11), again with males scoring higher than females. Supportive and unsupportive teacher response to student emotion showed a significant inverse relationship (r = -.10). Overall,

the correlations were in expected directions (see Table 4).

Table 4

Means, Standard Deviations, Skewness, Kurtosis, and Correlations of Hierarchical Linear Model Variables

Variable	M	SD	Skew.	Kurt.	1	2	3	4	5
1. Sex	-	-	-	-	-				
2. Emotion dysregulation	1.76	.79	1.03	.33	-.18**	-			
3. Aggression	1.50	.69	1.63	2.28	-.15**	.76**	-		
4. Unsupportive response	1.68	.83	1.74	2.71	-.11*	.28**	.33*	-	
5. Supportive response	3.22	1.02	-.26	-.75	.01	.10	-.01	-.10*	-

Note. *$p < .05$. **$p < .01$

Primary Analysis

Research Question One: Do teachers believe emotionally-supportive responses to aggression are more effective than punitive responses?

A Friedman test with Wilcoxon signed-rank tests was conducted for this question. The Friedman test showed significant differences amongst teacher beliefs about effective responses for aggression across the four response types (i.e., emotion discussion, mental health referral, privilege removal, detention), $\chi^2 (3, n = 22) = 38.60$, $p < .001$ (see Table 5). Results of the Wilcoxon signed-rank tests indicated that teachers believed emotionally supportive responses (i.e., emotion discussion, referral to mental health support) were significantly more effective than punitive responses (i.e., detention, privilege removal) to aggression. Specifically, all the following rank comparisons were significant with large effect sizes: detention and emotion discussion z = -3.86, $p < .001$, $r = .58$ (i.e., large effect size using z-value to compute; Cohen et al, 1988); privilege removal and emotion discussion z = -3.66, $p < .001$, $r = .55$; detention and

mental health support z = -3.47, $p < .001$, $r = .50$. The comparison between privilege removal and mental health support (z = -1.66, $p = .10$) was insignificant. Overall, emotion discussion was ranked as the most effective response to student aggression; higher than both the other supportive response (i.e., referral to mental health support), and the punitive responses of detention and privilege removal. Table 5 summarizes the means, standard deviations, and mean-ranks across the effective responses to aggression variables, as well as the results of the Friedman test.

Table 5

Teacher Beliefs about Effective Responses to Student Aggression

Variable	*M*	*SD*	*Mean Rank*	$\chi^{2\,a}$	*p*
Detention	2.64	.90	1.45		
Privilege Removal	3.41	.80	2.25		
Mental Health Support	3.86	.84	2.75		
Emotion Discussion	4.45	.60	3.55		
				38.60	.001

Note. 1 = very ineffective, 2 = ineffective, 3 = somewhat effective, 4 = effective, 5 = very effective.
[a] χ^2 =Friedman's Q

Research Question Two: Do teachers believe emotion expression is a more likely reason for aggression than non-emotion-related reasons (e.g., attention)?

A Friedman test with Wilcoxon signed-rank tests was conducted to answer this question. The Friedman test showed significant differences amongst teacher beliefs about reasons for aggression across the four responses (i.e., emotion expression, attention, proving oneself, social learning), $\chi^2(3, n = 22) = 23.81$, $p < .001$ (see Table 5). Results of the Wilcoxon signed-rank tests indicated that teachers believed emotion expression was a significantly more likely reason

for aggression than non-emotion related reasons (i.e., attention, proving oneself and social learning (i.e., learned from others). Specifically, all the following rank comparisons were significant with large effect sizes: attention and emotion expression, z = -2.97, $p < .001$, $r = .45$; proving oneself and emotion expression, z = -3.34, $p < .001$, $r = .50$; social learning and emotion expression, z = -3.65, $p < .001$, $r = .55$. Table 6 summarizes means, standard deviations, and mean ranks across the reasons for aggression variables, as well as the results of the Friedman test.

Table 6

Teacher Beliefs about Reasons for Student Aggression

Variable	*M*	*SD*	*Mean Rank*	$\chi^{2\,a}$	*p*
Social learning	3.20	1.00	1.84		
Proving oneself	3.64	.85	2.27		
Attention	3.68	1.10	2.43		
Emotion Expression	4.50	.51	3.45		
				23.81	.001

Note. 1= very unlikely, 2 = unlikely, 3 = somewhat likely, 4 = likely, 5 = very likely.
[a] χ^2 =Friedman's Q

Research Question Three: Does teacher comparative-likelihood of mental health referral for aggression-related emotion (i.e., anger vs. sadness) and behavior (i.e., fighting vs. crying) predict student aggression?

Model 1. Hierarchical linear modeling was used to evaluate this question including both Likelihood Ratio (i.e., deviance) and Wald tests. To recap, the primary question of interest was if teacher likelihood of mental health referral for anger (over sadness) and fighting (over crying) predicted student aggression. The effects of mental health referral for aggression-related emotion

and behavior on student aggression were evaluated based on a series of Likelihood ratio tests. Relationships (i.e., slopes) between independent and dependent variables were determined via Wald tests.

First, the effect of teacher likelihood of referral for anger (over sadness) on aggression was evaluated by comparing a model with the covariates (emotion dysregulation, sex, race), a race by emotion dysregulation interaction, and one level-two variable of interest (likelihood of referral for fighting), to a model with both level-two variables of interest (likelihood of referral for *fighting* and for *anger*) along with the covariates and the interaction. If the more complex model (i.e., the model with both level-two predictors) fit the data better, after accounting for model complexity, it indicated that teacher likelihood of referral for *anger* aided significantly in the prediction of aggression in this model. The Likelihood ratio chi-square result was not significant [χ^2 *(1,* 293*)*= 2.37, p = .12, D_0=412.66 - D_1=410.29], indicating that teacher likelihood of referral for *anger* (over sadness; β = -.12, p = .12) was not a significant predictor of student aggression, after accounting for the other variables in the model (see Table 7). This model assessed the unique contribution of referral for anger on aggression after accounting for covariates and the other level-two variable (referral for fighting) in the model.

