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AN EVALUATION OF THE IMPACT OF ANGER ON AGGRESSION IN PRETEND PLAY
AND THE ROLE OF PRETEND PLAY IN REGULATING ANGER IN PRESCHOOLERS

by

Kristen E. Boog
B.S., Central Michigan University, 2016

A Thesis

Submitted in Partial Fulfillment of the Requirements for the
Master of Arts Degree

Department of Psychology
in the Graduate School
Southern Illinois University Carbondale
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AN ABSTRACT OF THE THESIS OF

Kristen E. Boog, for the Master of Arts degree in Psychology, presented on May 23, 2019, at Southern Illinois University Carbondale.

TITLE: AN EVALUATION OF THE IMPACT OF ANGER ON AGGRESSION IN PRETEND PLAY AND THE ROLE OF PRETEND PLAY IN REGULATING ANGER IN PRESCHOOLERS

MAJOR PROFESSOR: Karla Fehr, Ph.D.

Multiple studies have supported the link between anger and aggression. It is not uncommon for anger to result in aggressive acts, especially in children still learning socially appropriate ways of coping. Furthermore, childhood aggression is typically viewed as a concerning act that should be reduced or eliminated. However, some research shows that within pretend play, aggression can be adaptive. Studies have supported the Mastery/Catharsis hypothesis, the theory that aggression in pretend play acts as a release of emotions and processing of events, by showing that children who exhibit more aggression within their pretend play exhibit less aggression outside of play. Pretend play has been proposed as an adaptive coping mechanism for children. Although the literature supports the role of pretend play in coping with anxiety, the role of play in coping with anger has not previously been evaluated. The current study used a repeated measures design to evaluate the relationships between anger and aggression in pretend play and the role of aggression in pretend play in regulating anger in preschool aged children. Mood and pretend play were evaluated multiple times in this study. At Time 1, baseline measures of mood and pretend play were collected. Next, participants participated in a mood induction. After the mood induction (Time 2), mood was measured again and half the participants participated in a second assessment of pretend play while the other half watched an emotionally neutral 5-minute video. Measures of mood were then collected again (Time 3). Given the strong relationship between anger and aggression, it was hypothesized that

anger would increase aggression in pretend play. Furthermore, according to the Mastery/Catharsis hypothesis engaging in aggression in pretend play should reduce anger. Therefore, it was hypothesized that participants in the treatment condition, who engaged in pretend play, would show a greater reduction in anger than children in the control group, who watched a neutral video. Results indicated that the mood induction resulted in a worse mood than the baseline mood. Furthermore, children engaged in more aggression in pretend play after being angered than prior to being angered. Finally, there were no significant differences in mood scores at the end of the study between the treatment and control groups. The present study developed a novel, effective, and mild negative mood induction procedure for preschoolers. Additionally, it found a relationship between anger and aggression in pretend play in preschoolers. Although the present study did not find pretend play was more effective in improving mood than the control condition, future studies should evaluate this relationship further as there were several extraneous variables that were not controlled for (e.g., emotion regulation abilities).

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CHAPTER 1

INTRODUCTION

The link between aggression and anger is well established (Eisenberg et al., 1994; Hubbard et al., 2002; Hubbard et al., 2004; Klaczynski & Cummings, 1989). Therefore, children may exhibit aggression when they are angered. Occasionally, this aggression may be seen in their pretend play. Aggression in pretend play is common in the preschool years as both aggression and pretend play peak at this age (Alink et al., 2006; Fein, 1981; Tremblay et al., 2004). Some literature proposes the General Aggression Model (for a recent review see Anderson & Bartlett, 2016) as an explanation for this behavior. Proponents of this model would describe aggression as the result of interactions between person and situational factors interacting to influence cognitions and behavior. From this perspective, aggression in pretend play would be a concerning activity that should be discouraged. Other literature suggests that aggression in pretend play acts as a catharsis and allows a child to process and master events and situations. The Mastery/Catharsis hypothesis (Feshbach, 1956; Mussen & Rutherford, 1961) would view aggression in pretend play as an appropriate mechanism for processing and releasing emotions. Advocates of this theory would expect children who engaged in aggression in pretend play after a troubling event to process their feelings and display less aggression outside of their play. Fehr and Russ' (2013) finding that children who exhibited more aggression during their pretend play were rated as less aggressive at school by their teachers supports this view. Pretend play is related to coping, emotion regulation, problem solving, and creativity, among other skills (Russ, 2004). Previous research supports the role of pretend play in coping with anxiety (Christian, Russ, & Short, 2011). However, no studies have examined the role of pretend play in coping with anger nor whether anger increases aggression in pretend play in preschoolers.

The current study addresses these gaps in the literature by evaluating how children's pretend play is altered when experiencing anger and whether anger decreases after pretend play using repeated measures design with a treatment and control group.

CHAPTER 2

LITERATURE REVIEW

Pretend Play

Russ (2004) defined pretend play as play that involves the use of fantasy, make-believe, and symbolism. Pretend play typically begins to emerge around 18 months of age and peaks in the preschool years (Fein, 1981). By examining pretend play, one can observe several distinct processes. Cognitive, affective, interpersonal, and problem-solving processes are all present in pretend play. Cognitive processes and affective processes relate differentially to pretend play and creativity. Cognitive processes seen during pretend play include divergent thinking, organization, symbolism, and fantasy (Russ, 2004). Divergent thinking is thinking that explores many different avenues. By creating a variety of stories and scenarios in their pretend play, children use divergent thinking (Russ, 2004). Organization is evident in pretend play when a child tells a logical story during play (Russ, 2004). Children use symbolism throughout play when they use one object as a representation of another object (Russ, 2004). Finally, children use fantasy when they imagine they are in scenarios they are not actually in (Russ, 2004). Affective processes in pretend play include emotions and affect themes, comfort, and enjoyment (Russ, 2004). Children exhibit both positive and negative emotions and affect themes in their play by having characters display emotions or by creating stories with an overarching affective theme. Children may also show enjoyment and comfort in their play. Cognitive and affective processes interact during emotion regulation and modulation of affect during play (Russ, 2004). Furthermore, children will express affect within their narratives in what Russ (2004) calls cognitive integration of affect. Interpersonal processes, such as empathy and communication, are also displayed in pretend play (Russ, 2004). In addition, children exhibit

problem-solving processes such as different approaches to problems and conflicts, problem solving, and conflict resolution (Russ, 2004). How developed these processes appear can vary depending on a child's amount of imagination and pretend play skills (Christiano & Russ, 1996; Dunn & Hughes, 2001; Lillard et al., 2013).

Several studies have commented on how children who are "good" players fare better on various domains (Christiano & Russ, 1996; Dunn & Hughes, 2001; Lillard et al., 2013). According to Fein (1987), there are five developmental qualities of good pretend play. Referential freedom begins around age two and is when someone or something serves as if it is something else (Fein, 1987). This concept has more recently been referred to it as object substitution and is the earliest form of pretend play to emerge (Skolnick Weisberg, 2015). The second characteristic Fein (1987) discusses is denotative license. This is when the child's pretend play is based on actual experiences and goes beyond simple object substitutions (Fein, 1987). Affective relations, the expression of emotions within the play, is the third characteristic Fein (1987) states is necessary for good pretend play. Another characteristic of good pretend play is sequential uncertainty where there is a nonlinear timeline to the events in the play (Fein, 1987). Self-mirroring, the fifth characteristic Fein (1987) describes, is when children are aware that their play is unreal and see themselves in play from a distance. It is important to know what constitutes good pretend play as pretend play has been linked to a variety of developmental skills.

Some argue that pretend play is essential for the development of several skills in early childhood (Davenport & Bourgeois, 2008; Russ, 2004). Others assert that it is the content of pretend play rather than the pretend play itself that leads to the development of skills (Lillard et al., 2013). It is probable that both pretend play and its content are important for development,

with pretend play serving as a vessel for content necessary for skill development. Regardless of whether the play or the content holds more importance, multiple studies have found relationships between pretend play and the development of many different skills including creativity, problem solving, reasoning, and emotion regulation (for a review see Lillard et al., 2013 and Russ, 2004; Russ & Wallace, 2013). Although the present study will not address all the developmental correlates of pretend play, a brief review of some of these relationships follows.

Pretend Play and Creativity

The relationship between creativity and pretend play is well established (e.g., Fehr & Russ, 2016; Fisher, 1992; Hoffman & Russ, 2012; Russ, 2004; Russ & Wallace, 2013). Several studies have found that children who are “good” pretend players are also highly creative, as evidenced by scores on divergent thinking or creative storytelling tasks (e.g., Fehr & Russ, 2016; Hoffmann & Russ, 2012). Divergent thinking is usually measured using a task that asks participants to produce multiple uses for an item. Fehr and Russ (2016) examined creativity and pretend play in preschoolers. Their procedure consisted of administering measures of divergent thinking and pretend play to 41 children aged 4 to 6. Fehr and Russ (2016) found significant positive relationships between the number of responses provided on a divergent thinking task and organization, elaboration, and positive affect in pretend play. Positive correlations were also found between the novelty of responses provided on a divergent thinking task and organization, elaboration, comfort, total affect, undefined affect, and variety of affect on a pretend play task. Similarly, Mullineaux and DiLalla (2009) found a relationship between pretend play in childhood and later creativity during adolescence measured through divergent thinking and drawing. Fehr and Russ (2016) also looked at creativity using a storytelling task. They found significant positive relationships between storytelling creativity and organization in pretend play,

positive affect in pretend play, and the number of responses given during a divergent thinking task. Fehr and Russ' (2016) findings regarding the relationships between creativity and pretend play are consistent with those of Hoffman and Russ (2012). Hoffman and Russ (2012) asked girls in kindergarten through fourth grade to complete measures of creativity and pretend play. They found that on a divergent thinking task, girls who provided more uses for a novel item and produced a greater number of unique categories were also more organized and imaginative in their pretend play (Hoffman & Russ, 2012). They also asked their participants to create a story from the pictures in a storybook. They found that girls who created more creative stories on the storytelling task were more imaginative in their pretend play. Furthermore, they found that the two creativity tasks, an alternate uses task and a storytelling task, were positively correlated. Despite evidence of a relationship between creativity and pretend play in preschool- and school-aged children, further research needs to be conducted to determine if the relationship is causal and its direction (Lillard et al., 2013).