Next, another Likelihood ratio test was conducted to test whether a model with one level-two predictor (i.e., teacher likelihood of referral for *fighting*) improved the prediction of aggression compared to a model with no level-two predictors. Teacher likelihood of referral for fighting (over crying) on aggression was evaluated by comparing a model with just the covariates (student sex, race, emotion dysregulation) and the race by emotion dysregulation interaction, to a model with the covariates, the interaction, and teacher likelihood of referral for fighting. If the model including teacher likelihood of referral for fighting fit the data better, it

indicated that teacher referral for fighting aided significantly in the prediction of aggression over and above the other variables in the model. This model assessed the unique contribution of referral for fighting on aggression after accounting for covariates in the model. The Likelihood ratio chi-square result was not significant, [χ^2 (*1*, *n* =293*)* = 1.21, *p* =.27, D_0=413.87 - D_1=412.66], suggesting that a model with no level-two predictors (i.e., without teacher likelihood of referral for aggression-related emotions and behaviors) fit the data better than a model with one level-two predictor (i.e., teacher likelihood of referral for fighting), when taking into account model complexity. Teacher likelihood of referral for fighting (over crying; β = -.15, *p* = .12), was not a significant predictor of aggression after accounting for the covariates. However, teacher likelihood of mental health referral for fighting was a significant predictor of student aggression when it was the only predictor in the model (β = -.25, *p* = .03), with a negative association. Level-two variables were also tested in the opposite order, so that likelihood of referral for anger was tested against a model including the other level-two variable (i.e., likelihood of referral for fighting). However, this model was also was an insignificant predictor of student aggression.

Overall, results suggested that teacher relative likelihood of mental health referral for fighting and for anger did not significantly improve the prediction of student aggression after accounting for student sex, race, emotion dysregulation, and the race by emotion dysregulation interaction. Hypothesis three was not supported because teacher likelihood of mental health referral for aggression-related emotion and behavior was not a significant predictor of aggression over and above the covariates and the interaction.

Table 7

Fixed-effects and variance estimates for model 1; mental health referral as a predictor of student aggression

Parameter	β	*p*
	Fixed Effects	
Intercept	.34	*< .001*
Level 1		
Sex (male = 0)	.07	*.10*
Race (white = 0)		
Black	-.11	*.45*
Hispanic	.18	*.18*
Other	.13	*.48*
Emotion dysregulation (ED)	.61	*< .001*
Race*ED		
Black*ED	.23	*< .001*
Hispanic*ED	-.06	*.41*
Other*ED	-.03	*.74*
Level 2		
Teacher referral for anger	.12	*.15*
Teacher referral for fighting	-.15	*.12*
Random parameters		
τ_{00}	.02	*.01*

τ_{00} = variability in aggression across classrooms (i.e., intercept variability).

Research Question Four: Does student perception of teacher supportive response to student emotion predict aggression, after accounting for student emotion dysregulation, sex, race, and a race by emotion dysregulation interaction?

Model 2. Hierarchical linear modeling was used to evaluate this question. The effects of teacher *supportive* response to emotion (expressive-encouragement, problem-focused, e.g., "my teacher helps me think of way to feel better") on aggression was evaluated by comparing a model

with the covariates (student emotion dysregulation, race, sex) and a race by emotion dysregulation interaction, to a model with the covariates, the interaction, and teacher supportive response. The Likelihood ratio test suggested student perception of teacher *supportive* response to student emotion was a significant predictor of aggression [χ^2 (*1*, 293) = 17.3, $p < 0.001$, D_0 = 413.9 - D_1 = 396.6], after accounting for student emotion dysregulation, sex, race, and a race by emotion dysregulation interaction (see Table 8). The relationship between teacher supportive response and student aggression was inversed ($\beta = -0.06$, $p = .01$), suggesting that teacher supportive response to student emotion was negatively associated with student aggression. That is, as teacher supportive response to emotion increased student aggression decreased.

The slope for student perception of teacher supportive response suggested that aggression was predicted to decrease by .06 ($p < .01$), for each one unit increase in student perception of teacher supportive response for a male in a randomly selected classroom after accounting for sex, race, emotion dysregulation, and the race by emotion dysregulation interaction.

Overall, results suggested that student perception of teacher supportive response to student emotion aids significantly in the prediction of aggression, after accounting for student emotion dysregulation, sex, race, and a race by emotion dysregulation interaction. Hypothesis four, that student perception of teacher supportive response to emotion is a significant predictor of student aggression in this model, was supported.

Table 8

Fixed-effects and variance estimates for model 2; supportive response to emotion as a predictor for student aggression

Parameter	β	*p*
	Fixed Effects	
Intercept	.48	*< .001*
Sex (male = 0)	.06	*.12*
Emotion dysregulation (ED)	.63	*< .001*
Race (white = 0)		
Black	-.07	*.66*
Hispanic	.14	*.29*
Other	.13	*.48*
Race*ED		
Black*ED	.21	*< .001*
Hispanic*ED	-.06	*.43*
White*ED	-.03	*.75*
Teacher supportive response	-.06	*< .001*
Random parameters		
τ_{00}	.02	*.01*

τ_{00} = variability in aggression across classrooms (i.e., intercept variability).

Research Question Five: Does student perception of teacher unsupportive response to student emotion predict aggression, after accounting for student emotion dysregulation, sex, race, and a race by emotion dysregulation interaction?

Model 3. Hierarchical linear modeling was used to evaluate this question. The effects of teacher *unsupportive* response to emotion (punishment and minimization, e.g., "my teacher threatens to punish me" or "tells me I'm overreacting") on aggression was evaluated by comparing a model with covariates (student emotion dysregulation, sex, race) and the race by emotion dysregulation interaction, to a model with covariates, the interaction, and teacher

unsupportive response. The Likelihood ratio test suggested that student perception of teacher unsupportive response to student emotion significantly predicted aggression (χ^2 [*1*, 293] = 17.5, $p < 0.001$), $D_0 = 413.9 - D_1 = 396.4$), after accounting for student emotion dysregulation, sex, race, and a race by emotion dysregulation interaction (see Table 9). The relationship between teacher unsupportive response to emotion and student aggression was positive ($\beta = .08$, $p < .001$), suggesting that as teacher unsupportive response to student emotion increased, student aggression increased.

The slope for student perception of teacher unsupportive response suggested that aggression was predicted to increase by .08 ($p < .01$), for each one unit increase in student perception of teacher unsupportive response for a male in a randomly selected classroom after accounting for sex, race, emotion dysregulation, and the race by emotion dysregulation interaction.

Results suggested that student perception of teacher unsupportive response to student emotion aids significantly in the prediction of aggression after accounting for student emotion dysregulation, sex, race, and a race by emotion dysregulation interaction. Overall, hypothesis five, that student perception of teacher unsupportive response to emotion is a significant predictor of higher levels of aggression, was supported in this model.