Pretend Play and Problem Solving

Wyver and Spence (1999) had a similar question when examining their hypothesis of a reciprocal relationship between pretend play and problem solving in preschoolers. To answer this question, Wyver and Spence (1999) performed three studies. All three studies involved participants completing measures of intelligence, divergent problem solving, convergent problem solving, and observations of free play. The first study investigated the relationship between different forms of play and problem solving. Wyver and Spence (1999) found that thematic pretend play, pretend play that centers around themes the child is unlikely to encounter in real life (i.e., dragons, royalty, etc.), was positively correlated with semantic divergent problem solving. They also found that cooperative play, play involving a peer, was positively correlated

with semantic and figural divergent problem solving. The second study Wyver and Spence (1999) performed looked for changes in pretend play and social play after training in divergent problem solving. Again, they found a relationship between thematic pretend play and problem solving. Children that received training in divergent problem solving exhibited more thematic play and cooperative play over the nontrained control group (Wyver & Spence, 1999). To further solidify their hypothesis of a reciprocal relationship, Wyver and Spence (1999) reversed the second study. This time they provided training in thematic and cooperative play and looked for changes in divergent problem solving. Their results revealed that children who received training in thematic play and/or cooperative play showed improved scores on divergent problem-solving tasks (Wyver & Spence, 1999). Additionally, they also discovered that children could be trained to exhibit more thematic play and cooperative play. Wyver's and Spence's (1999) results suggest a reciprocal relationship between pretend play and problem solving by showing that training in thematic play improved divergent thinking scores and that training in divergent thinking increased thematic play.

Pretend Play and Reasoning

Other studies have investigated the relationship between pretend play and reasoning. A study by Buschsbaum, Bridgers, Skolnick Weisberg, and Gopnik (2012) looked at counterfactual reasoning, the ability to think of alternatives to an event that has already occurred. They examined counterfactual reasoning abilities in children aged three and four years. Their analyses revealed that counterfactual performance is positively correlated with age, indicating a natural improvement in counterfactual reasoning as children age (Buschsbaum et al., 2012). Buschsbaum and colleagues presented participants with a "Happy Birthday Machine" that would only play a song when a specific item, but not others, was set on top of it. When presented with

a box and two blocks, the children were able to pretend the box was the machine and apply the same rule of one specific item making the box/machine operate (Buschsbaum et al., 2012).

Results of their analyses indicate a significant relationship between pretense and counterfactual scores (Buschsbaum et al., 2012). Buschsbaum and colleagues (2012) concluded that these results suggest a link between pretend play and counterfactual inference or reasoning. Therefore, it is plausible that children who are better pretend players are in turn better at counterfactual reasoning in real word scenarios. Thus, children with better pretend play skills may be better able to consider alternatives and reason in situations which may trigger anger or aggression.

Pretend Play and Emotion Regulation

Researchers also proposed links between pretend play and emotion regulation (Galyer & Evans, 2001; Hoffman & Russ, 2012; Russ, 2004). For example, Hoffman and Russ (2012) examined the relationships among pretend play, emotion regulation, and creativity in girls in kindergarten through fourth grade. They found positive correlations between parent-reported emotion regulation and organization, imagination, comfort, frequency of total affect, and frequency of positive affect in play (Hoffman & Russ, 2012). Furthermore, they found a positive correlation between divergent thinking scores and emotion regulation (Hoffman & Russ, 2012). Galyer and Evans (2001) also investigated the interaction between emotion regulation and pretend play. In their study, they asked children to pretend play for a period of a time before their play was disrupted by the intrusion of a crocodile puppet that “ate” all the toys and the children’s creations. Galyer and Evans (2001) found that children who were able to continue playing after the disruption were rated higher on emotion regulation by their parents. Additionally, children who engaged in daily pretend play or who engaged in pretend play with their parents were rated by their parents as having greater emotion regulation abilities. Finally,

Galyer and Evans' (2001) results revealed that children who were rated highly by their parents on an emotion regulation measure also demonstrated emotion regulation skills in their pretend play. These results suggest that children who are better at pretend play or pretend play frequently may also be better at emotion regulation. These are especially pertinent findings as the present study examined whether children are able to use pretend play to regulate their anger.

Pretend Play and Coping

Relationships between pretend play and coping have been found in various studies (Christian et al., 2011; Christiano & Russ, 1996; Marcello & Yates, 2014). This is an important finding as play could be used as a coping strategy for children, especially those too young to grasp more complex coping strategies. Additionally, the relationship between coping and pretend play provides further support for the use of play therapy as an intervention for children. Christian and colleagues (2011) found that in their sample of 43 children aged 6 to 10 years, engaging in pretend play resulted in a reduction in anxiety. They randomly assigned children to either an anxious mood induction or a neutral mood induction group. Those children in the anxious mood induction reported a negative affect after the induction and an improvement in affect after given the opportunity to play. Similarly, Christiano and Russ (1996) found that children who were better at pretend playing coped better with an invasive dental procedure. They found positive relationships between play and coping and between fantasy and cognitive coping (Christiano & Russ, 1996). Marcello and Yates (2014) also found positive correlations between coping flexibility, or the ability to use multiple coping strategies, and fantasy in their sample of preschoolers. An additional positive correlation was found between coping flexibility and negative affect in play. Although this relationship continues to be studied and replicated, there is currently strong empirical support for it.

Pretend Play and Intelligence

Several characteristics and outcomes of good pretend players have been studied (Christian et al., 2011; Christiano & Russ, 1996; Lillard et al., 2013). Although several researchers have examined these relationships, it is unclear if some of these variables are confounding variables or causal factors. One of those proposed relationships is pretend play and intelligence. Although intelligence was modestly correlated with pretend play in a few studies (Fehr, 2017; for a review see Lillard et al., 2013), it has more commonly not been correlated with play (for a review see Lillard et al., 2013; Marcello & Yates, 2014). Fehr (2017) found only moderate correlations between intelligence and comfort and organization in play using a standardized measure of pretend play in a sample of preschoolers. However, when using the same measure of play and a different measure of intelligence, Marcello and Yates (2014) did not find a relationship in their sample of preschoolers. In addition, several other studies have found that intelligence does not influence relationships between pretend play and other outcomes and that relationships between pretend play and those outcomes remain significant when intelligence is controlled for (Russ & Grossman-McKee, 1990; Wallace & Russ, 2015; Wyver & Spence, 1999). Further research needs to be conducted to fully understand this relationship. However, there have been many more studies that have not found support for a relationship than those that have (Hoffman & Russ, 2012; Russ & Grossman-McKee, 1990; Wallace & Russ, 2015).

Parent Perceptions of Pretend Play

Research has found that parents in some cultures consider play important to development and learning (Colliver, 2016; Fogle & Mendez, 2006; Lehrer & Petrakos, 2011). Research conducted by Dibianca Fasoli (2014) revealed that European-American parents are more likely to agree that play is involved in learning than Latinx parents. Research has also found that

parents' play beliefs can influence children's play. Fogle and Mendez (2006) described a positive relationship between African American mothers' support of play and their preschool-aged children's prosocial peer play. Studies have shown that parents identify many reasons play is important including the development of relationships, creativity, social skills, cognitive skills, emotions, self-esteem, self-expression, and self-awareness (Colliver, 2016; Lehrer & Petrakos, 2011). In their qualitative study, Lehrer and Petrakos (2011) asked parents about which types of play they encourage and discourage. Parents reported encouraging most types of play, including pretend play and discouraging aggressive play or violent games (Lehrer & Petrakos, 2011). Parents were able to identify positive aspects of pretend play such as those given in this statement by a parent, "a way to explore new avenues, it provokes questioning, it's a way to deal with her fears and evacuate the pressure." (Lehrer & Petrakos, 2011, p. 79).

Aggression

Aggression has been defined in different ways by different researchers (Mesman et al., 2008; J. Singer & D. Singer, 1986; Ostrov, 2010). However, its definition typically includes a statement about an intent to cause harm or do damage to another individual, animal, or object (Ostrov, 2010; Mesman et al., 2008). Some researchers argue that it is difficult to determine intent in toddlers, and even those that include intent in their definitions typically do not measure it (Alink et al., 2006; Mesman et al., 2008). Therefore, it is unclear whether preschoolers' aggression is the result of impulse or intent. Aggression can be exhibited in several forms including relational, verbal, and physical (Crick & Dodge, 1996). Most of the research on aggression in preschoolers examines physical aggression, as some researchers believe that children this young do not yet have the cognitive or verbal skills to exhibit other forms of aggression (Alink et al., 2006). Two forms of aggression often discussed in the literature are

reactive aggression and proactive aggression (Crick & Dodge, 1996; Hubbard et al., 2002; Hubbard et al., 2004; Hubbard et al., 2005; Kempes, Matthys, de Vries, & van Engeland, 2004; Poulin & Boivin, 2000; Waschbusch et al., 2002). Reactive aggression is anger-driven and is when an individual becomes aggressive in response to something or someone in their environment (Dodge & Coie, 1987). Proactive aggression is when aggression is goal driven, is premeditated, and has an end goal (Dodge & Coie, 1987).

Childhood physical aggression peaks in the preschool years (Alink et al., 2006; Tremblay et al., 2004). This is likely because children at this age have yet to develop skills to communicate or cope in more effective ways (Alink et al., 2006). Therefore, as children age and develop these skills, physical aggression declines (Alink et al., 2006). There are various theories that explain the development of aggression. Social Learning Theory proposes that childhood aggression is not an innate trait, but rather learned through imitation, modeling, and reinforcement (Bandura, 1978). Patterson (1976, 1982) agrees with Bandura that aggression develops through interactions with the environment. However, he differs in that he believes that aggression is an innate trait that is coerced by these interactions. Tremblay argues that aggression is innate in children as it has been observed in infants who would not have had the time to learn aggression yet (Tremblay et al., 1999). Furthermore, twin and adoption studies have shown preliminary evidence for the heritability of aggression (for a review see DiLalla, 2002). The General Aggression Model posits that aggression is the result of the interaction of repeated learning and situational variables (for a recent review see Anderson & Bartlett, 2016). Although researchers may disagree on the mechanisms behind aggression, it is evident that it appears at a young age, peaks in preschool, and declines from there.

Aggression has been observed in children as young as 12 months old, and most children begin to use physical aggression by the age of 2 years (Alink et al., 2006). There is typically an increase in physical aggression from the age of two to the age of four and then most children exhibit a decline in physical aggression thereafter (Alink et al., 2006). Physical aggression likely increases in the preschool years as children seek out more independence. Toddlers are still lacking the communication skills to express their anger and frustration, and thus may resort to physical aggression (Alink et al., 2006). As children become more verbal, around age 4, there is a decline in physical aggression and an increase in relational aggression (Alink et al., 2006; Bonica, Arnold, Fisher, Zeljo, & Yershova, 2003). Furthermore, some argue that the emergence of physical aggression around the 1-year-old mark is related to the emergence of anger at this age (Alink et al., 2006).