Table 9

Fixed-effects and variance estimates for model 3; teacher unsupportive response as a predictor for student aggression

Parameter	β	*p*
	Fixed Effects	
Intercept	.20	*.04*
Sex (male = 0)	.06	*.13*
Emotion dysregulation (ED)	.61	< *.001*
Race (white = 0)		
Black	-.08	*.60*
Hispanic	.18	*.18*
Other	.15	*.40*
Race*ED		
Black*ED	.20	< *.001*
Hispanic*ED	-.07	*.34*
Other*ED	-.04	*.64*
Teacher unsupportive response	.08	< .001
Random parameters		
τ_{00}	.02	*.01*

τ_{00} = variability in aggression across classrooms (i.e., intercept variability).

CHAPTER FIVE

Discussion

Teacher beliefs about emotionally-supportive and punitive responses to aggression

Teachers reported that emotionally-supportive responses were more effective than punitive responses to aggression. Specifically, teachers reported discussion about a child's emotions to be most the effective response to aggression, more effective than the other supportive response option of referral for mental health support, and the punitive response options of detention or privilege removal. The least effective response to aggression reported by teachers was detention. According to the means, teachers rated emotion discussion as between "effective" and "very effective," referral for mental health support and privilege removal as between "somewhat effective" and "effective," and detention as between "ineffective" and "somewhat effective". Findings suggested that in the school setting, interventions for chronically aggressive children that are emotionally-supportive are more likely to be perceived as effective by teachers. This finding adds to the argument that aggression is an emotionally-fueled behavior (Donahue et al., 2014), which may be best addressed with interventions that focus on the core underpinnings of aggressive behavior, emotions.

Findings are consistent with extant literature by Andreou and Rapti (2010) which found that teachers prefer supportive over punitive responses to behavior problems via survey on teacher attributions using vignettes. However, findings are in contrast with studies on teacher beliefs from Troop-Gordon and Ladd (2015), Swit et al. (2018) and Rosen et al. (2017) which all found that teachers prefer punitive approaches for problem behaviors. Key differences between these studies, such as, grade level taught (e.g., early childhood centers vs. elementary school), focus of study (e.g., bullying vs. problem behavior or aggression), and measurement tools (e.g.,

focus groups and interviews vs. teacher-report) may be related to divergent findings. Preferences for punitive responses by teachers in bullying research (Rosen et al., 2017) may suggest that interpersonal aggression between children is dealt with more punitively than other types of aggression. While punishment may be effective toward changing problem behavior, chronic aggressive behavior may require emotionally-supportive intervention.

This finding brings to question a few points, such as, if teachers find punitive strategies such as detentions to be ineffective, and if they believe that emotionally-supportive interventions are more effective for children who are chronically aggressive, why does punishment continue to be more pervasive in education settings? Strategies like detention and suspension are still widely used in response to behaviors such as aggression (Kern et al., 2017) and between 5-13% of K-12 students have been suspended or expelled, according to state-wide estimates (Burke & Nishioka, 2014, as cited in Waschbusch et al., 2019). The focus of intervention for children with emotional-behavioral disabilities in special education is often on the overt behavior rather than the internal distress that likely triggers the behavior, despite the fact that both externalizing and internalizing problems are often present in children with behavioral difficulties (Reddy et al., 2009). Additionally, as previously stated, in Wisconsin historically less than half of behavior intervention plans included supportive strategies and many were solely focused on punitive strategies (Van Acker et al., 2005).

One reason why supportive strategies may be overlooked is that there is a lack of mental health resources in schools, giving teachers no other option to address aggression other than punishment, like detention or removing privileges. Punishment may be perceived as an easier (Kern et al., 2017) and less resource intensive option, at least in the short-term, than supportive strategies. For example, suspending a child from school involves no support from the school,

whereas, paying a mental health professional to provide evidence-based intervention to reduce emotion dysregulation is expensive. Another reason why punitive strategies may continue to be pervasive is that there may be a disconnect between what teachers believe about aggression and their behaviors during aggressive episodes, which make them more likely to consider a punitive option in that moment rather than a supportive one. Lastly, perhaps although teachers may believe supportive responses are more effective, the difference in student behavior change with either intervention is marginal (e.g., although teachers may report believing supportive strategies are more effective than punitive strategies, they do not find either strategy to be very effective toward improving aggression; or both seem similarly effective), and therefore, teachers may continue to use punishment in addition to supportive responses. It should be noted that punitive and supportive strategies are not necessarily mutually exclusive, and teachers could employ use of both types of strategies to problem behavior. However, results from this study suggested that teachers do not find punitive strategies effective for chronic aggression. Therefore, teachers may find more benefit from incorporating strategies they do find effective, such as emotion discussion or referral for mental health services.

Teacher beliefs about emotion expression as a reason for aggression

Teachers reported believing that emotion expression is the most likely reason for aggression, more likely than gaining attention, proving oneself, or social learning. The second most likely reason for aggression endorsed was to gain attention, followed by proving oneself and then social learning. According to the means, teachers reported emotion expression to be a "likely" to "very likely" reason for aggression. The other reasons for aggression (i.e., attention, proving oneself, and social learning) were reported as somewhat less likely according to the means, falling in the "somewhat likely" to "likely" range. Teachers believed there are various

plausible reasons for aggression, including to gain attention or prove one's social standing, as all four response options were endorsed as likely reasons for aggression. Aggression was reported to occur by teachers least likely in response to learning it from others (i.e., social learning).

Similar to findings from research question one, results suggested teachers believed aggression was an emotional experience. However, results offer new information regarding the extent to which emotion expression may be considered a reason for aggression by teachers. In extant literature on teacher perceptions of problem behavior or aggression, emotion expression has largely been overlooked. One explanation for why emotion expression as a reason for aggression is less prevalent in extant literature may be because many studies on aggression focus on the impact on the victim of aggression (Rosen et al., 2017), or the aggressor's perception of the victim (e.g., hostile attribution bias; Rosen et al., 2017), rather than the reason for the aggressor's behavior. Other reasons for problem behavior have received relatively more focus than emotion expression, such as attention (Trussel et al., 2016; Mavropoulou & Padeliadu, 2002), modeling of aggression in the home or lack of rules (Rosen et al., 2017), peer groups or peer belonging (Winter & McKenzie, 2017; Swit et al., 2018), lack of social skills or language (Swit et al., 2018), school factors (Andreou & Rapti, 2010), personality, lack of family stability and parent education (Mavropoulou & Padeliadu, 2002). Although some extant literature suggests that teachers perceive aggression to be increasingly related to family modeling or external factors (Swit et al., 2018), results from this study suggested teachers perceive internal experiences like emotion expression as a more common reason for aggression than social learning. While emotion dysregulation has a longstanding association with aggression as studied in individual children (Kim & Cicchetti, 2010; McLaughlin et al., 2011; Kerr & Schneider, 2007; Donahue et al., 2014) teacher perception of the association between emotions and aggression is

an area that has received less consideration despite the implications for how aggression is addressed in the school setting. Results from this study suggest that acknowledging internal influences (Frey & Wilhite, 2005) on aggression, such as, emotion expression, is an area of important consideration for studies on system responses to aggression in schools.