In addition to the level of aggression varying based on a child's age, it can also vary based on a child's gender. Boys typically exhibit more physical aggression, whereas females exhibit more relational aggression (Crick, Casas, & Mosher, 1997). Although no gender differences were found for physical aggression at 12 months of age, researchers observed gender differences at ages 24 months and 36 months, with boys displaying more physical aggression at both time points (Alink et al., 2006). Furthermore, several studies have found boys to be more aggressive overall (Di Maggio, Zappulla, & Pace, 2016; Surland et al., 2016; Trembley et al., 1999).

There are several factors associated with increased aggression in children including harsh parenting, peer victimization, and maltreatment (Shields & Cicchetti, 2001). In addition, multiple studies have found significant relationships between increased aggression and violent television and video games (Huesmann, Moise-Titus, Podolski, & Eron, 2003; Mussen &

Rutherford, 1961; J. Singer & D. Singer, 1986). However, it should be noted that violent media is just one contributing factor to childhood aggression and should not be treated as the sole contributor (Ferguson, 2011).

There are also several protective factors that relate to lower aggression. One study found that children from families with higher education exhibited less aggression than children from families that have lower education (Suurland et al., 2016). Additionally, children who have higher inhibitory control and lower negative emotionality tend to exhibit less aggression than children with low inhibitory control and high negative emotionality (Suurland et al., 2016). Emotion regulation also plays a role in aggression. Children with better emotion regulation tend to exhibit less anger and aggression (Di Maggio et al., 2016). It could also be argued that having strong pretend play skills could serve as a protective factor for aggression as it was suggested that children use pretend play to work through their aggression (Fehr & Russ, 2013).

Pretend Play and Aggression

Theories of Aggression in pretend play

Two theories could be used to interpret aggression in pretend play: the Mastery, or Catharsis hypothesis, (Feshbach, 1956; Mussen & Rutherford, 1961) and General Aggression Model (for a recent review see Anderson & Bartlett, 2016). The Mastery/Catharsis hypothesis proposes that children use pretend play to release and process different emotions and drives (Feshbach, 1956; Mussen & Rutherford, 1961). For example, a child who is being bullied in school may have characters fight within his or her play to release and process pent up frustration and aggression toward the bully, instead of retaliating in real life. The play acts as a safe place to display emotions and process experiences. Therefore, the processes exhibited in pretend play are often the target of play therapy (Russ, 2004). The Mastery/Catharsis hypothesis has been

supported by several studies on play and anxiety and aggression (Christian et al., 2011; Christiano & Russ, 1996; Fehr & Russ, 2013).

The Mastery/Catharsis hypothesis explains aggression in pretend play as a sign that a child is working through and releasing their aggression. However, when examining parent beliefs, Lehrer and Petrakos (2011) found that parents made comments about aggressive play having no purpose and reported discouraging it. Lehrer and Petrakos' (2011) findings suggest that parents may be unknowledgeable of the potential benefits of aggressive themes in pretend play, and therefore unlikely to encourage aggression in pretend play as an outlet for their child's aggressive behavior or anger. If the Mastery/Catharsis Hypothesis holds true, this is problematic as parents may be discouraging an effective coping strategy and inadvertently increasing their child's aggression outside of play by not providing an outlet for the child to work through his or her aggression. A practitioner working from the Mastery/Catharsis Hypothesis would expect a child to exhibit more aggression during pretend play than the child exhibits outside of play as the child works through their aggression.

Anderson and Bartlett (2016) in their review of the General Aggression Model describe it as a social cognitive theory that is the product of the culmination of several theories of aggression including Social Learning Theory (Bandura, 1978) and Social Information Processing Theory (Crick & Dodge, 1994). The General Aggression Model proposes aggression is the result of both learned and situational variables (Anderson & Bartlett, 2016). The model is divided into proximate and distal processes (Anderson & Bartlett, 2016). Proximate processes are those that are the result of variables in the immediate situation interacting with state-based thoughts, emotions, arousal, and decision processes (Anderson & Bartlett, 2016). Distal processes are those that are the result of repeated learning that leads to aggressive tendencies and

personality (Anderson & Bartlett, 2016). This theory would explain aggressive play as the interaction of situational variables (i.e. being told “no”) and learned variables (i.e. viewing a character being reinforced for aggressive behavior in a television show). Furthermore, the General Aggression Model would propose that allowing a child to play aggressively would increase his or her overall aggressiveness. This theory does not perceive aggressive play as serving a function and would not view it as adaptive, as the Mastery/Catharsis hypothesis does.

This study was developed based on the Mastery/Catharsis hypothesis viewpoint. It is hypothesized that thematic aggression, aggression that occurs within the play narrative, will reduce aggression outside of play. That is not to say that actual aggression in play (e.g., hitting a playmate) will decrease aggression outside of play. Rather as is proposed by other theories, it is likely that children who engage in actual aggression, not thematic aggression, during their play are also aggressive outside of play.

Aggression in Pretend Play

Differing results have been found when examining the relationship between pretend play and aggression. Dunn and Hughes (2001) found that preschool aged children who were considered “hard to manage” based on mother and teacher reports did not engage in pretend play as well as control children during a peer play scenario. “Hard to manage” children were those that scored above the 90th percentile on the hyperactivity and conduct disorder scales of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). Dunn and Hughes (2001) observed that “hard to manage” children exhibited less frequent pretense and had more violent content in their play than control children. This is in opposition to Fehr and Russ’ (2013) finding that 4- and 5-year-old children that exhibited more aggression within pretend play on a standardized pretend play measure were less aggressive in the classroom setting based on teacher

ratings. However, this difference can be accounted for by their differing methodologies. While Dunn and Hughes were coding pretend play between friend dyads, Fehr and Russ used a standardized measure to observe solitary pretend play. The violent play in Dunn and Hughes' (2001) study could include violence directed at the other child within the play. In Fehr and Russ' (2013) study, aggressive acts occurred within the pretend play narrative only, not between children. It is necessary to make a distinction between aggressive themes in a child's pretend play and actual aggression directed at another within the play. Children can pretend to be aggressive while pretend playing (i.e., pretend to hit another child while playing superhero) or they can actually be aggressive while pretend playing (i.e., actually hitting another child while playing superhero). These are two separate actions with the former being an act of thematic aggression (Feshbach, 1956), as seen in the Fehr and Russ (2013) study, and the latter being an act of inappropriate aggression (Feshbach, 1956), as seen in the Dunn and Hughes (2001) study. The present study focused on thematic aggression in pretend play, and the term aggression in pretend play refers to thematic aggression.

One way aggression in pretend play is often measured is with doll play. Cohn (1962) credited Levy (1943) as the first researcher to use dolls to measure aggression in play. Cohn (1962) described several factors that can influence the outcome of this measure, including the presence of a permissive adult and the number of times the technique has been used. Furthermore, she noted that doll play techniques, at the time of publication, had not been standardized (Cohn, 1962). Since then, the Affect in Play Scale (APS) (Russ, 2004; Russ, Niec, & Kaugars, 2000) has been developed. The APS is a standardized pretend play measure that assesses affect in the play of children aged 6 to 10 by using puppets. The measure examines aggression in pretend play as well. Russ and her students also developed the Affect in Play Scale

– Preschool Version (APS-P) (Kaugars & Russ, 2009; Fehr & Russ, 2014), a standardized measure of free play for preschoolers. This version is similar to the APS, but targets the play of a younger population, children aged 4 through 6. Children are asked to play with a variety of toys for 5 minutes. Examiners score affect, comfort, imagination, and organization within the child's play.

As noted above, Fehr and Russ (2013) used the APS-P to examine pretend play and aggression in the school setting. Their findings support the Mastery/Catharsis viewpoint. In particular, they found that oral aggression on the APS-P, aggression involving the mouth (e.g., having one toy bite or eat another toy), was negatively related to teacher-reported physical aggression and positively related to teacher-reported prosocial behavior. This seems to indicate that certain types of aggression during pretend play may be adaptive rather than maladaptive. Furthermore, they found that physical or relational aggression in pretend play was unrelated to teacher-reported relational or physical aggression in the classroom. These results suggest that aggression in pretend play is not necessarily a sign of an aggressive child, which is in contradiction to the General Aggression Model which would view aggression in pretend play as a learned behavior that has generalized from aggression outside of play. Additionally, Fehr and Russ (2013) found that children who pretend played more often were rated as more prosocial by their teachers and exhibited less physical aggression indicating the overall importance of pretend play in healthy social and emotional development. The finding that higher amounts of pretend play are related to reduced aggression also suggests support for the Mastery/Catharsis hypothesis as it is possible that children who use pretend play more often are better at emotion regulation and coping. Based on this theory, Gottschall (1992) advocated for pretend play as an outlet for aggressive feelings and stated the importance of teachers providing that outlet in the classroom in

her guidelines for promoting play in the classroom. In addition, J. Singer and D. Singer (1986) and Fehr and Russ (2013) found that children who exhibited imagination in their free play were less likely to exhibit aggression outside of play suggesting that pretend play in general, regardless of whether it is aggressive, acts as a protective factor against aggression outside of play. Further support of the Mastery/Catharsis hypothesis comes from a study looking at mothers' reactions to their aggressive and nonaggressive preschool-aged children's aggressive play (Landy & Menna, 1997). Mothers completed rating forms that classified their child's behavior as either aggressive or nonaggressive. Mothers who rated their children as aggressive were observed stopping or ignoring their children's aggressive play. Conversely, mothers who rated their children as nonaggressive were accepting of their children's aggressive play, acknowledged the characters' anger, and engaged in the play with the child expanding the story to a positive ending. These findings seem to indicate that allowing children to play out aggressive themes could be related to children being rated as nonaggressive, whereas preventing children from playing out aggressive themes or not helping them to process the aggression may be related to children being identified as aggressive. Additionally, this relationship may be reciprocal with nonaggressive children more likely to process aggression through their play and aggressive children not likely to work through their aggression while they play. Furthermore, a child's aggressive or nonaggressive play may also impact parents' behaviors. If a child who is not typically aggressive is playing aggressively, a parent may feel more obliged to engage in the play to lead the play to a more appropriate ending.