Association between Teacher Beliefs about Reasons for Aggression and Effective Responses

Results suggested that teacher beliefs about reasons for aggression might influence whether they believe supportive or punitive responses to be most effective. Specifically, results indicated that teachers who perceived aggression to occur because of non-emotion-related reasons (i.e., social learning, proving oneself) were more likely to believe punishment was effective than teachers who did not.

Teachers who endorsed attention as a likely reason for aggression were more likely to endorse the emotionally-supportive response of talking about emotions as an effective response to aggression; however, this association was not seen for teachers who endorsed emotion expression as a likely reason for aggression. Lack of a significant correlation between emotion expression as a reason for aggression and beliefs about the effectiveness of emotionally-supportive responses to aggression may have resulted because almost all teachers endorsed emotion expression as a very likely reason for aggression, causing little variance in the sample for this construct. In terms of relationships between responses to aggression, teachers who believed mental health support was more effective in response to aggression were less likely to see punitive responses like detention or privilege removal as effective. However, this relationship was insignificant in this small teacher sample. It should be noted that attention, also a non-emotion-related reason, unexpectedly had the strongest correlation with emotionally-supportive response effectiveness. Whether a response is seen as effective or not is likely to influence

teacher utilization of a response, suggesting that when responses are seen as ineffective they are perhaps less likely to be utilized. Generally, it appears that influencing teacher beliefs about reasons for aggression may also impact their beliefs about effective responses to aggression or vice versa. However, which reasons for aggression are associated with emotionally-supportive responses deserves further attention as correlations were generally weak and insignificant between emotion expression and emotionally-supportive responses to aggression in this sample. Overall, there is some support that when teachers perceive aggressive behavior as less of an emotional experience they are more likely to respond with punishment.

One reason the perception of aggression as stemming from negative emotion may be associated with less punishment is because believing an individual is in distress may provoke helping behaviors to relieve that person's distress (Strangor et al., 2015). When someone is more focused on support, they may be less likely to punish. This evidence may suggest that psychoeducation on the nature of aggression as emotionally-fueled may lead to more emotionally-supportive responses to problem behavior.

Relationship between aggression and teacher comparative likelihood of mental health referral for aggression-related emotion (i.e., anger vs. sadness) and behavior (i.e., fighting vs. crying)

Teacher likelihood of mental health referral for *fighting* was not a significant predictor of teacher-reported student aggression in the context of HLM model 1 ($\beta = -.15$, $p = .09$; a model with covariates of student sex, race, emotion dysregulation, likelihood of referral for anger, race by emotion dysregulation interaction). However, teacher likelihood of mental health referral for fighting was a significant predictor of student aggression when it was the only predictor in the model ($\beta = -.25$, $p = .03$). The reason that referral for fighting may have been a significant individual predictor for aggression but not in the context of the HLM model is because the other

covariate of emotion dysregulation accounted for such a large portion of the variation in student aggression (R^2=.67). Therefore, it may have been difficult to improve the prediction of aggression above and beyond emotion dysregulation with a contextual variable (i.e., teacher referral for fighting). The association between mental health referral for fighting and aggression suggests that classrooms with teachers who are more likely to refer children with aggressive *behaviors* like fighting for mental health support have lower student aggression. Results suggested that contextual influences on aggression, such as teacher response to student emotion, may influence aggressive behavior. However, this contextual influence was not a significant predictor of student aggression after accounting for individual student characteristics, such as, emotion dysregulation, race, and sex, which was the focus of this research question.

Teacher likelihood of mental health referral for *anger* was not predictive of child aggression in the context of HLM model 1 (β = .12, p =.12) or as a sole predictor (β = .06, p =.64). The insignificant association between teacher mental health referral for anger and student aggression suggested that teachers who are more likely to refer a characteristic *emotion* of aggression (anger) for mental health support do not have less aggressive children in their classroom.

Teacher comparative likelihood of mental health referral for aggression-related emotion and behavior variables. In terms of the teacher mental health referral likelihood variables, as measured by forced-choice response, teachers reported being more likely to refer children for mental health support who demonstrate aggressive *behavior* (fighting) compared to non-aggressive behavior (crying); however, teachers were not more likely to refer children for support who display aggression-related *emotion* (anger) compared to emotions less associated with aggression (sadness). This discrepancy in teacher referral between emotion and behavior

was demonstrated by the majority of teachers indicating a higher likelihood for mental health referral for *fighting,* but not for *anger.* That is, half of the teachers indicated they would be more likely to refer anger than sadness, but the other half of teachers indicated they would be less likely to refer sadness than anger. Results suggested that as whole teachers believed behaviors like fighting were more important for mental health services than behaviors like crying, but that they see emotions like anger or sadness as being similarly deserving of mental health support. One reason why teachers may be more likely to refer fighting for support compared to crying is to ensure classroom safety. Although teachers may believe children who are chronically sad deserve mental health support, they may not see crying as impacting the classroom environment to the extent to which a student fighting another student might be. Therefore, because unlike behaviors, emotions do not directly harm others, they may not show a clear pattern of priority for support.

This finding is consistent with extant literature which suggests externalizing behavior receives more attention than internalizing behavior (Liu, 2004). However, findings from this study suggest that *emotions* closely linked to externalizing behaviors, do not receive more attention compared to other emotions. Findings are in contrast with extant literature that suggests teachers may be more likely to refer children displaying sadness for mental health support compared to anger, and that teachers believe sadness requires supportive responses, while anger deserves punishment (Nelson et al., 2012; Klimes-Dougal et al., 2007). Current results suggest that the mental health referral disproportionality favoring externalizing behaviors over internalizing behaviors may not extend to their characteristic emotions (i.e., anger for externalizing behaviors, sadness for internalizing behaviors). However, results should be replicated with larger samples of teachers given the small sample of teachers in this study (n =

22) to see whether a similar pattern of results emerges. It should be noted that both anger and sadness can be related to aggression (Cooley & Fite, 2016; Criss et al., 2016); however, as previously mentioned anger is most closely linked to aggression (Rohlf et al., 2017; Hou et al., 2017; Lindsey et al., 2017). It remains unclear to what extent students experiencing anger receive mental health support in the school setting. This is likely an important focus if teachers perceive fighting as a particularly concerning behavior, and dysregulated emotion, most notably anger, gives rise to such behavior (Sullivan et al., 2010).