Alternatively to the Mastery Hypothesis, several studies have supported the General Aggression Model explanation for aggressive play (Miranda et al., 2009; Mussen & Rutherford, 1961; J. Singer & D. Singer, 1986). Mussen and Rutherford (1961) found that children aged 6 to

7 years who saw an aggressive cartoon prior to free play were more likely to express aggressive impulses in their play by destroying a balloon than children who either saw no cartoon or a nonaggressive cartoon. This suggests that through observational learning the children learned how to behave more aggressively in their free play (i.e., destroyed the balloon). Alternately, it could be argued that the children were primed to be aggressive. Miranda and colleagues (2009) found that an adult making disapproving statements while watching violent television with a child led to the child exhibiting less aggression than a child that did not have an adult present. The absence of a disapproving adult is a situational factor. Taken together, these findings support the theory that the interaction of situational factors and learning history, such as the absence of an adult and viewing modelled aggression, increases aggression in play. However, it should be noted that other studies examining the role of modeled aggression have contradicted the General Aggression Model and found that an increase in aggressive play does not necessarily indicate an increase in aggression outside of play. Ferguson (2011) found that violent video game use did not predict future aggressive acts and proposed that other variables (e.g., depressive symptoms, family environment) were more predictive of violence.

Despite findings showing children imitate viewed aggression, it is plausible that the imitated aggression could be better explained by the Mastery/Catharsis hypothesis than the General Aggression Model. If the imitated aggression only exists in the play, is used by the child to process the aggression they have recently seen, and there is no increase or a decrease of aggression outside of play, then the Mastery/Catharsis hypothesis could also serve as an explanation for the aggressive play. It is possible that children play more aggressively after viewing violent media not because the media increased their aggressive impulses but because they need to process what they saw.

Aggression during pretend play can also be influenced by the environment and antecedent events. The level of aggression during pretend play can be influenced by the type of toys available, with antisocial toys linked to more aggressive play and prosocial or neutral toys associated with less aggressive play (Feshbach, 1956; Kaiser, Snyder, & Rogers, 1995). Thus, it is important to provide children with both types of toys when assessing play to avoid leading them towards one type of play over another. Furthermore, research has also shown that an adult's presence may influence aggressive play (Cohn, 1962; Siegel & Kohn, 1959). Siegel and Kohn (1959) examined the effect an adult's presence had on the changes in aggressiveness of pairs of children's play across two play periods. They found that when there was an adult experimenter present in the room during play who remained permissive and nonjudgmental, the children exhibited more aggressive acts during a second play session compared to the first session. Intriguingly, they found that most children did not show an increase in aggressive play in the second session when they were in the adult absent group. This contrasts with Miranda and colleagues' (2009) finding that children left alone exhibited more aggression than children that had a disapproving adult present. Similarly, Levin and Turgeon (1957) found that aggressive doll play increased between time points when mothers remained nonjudgmental while children played aggressively. These findings combined with Cohn's (1962) suggestion of using a passive experimenter, reiterate the importance of the examiner remaining permissive and nonjudgmental to obtain the most accurate measure of aggression. As this study examined children's aggression in pretend play using a measure administered by an adult, it was essential for the examiner to follow these guidelines in the administration of the measure.

Anger

Anger is an emotion one experiences when their needs are not met or when their well-being is threatened (Marion, 1994). It can serve an adaptive or functional purpose, driving one to overcome obstacles and accomplish a goal (He, Xu, & Degnan, 2012; Lewis, 2010). Fabes and Eisenberg (1992) presented several causes of anger including physical causes (e.g., being hit or kicked), verbal causes (e.g., teasing), rejection, material causes (e.g., tower destroyed), and compliance (e.g., being told to do something). Anger first emerges around 4 to 6 months of age (Lewis, 2010). There is a reduction in anger expressions as infants age and form a secure attachment (Lemerise & Harper, 2010). Infants that form an insecure attachment are likely to exhibit an increase in angry expression (Kochanska, 2001). With healthy development, anger continues to decrease with preschoolers exhibiting less angry expressions than infants or toddlers (Lemerise & Harper, 2010). This decrease in expressions of anger is the result of children learning display rules of how to appropriately express emotions and to whom (Lemerise & Harper, 2010). This understanding of display rules allows children to learn how to manage their emotions when playing with peers (Parker & Gottman, 1989). In regard to gender differences, Eisenberg and colleagues (1994) found that, according to teacher ratings, boys scored higher on anger intensity and physical retaliation and lower in verbal objections than girls. However, previous research has found no gender differences between the frequency or types of anger expressed by children (Fabes & Eisenberg, 1992).

Several factors are associated with anger regulation. Di Maggio and colleagues (2016) found that children who were better at regulating their emotions scored lower on an anger-aggression measure. This was further supported by research findings indicating that the intensity of children's anger reactions was related to measures of regulation and emotional intensity at

school (Eisenberg et al., 1994). Additionally, children who had higher levels of effortful control were quicker to use distraction as a coping strategy and had longer latency until anger expressions (Tan, Armstrong, & Cole, 2013). Furthermore, Snyder, Stoolmiller, Wilson, and Yamamoto (2003) found that when parents had negative reactions to their children's anger, there was a reduction in latency to the child's next anger display, indicating parental responses to anger influence children's anger regulation. This view is also supported by Miller and Sperry (1987), who found that children whose families modelled poor anger management often exhibited retaliation.