Student perception of teacher supportive response to student emotion as a predictor of aggression

Student perception of teacher *supportive* response to children's emotions was a significant predictor of teacher-reported student aggression. Findings indicated that when teachers used emotionally-supportive responses to children's emotions, such as those that are problem-focused or expressive-encouraging (Fabes et al., 2002), children were less likely to display aggression. Lower levels of aggression may be linked to teacher supportive response to emotion because emotionally-supportive responses to negative emotions help children understand the cause of their distress, feel emotionally validated, and improve their mood. Findings are consistent with extant work which suggests that improving one's negative affect may be an effective way to reduce aggression (Shamsipour et al., 2018). Current results also support extant literature which suggests that supportive emotional climates in schools are protective against aggression (Li et al., 2013) and that teacher behavior (e.g., their response to student emotion) is a contextual variable which influences student aggression (Turner et al., 2018).

Furthermore, emotionally-supportive responses may be negatively associated with aggression because children externalize negative emotions with aggressive behavior. Thus, if teachers are able to assist children with their emotion dysregulation by using supportive strategies, children may in turn be less dysregulated, and therefore, have less of a need to use socially maladaptive methods, like aggressive behavior, to regulate. Consequently, because emotions are a core component in the development of aggression, it is plausible that teacher supportive responses to student emotions may prevent aggression.

However, it is also plausible, that given the cross-sectional design of this study, directionality may be inversed, such that, children who were less aggressive were more likely to have positive attributions toward their teachers and therefore rated teachers as more supportive to their emotions. That is, teacher response to emotion as rated by children may be reflective of child characteristics rather than actual teacher behavior. Nonetheless, student perception of teacher behavior is an important variable when examining contextual factors in student aggression.

Student perception of teacher unsupportive response to student emotion as a predictor of aggression

Student perception of teacher *unsupportive* response to student emotion was a significant predictor of teacher-rated student aggression. Findings indicated that when teachers used unsupportive responses to children's emotions, such as those that withhold support or comfort, and devalue or attempt to control the child's emotional experience (Fabes et al., 2002), children were more likely to display aggression. Higher levels of aggression may be linked to teacher unsupportive response to emotion because unsupportive responses promote emotion dysregulation, and thereby, may increase the likelihood of a student engaging in aggressive

behavior with the intent to find emotional relief. Findings are consistent with extant work by Denham et al. (2012) and Bassett et al. (2017) which suggested that unsupportive responses that punish or minimize emotions teach children to suppress their emotions (Denham et al., 2012) and may contribute to aggressive behavior.

Students may develop long-lasting, negative emotions toward teachers who use unsupportive responses to their emotions (Sparzo, 2011).When students have negative feelings toward teachers it may create barriers to relationships that are vital to behavioral and academic success. Therefore, replacing unsupportive responses to student emotion with supportive responses may improve relationships between teachers and students and thus improve behavior and academic performance.

Again, it is plausible that results reflect student characteristics rather than teacher behavior, as inferences about directionality cannot be drawn in this cross-sectional design. That is, students who are more aggressive may be negatively biased (e.g., hostile attribution bias) to view their teachers as more unsupportive to their emotions.

Emotion dysregulation and aggression

Across all HLM models for research questions three through five, emotion dysregulation was the strongest predictor of aggression in the model (r = .61 to .63). The strong predictive power of emotion dysregulation for aggression adds to the argument that aggression is an emotional experience and is often fueled by difficulty regulating negative emotions. The robust relationship found in this study between emotion dysregulation and aggression in children is consistent with extant literature which has found associations between emotion dysregulation and externalizing problems in elementary-aged children via counselor report (Kim & Cicchetti, 2010), as well as, in adolescents via longitudinal studies which show emotion dysregulation

predicts aggression (β =.18, p <.001; McLaughlin et al., 2011). Associations between higher levels of anger (Sullivan et al., 2010; Bohnert et al., 2003) or difficulty with anger regulation (Kerr & Schneider, 2007) and higher levels of aggression in children is also suggestive of the link between emotions and aggression. Results can be understood through the General Aggression Model (GAM) which asserts that aggression occurs as a result of attempts to regulate uncomfortable internal states. According to GAM, negative emotions like anger or sadness may be considered the "routes" by which aggressive behavior is triggered, in addition to other components such as internal (e.g., personality traits) and situational factors (e.g., provocation), as well as, decision making (Roberton et al., 2012). Dysregulated emotions may be challenging to withstand leading individuals to engage in any means necessary, such as aggressive behavior like fighting or threatening someone, regardless of negative outcomes, to reduce emotional tension (Cohn et al., 2010). Overall, the relationship between emotion dysregulation and aggression has a solid base in extant literature which is replicated in this study.

Race effects on teacher response to emotion, aggression, and emotion dysregulation

This study revealed significant racial effects across the majority of study variables, most notably between students who were Black and White. Although race was not a main focus of this study, information on race is provided as it may be helpful toward future research aimed at addressing racial equity in schools. Negative constructs, such as, teacher unsupportive response to student emotion as rated by students and student emotion dysregulation and student aggression as rated by teachers showed significantly higher levels for Black than White students. Compared to other racial categories, Black students rated teachers highest on unsupportive response to their emotion, but also had the highest mean score for teacher supportive response to their emotions. This finding could suggest that teachers were more likely to be either very supportive or very

unsupportive to negative emotions of students who were Black, or results could reflect a preference for Black students to use more extreme values on the rating scale. Results could also suggest that responses were skewed by a few Black students who rated teachers highly on response to their emotions, as the standard deviation was greater than one for teacher unsupportive response as rated by Black students. In terms of racial effects on student behavior, students who were Black were rated by teachers as more aggressive than both White and Hispanic students, and as more emotionally dysregulated than White but not Hispanic students. Hispanic students were also rated as more emotionally dysregulated than White students but not to the extent that Black students were. Results suggested that Black students had higher levels of emotion dysregulation and aggression compared to other racial groups. Alternatively, results could reflect teacher characteristics, such that, teachers simply perceived Black students as more emotionally dysregulated or aggressive compared to students of other racial groups due to factors such as implicit racial bias (Chin et al., 2020). For example, Kang and Chasteen (2009) found that observers perceive anger to last longer on the faces of those who are Black.

Because emotion regulation can occur interpersonally (Barthel et al., 2018) through teacher response to children's emotions, if teachers are more likely to be unsupportive toward Black students' emotion, Black students may be at an environmental disadvantage to regulate their emotions through classroom interaction and may be more likely to be emotionally dysregulated. Therefore, socialization of emotions through unsupportive responses may contribute to the development of aggression for Black students. Additionally, the functional theory of emotion (Garrison, 2003) suggests that negative emotions serve the purpose of helping individuals overcome barriers to their goals. Because of unequal opportunities for Black children across a plethora of inequitable systems, Black students may be more likely to experience goal-

blockage than students of other racial categories (Ellis et al., 2018). Therefore, if Black students experience more obstacles to their goals they may be more likely to experience negative emotions leading to aggression in an unfruitful attempt to achieve goal attainment. According to this theory, reducing obstacles for goal achievement may then decrease negative emotions and consequently aggression.

Implications for Practice

Teachers may be positioned to support positive student behavior through the way they interact with children's emotions. Results highlight the potential impact of child-teacher interpersonal emotion interactions on the regulation of aggressive student behavior, as both teacher supportive and supportive responses to children's emotions were significantly associated with student aggression. Therefore, goals aimed at improving student behavior may benefit from focusing on strategies teachers can use to aid children in supporting their negative emotions. Supportive strategies for children's emotions are associated with positive social emotional development (Eisenberg et al., 2001), and in this study supportive emotion strategies were negatively associated with aggression. Therefore, findings may suggest that if children can manage their emotions through their interactions with teachers, such as, supportive emotion discussion, validation, or acknowledgement of feelings, aggressive behaviors may become inefficient or unnecessary. Furthermore, children may learn how to approach their own emotions with support and comfort, rather than suppression or minimization, through the way teachers respond to their emotions. Therefore, teachers may have the ability to shape emotionally-supportive strategies in children through behavior modeling.

Interactions with student negative emotions are of grave importance as they may be the vehicle through which aggressive behavior could be decreased or prevented. Increasing teacher

validation and acknowledgement of children's negative emotions, and focusing on assisting children to increase positive emotion or problem solve causes to their distress, may decrease the likelihood that children will exhibit aggressive behavior. Fortunately, results suggested that teachers are perceived by students to often display supportive responses to their emotions. Limiting unsupportive responses to student emotion, such as minimization and punishment, which may exacerbate aggression, and replacing them with supportive emotional strategies may be advantageous for schools seeking to promote positive behavior. For example, using supportive statements that acknowledge emotion, such as, "I see that you are angry" instead of minimizing emotions with statements like "settle down" may promote successful behavior regulation.

Because findings suggested that aggression is viewed by teachers, the most influential adult figures in schools, as a way to express negative emotions, perhaps supporting emotion expression and positive social-emotional development for children in schools would prevent or reduce aggression. Emotion dysregulation had a strong positive association with aggression and supportive responses to children's emotions such as encouraging them to express their feelings had a negative association with aggression. Therefore, perhaps if children had ways to express their negative feelings in a more constructive way than problem behavior (e.g., hitting, threatening), the use of aggression for emotion expression may be reduced. Many schools are utilizing social emotional learning (SEL) curriculums at the Tier 1 level to give all students tools to manage emotions, and more intensive supports for emotional and behavioral difficulties at the Tier 2 and 3 levels. It will be important to continue to assess if multi-tiered systems of support (MTSS) to address emotion dysregulation have impacts on aggressive behavior in children. Overall, results suggested supporting negative emotions in children and teaching acceptance,

tolerance, and management of their emotions may be a worthwhile focus to help children manage their behavior.

This study suggested that teachers believed talking to children about their emotions was a relatively more effective response to aggression than punishment. Therefore, it may be helpful to consider the influence of emotional support in discussions about behavior plans for students who demonstrate aggression. According to teacher beliefs in this study, considering negative emotion when problem-solving around behaviors like aggression may improve behavior more effectively than strategies like punishment or attention removal. Acknowledgement of emotion dysregulation when designing behavior plans may naturally create more supportive responses to chronic misbehavior and lead to more emotionally-supportive types of strategies in behavior problem-solving teams. Plans that include emotionally-supportive strategies and skill-building, rather than strategies that are strictly behavioral or focused on consequences to shape behavior (e.g., simply ignoring behavior to reduce attention or assigning consequences) may improve emotion regulation and therefore behavior regulation. Schools may benefit from moving from punishment-based strategies to supportive strategies (Kern et al., 2017) as results suggested that punitive responses to children's emotions may contribute to aggressive behavior.

Supportive responses may not only be important to reduce aggression and promote safe learning environments, but also may promote equity in education. Responses to aggression are a topic of equity, as Black children may demonstrate more aggressive behavior for a myriad of reasons such as chronic oppression, systemic racism, and cultural beliefs regarding emotion expression, perhaps motivated from a survival approach (Nelson et al., 2012). Additionally, suspension disproportionately effects students who attend urban schools and who are from low-income families (Noltemeyer & Mcloughlin, 2010; Noltemeyer et al., 2015), often of a

minoritized status. Overall, results from this study suggested teachers would likely be allies to school mental health professionals in the movement toward emotionally-supportive responses to problem behavior in order to create safer and more equitable schools. Findings add to extant literature on the perception of aggression from an emotion-focused perspective by shedding light on teacher beliefs about student aggression in education settings. Results also highlight the importance of supportive teacher-child emotional interactions in promoting safe behavior in school environments.

Limitations and Future Directions

This study included limitations in participant selection, measurement, informant, teacher diversity and student participation. Participants selected for this study were not randomly selected. Schools were recruited as a convenience sample and therefore may be influenced by school factors which increase the likelihood of participation (e.g., schools which find teacher payment for the study more motivating, schools more motivated to contribute to research). Additionally, the teacher sample was majority female, White, and early or late career, which is consistent with state demographics for educators (Wisconsin Department of Public Instruction, 2020), however, it does limit generalization to classrooms with male teachers, teachers of other races, and those who are mid-career in the profession. Research design limitations, such as, use of a convenience sample prohibits generalizability to the population. Future studies should consider utilizing random samples to increase generalizability of results. Classrooms which met the threshold for parent permission may reflect classrooms with more responsive parents or teachers, and therefore, not be representative of all classrooms. Student participation may also skew results as several of the students commented that children with more behavior problems were not participating in the survey. Students who demonstrate higher levels of aggression may

be less likely to have parents who are responsive to returning permission slips or agreeable to their children participating in a study about emotions, as parent engagement has been associated with problem behaviors (El Nokali et al., 2010). Classroom-wide participation may be an important factor to truly capture characteristics of the most vulnerable students. Future studies should consider strategies to increase parent consent rates for children with problem behaviors.

Measurement limitations include the sole focus on overt aggression, mostly of a physical nature. As aggression has various subtypes, this study is less informative toward covert aggression. Additionally, there were significant limitations regarding the scales adapted for this study, particularly within the exploratory objective, due to the lack of existing measures to assess some of the novel constructs (e.g., teacher perception of emotion and reasons for aggression, teacher likelihood of referral for anger and fighting). Many of the exploratory scales included one item to directly assess the construct of interest (e.g., a forced-choice item between anger and sadness for the likelihood of referral for mental health construct) and were therefore limited from a psychometric property standpoint. There was no check for social desirability bias which may impact results as the title of the study included the word emotions, and therefore teachers may have been more inclined to endorse emotionally-supportive responses. Including a social desirability responding bias survey may improve future studies. Many of the constructs were single-informant (e.g., only teachers reporting on student aggression; only students reporting on teacher response to emotion) which may reflect rater perception rather than actual behavior. Findings could be improved by including both teacher and child-reports for each construct to compare responses. Additionally, objective data including office referrals or observations of teacher supportive or unsupportive responses to student emotion or student aggressive behavior would largely improve the validity of findings.

Given the insignificant relationship between teacher beliefs on emotion expression as a reason for aggression and the effectiveness of emotionally-supportive responses to aggression, future studies should further explore the association between teacher beliefs about reasons for aggression and their beliefs about effective responses to aggression. Larger teacher sample sizes may produce significant findings, and response formats that allow free response from teachers may improve understanding of the types of effective responses not captured by multiple choice.

Findings from this study suggested externalizing behavior is perceived as requiring more mental health support than internalizing behavior by teachers, however, it is unclear to what extent emotion closely linked with externalizing behavior (i.e., anger) is perceived as requiring support in schools. Support for anger is likely an important focus to reduce aggression. Future studies could track emotions for which children are supported, either in the classroom or indirectly through referral to mental health supports, to better understand responses to anger and how those responses may contribute to reduced or exacerbated aggression in the school setting. The scale that measured teacher supportive and unsupportive response to negative emotion included the negative emotions of sadness and anger, which in combination predicted aggression. Future studies could analyze supportive and unsupportive teacher responses to anger and sadness individually to determine differential impact on aggression.

Several differences in teacher perception of student behavior by race (e.g., aggression, emotion dysregulation) were identified in this study. Future studies could include measures that control for or measure racial bias to better understand if differences in reported student behavior are true differences, or to what extent they are influenced by social expectations or bias regarding race.

As this study is cross-sectional, it is limited from drawing conclusions about

directionality of relations or causation between teacher and student behavior. For example, the relationship between student perceptions about teacher responses to emotions might be bidirectional or cyclical. Future studies could include intervention related to teacher supportive response to emotion and compare the impact on aggression to groups without such training to determine directionality of relationships. If teachers trained on emotionally-supportive responses to children's emotions showed decreases in student aggression compared to classrooms of teachers who were not, causal implications may be justified regarding the impact of teacher emotionally-supportive responses on the reduction of student aggression.

Conclusions

In this study, teachers believed student aggression was a way for children to express negative emotions and perceived emotionally-supportive responses, such as talking to children about their feelings or referring them for mental health support, as more effective to address chronic aggression than punitive strategies like detention or privilege removal. Teacher supportive and unsupportive responses to student's negative emotions (i.e., anger, sadness) significantly predicted student aggression. Specifically, students displayed less aggressive behavior in classrooms of teachers who were more emotionally-supportive to student negative emotions. Findings related to teacher supportive and unsupportive responses to children's emotions suggested that validating children's emotions, helping them feel better, and problem-solving their distress may be a way to reduce aggressive behaviors, and that conversely, punishing negative emotions or minimizing them may increase aggression in students. Overall, findings suggested teachers may play a key role in student aggression.

Student emotion dysregulation as reported by teachers was a strong predictor of higher levels of student aggression, most notably for Black students. There was a significant interaction

between race and emotion dysregulation. The relationship between emotion dysregulation and aggression was stronger for Black students than for white students. This interaction suggested that if Black students were aggressive they were more likely to be emotionally dysregulated than white students. Results suggested teacher response to student emotion was impacted by student race and that Black students may not be afforded the same level of supportive responses to emotions as White children. Differences were reported in teacher response to the negative emotions of Black students compared to White students, with Black students perceiving higher unsupportive responses (i.e., punishment, minimizing) to negative emotions from teachers compared to students who were White. Although insignificant compared to other racial groups, Black students also rated teachers as having the highest supportive responses to their emotions, as demonstrated by the mean score for this racial group compared to other mean scores on the supportive teacher response to emotion variable. If Black students have a stronger relationship between emotion dysregulation and aggression, they may be most in need of emotionally-supportive responses to their emotions in an effort to achieve emotion regulation and thereby reduce or prevent aggression. Black students were also rated by teachers as having the highest levels of aggression compared to other racial groups.

Overall, results suggested that teachers play an important role in managing student aggression by providing emotionally-supportive responses to children. Specifically, emotionally-supportive responses to children's *emotions,* such as helping them problem solve the causes of their distress, validating their feelings, or helping cheer them up was negatively associated with aggression. Findings suggested that when children feel like their emotions are acknowledged and that others can help them with their distress, they appear to be better able to manage their behavior. Emotionally-supportive responses by teachers are likely influenced by teacher beliefs

about why aggression is occurring and effective strategies toward aggression reduction. Therefore, teacher beliefs may be an important target for efforts aimed at increasing teacher emotionally-supportive responses. Additionally, emotionally-supportive responses to children's emotions may be especially important for aggression reduction in chronically oppressed racial groups. In conclusion, providing emotional support rather than minimization or punishment for children in education settings, holds great promise for creating safer schools where children have a greater ability to successfully manage their behavior. Results of this study have highlighted the influential role of teacher emotionally-supportive responses to children in student aggression.

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APPENDIX A

Teacher Survey

Directions:
There are TWO parts in the packet. The *first* part is about your demographic information as well as your beliefs about children's emotions and behavior. The *second* part is rating of emotions, behavior, and school reasoning for each participating child. We included a list of participating children for you to complete the second part.

Please answer the questions to the best of your ability. If you are unsure, just give your best guess.

Teacher Name: _____

PART 1: About Yourself; Your Thoughts and Beliefs

Your Sex:	☐	Female
	☐	Male
	☐	Other
Your Race:	☐	American Indiana/Alaska Native
	☐	Black/African American
	☐	Hispanic or Latino
	☐	White, non-Hispanic
	☐	Other
Years of teaching		( ) years

For questions #1 and #2, read two competing statements (A & B). Then, choose ONE statement that describes you better and indicate *how much* you agree with that statement.

The term "Mental Health Support" means seeking school psychologist/social worker/counselor services, or talking to parents about psychological services (e.g., counseling) for the child.*

Question #1

A	B
I am MORE likely to send a child for mental health support* who is chronically *sad* than a child who is chronically *angry***.**	I am MORE likely to send a child for mental health support* who is chronically *angry* than a child who is chronically *sad***.**

Please circle whether A or B describes you better.

A or B

Question #2

A	B
I am MORE likely to send a child for mental health support* who is chronically *crying* than a child who is chronically *fighting/defiant***.**	I am MORE likely to send a child for mental health support* who is chronically *fighting/defiant* than a child who is chronically *crying***.**

Please circle whether A or B describes you better.

A or B

Question #3. Rate how effective you believe the following responses are to chronically <u>disruptive/aggressive</u> behavior.

	Very Ineffective	Ineffective	Somewhat Effective	Effective	Very Effective
A. Assigning consequences like detentions/office referrals	1	2	3	4	5
B. Removing a privilege	1	2	3	4	5
C. Sending for mental health support	1	2	3	4	5
D. Talking with the student about their emotions	1	2	3	4	5

Question #4. Rate how likely you believe the following reasons are that a child would chronically fight others/act aggressively.

	Very Unlikely	Unlikely	Somewhat Likely	Likely	Very Likely
A. To get attention	1	2	3	4	5
B. To prove themselves	1	2	3	4	5
C. To express an emotion (sadness/anger)	1	2	3	4	5
D. It's what they learned from others, no reason	1	2	3	4	5

PART 2: Please complete the following questions for each participating child. Answer each question with only one answer. *Give your best guess* to questions you are not sure about the child. Please refer to the list of participating children.

Child's Name: _____

Emotion-related characteristics: Please indicate how often the child displays the following.

Child Initial:

This child…

	Never	**Rarely**	**Sometimes**	**Often**	**Almost Always**
1. Does things like slam doors when he/she is mad	1	2	3	4	5
2. Whines/fusses about what's making him/her sad	1	2	3	4	5
3. Attacks whatever it is that makes him/her very angry	1	2	3	4	5
4. Cries and carries on when he/she is sad	1	2	3	4	5
5. Says mean things to others when he/she is mad	1	2	3	4	5
6. Does things like mope around when he/she is sad	1	2	3	4	5

Child Behavior: Please indicate how true each statement is for the child.

Child Initial:

This child…

	Never True	**Rarely True**	**Sometimes True**	**Often True**	**Almost Always True**
1. Fights with other children	1	2	3	4	5
2. Bullies other children	1	2	3	4	5
3. Kicks, bites, or hits other children	1	2	3	4	5
4. Is an aggressive child	1	2	3	4	5
5. Taunts and teases other children	1	2	3	4	5
6. Threatens other children	1	2	3	4	5
7. Argues with peers	1	2	3	4	5

APPENDIX B

Student Survey

My Feelings and Teachers

***Instructions**: We are going to ask you how you typically think and feel. Again, your honest answer is the best answer. Please circle how true each statement is for you.*

*When I get **too excited** about something/someone, my teacher:*

	Not at all True	Slightly True	Moderately True	Mostly True	Very True
1. Yells at me for being too excited.	1	2	3	4	5
2. Asks me what I'm excited about.	1	2	3	4	5
3. Tells or shows me ways to calm down.	1	2	3	4	5
4. Tells me not to make such a big deal out of nothing.	1	2	3	4	5

*When I get **angry** at something or someone in school, my teacher:*

	Not at all True	Slightly True	Moderately True	Mostly True	Very True
1. Threatens to punish me (leave the room, send to office, call parents).	1	2	3	4	5
2. Encourages me to talk about my feelings.	1	2	3	4	5
3. Helps me think of how to solve the problem.	1	2	3	4	5
4. Tells me I'm overreacting.	1	2	3	4	5

*When I get **sad or cry** because someone/something upsets me, my teacher:*

	Not at all True	Slightly True	Moderately True	Mostly True	Very True
1. Gets angry or yells at me.	1	2	3	4	5
2. Asks me to talk about what is bothering me.	1	2	3	4	5
3. Helps me think of ways to feel better.	1	2	3	4	5
4. Tells me I'm making a big deal out of nothing.	1	2	3	4	5

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EDUCATION

Ph.D. University of Wisconsin-Milwaukee, *Anticipated August 2021*
Program: School Psychology

Ed.S. University of Wisconsin-Stout, May 2014
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Major: Psychology, Minor: Child Youth Care Emphasis

PRE-DOCTORAL INTERNSHIP

Clinical Psychology Internship at the University of Wisconsin School of Medicine and Public Health, UW-Madison Psychiatry Department, July 2020-June 2021

PROFESSIONAL CREDENTIALS

Licensed School Psychologist (Ed.S.). Wisconsin Department of Public Instruction. 2013

PUBLICATIONS

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CONFERENCE PRESENTATIONS

Brinckman, B. (2020, February). *Teacher perceptions and responses to aggression*. Poster session presented at the National Association for School Psychologists (NASP) Conference, Baltimore, MD.

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TEACHING EXPERIENCE

Instructor. Educational Psychology 220: Positive Psychology in Context: Applications to Culture, Learning, and Development. University of Wisconsin-Milwaukee. 2019-2020.

Instructor. Educational Psychology 325: Classroom Assessment. University of Wisconsin-Milwaukee. Spring 2019.

Teaching Assistant. Educational Psychology**:** Pathways to Success Course. University of Wisconsin, Milwaukee. Milwaukee, WI. Fall 2018.

RESEARCH EXPERIENCE

Research Assistant for Mindfulness and Compassion-based Approaches for Pediatric PTSD project. University of Wisconsin-Madison BRAVE lab. Madison, WI. 2020-2021

Research Assistant for Interpersonal Emotion Regulation Project. University of Wisconsin-Milwaukee. Milwaukee, WI. 2018- 2020

Research Assistant for Human Virtues Project. University of Wisconsin-Stout. Menomonie, WI. 2012- 2013

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Chancellor's Graduate Student Award. University of Wisconsin-Milwaukee. 2018-2020.