Which coping strategy a child uses to regulate their anger is dependent on the source of the anger, the child's perceived control of the situation, and who provokes the child (Fabes & Eisenberg, 1992; Marion, 1994). Children will often use distraction to cope with their anger (Feldman, Dollberg & Nadam, 2011; Tan et al., 2013). Feldman and colleagues (2011) found children also used play to cope with their anger. In their study they had toddlers participate in several tasks designed to induce anger. During a toy removal activity, they found that a significant proportion of the toddlers engaged in play as a coping mechanism. However, they did not examine the efficacy of play as a coping mechanism. They simply reported that it was used. Other coping strategies described in the literature are revenge, defending, venting, avoidance, adult-seeking, and expressing dislike (Fabes & Eisenberg, 1992). Fabes and Eisenberg (1992) found that the two most common types of coping in their study were active resistance, or defending, and venting, with girls more likely to use active resistance and boys more likely to vent. Additionally, they found the use of aggressive retaliation as a coping strategy was low. Furthermore, Karniol and Hernan (1987) found that when angered by an adult, children were more likely to use passive coping responses and when angered by peers, children

were more likely to use active coping responses. Because children who are better players are better copers (Christino & Russ, 1996), it is hypothesized that children who play better will also be able to cope with and regulate their anger better. However, this has yet to be explored in the literature.

Relationship Between Anger and Aggression

Multiple studies have supported the strong relationship between anger and aggression (Eisenberg et al., 1994; Hubbard et al., 2002; Hubbard et al., 2004; Klaczynski & Cummings, 1989). Hubbard and colleagues (2002) examined the relationships between anger and proactive and reactive aggression. They asked children in the second grade to play a game, manipulated for them to lose, with a confederate coached to blatantly cheat. Results of the study revealed that reactive aggression, but not proactive aggression, was related to increased levels of anger on measures of nonverbal angry behaviors (e.g., using game materials roughly, displays of frustration such as pounding the table, hitting forehead) and skin conductance. The finding that children rated higher on reactive aggression also scored higher on measures of angry nonverbal behaviors was replicated in another study (Hubbard et al., 2004). This relationship was further supported by Hubbard and colleagues' (2004) findings that the relationships between angry nonverbal behaviors and skin conductance reactivity, heart rate reactivity, and angry facial expressions were stronger for children rated higher in reactive aggression. These results suggest a strong relationship between anger and reactive aggression.

Using the same anger inducing game described above and a similar-aged sample, Dearing and colleagues (2002) found a significant relationship between rough nonverbal angry behaviors displayed during the game (e.g., throwing game pieces, slamming game pieces on board) and peer ratings of social preference and aggression. Children that displayed more rough nonverbal

angry behaviors during play were more likely to be rated as aggressive by their peers. Conversely, children that displayed fewer rough nonverbal angry behaviors during play were more likely to be rated higher on a measure of social preference by their peers. Furthermore, when examining the role of anger regulation, Dearing and colleagues (2002) found that the number of plausible strategies children provided for coping with the internal state of anger and the number of display rules for anger they used during the game were negatively correlated with rough nonverbal behavior during the game. They also proposed a mediation model based on their data with nonverbal angry expression acting as a mediating mechanism for an indirect relationship between anger regulation and social preference and aggression. These results further support the relationship between anger and aggression.

Klaczynski and Cummings (1989) also examined the relationship between anger and aggression. They exposed school-aged boys to two adults engaged in an angry conversation and then asked the boys to play (Klaczynski & Cummings, 1989). Boys who were rated as more aggressive by their teachers reported being more distressed than boys rated as nonaggressive, after viewing the angry conversations (Klaczynski & Cummings, 1989). Of the aggressive boys, 78 percent reported feeling anger after witnessing the angry conversations, compared to only 33 percent of the nonaggressive boys (Klaczynski & Cummings, 1989). These results suggest that aggressive boys are more likely to be angered than nonaggressive boys (Klaczynski & Cummings, 1989). It is unclear whether this relationship is unidirectional or bi-directional. It is plausible that aggressive boys are more easily angered than nonaggressive boys. However, it is also plausible that boys who are more easily angered are more likely to be aggressive. Alternatively, both statements could be true, and the relationship could be bi-directional.

Eisenberg and colleagues (1994), interested in the relationships among emotionality, regulation, and anger reactions, observed children in their classrooms and asked their parents and school personnel to fill out rating forms. Researchers measured overt emotional reactions and rated them on a 3-point scale of intensity. In addition, teachers, teacher aides, and the child's mother filled out measures of coping, emotional intensity, and negative affect. Lastly, social competence was measured by school personnel and classmates' ratings. Their research revealed several interesting findings. First, it was found that venting emotions was positively correlated with emotional intensity for both boys and girls, and anger intensity for girls only, according to school reporters. Furthermore, positive relationships were found between the use of physical retaliation and emotional intensity and acting out for both boys and girls and anger intensity for girls only. Finally, anger intensity was found to positively correlate with emotional intensity, acting out coping, and negative affect, according to school ratings. Similar to the studies discussed above, Eisenberg and colleagues' (1994) finding that children exhibiting higher anger and emotional intensity also displayed more external aggressive reactions provides additional support for the relationship between anger and aggression.

Factors Associated with the Anger-Aggression Link

Emotional regulation and knowledge. Several factors were found to influence the relationship between anger and aggression. Di Maggio and colleagues (2016) found that in children aged 3 to 5 years, higher levels of emotion regulation, per teacher rating, were negatively correlated with an anger-aggression domain on a separate measure completed by teachers. Denham and colleagues (2002) investigated the role of emotion knowledge in levels of aggression and anger. Their results indicated that higher emotion knowledge was linked to lower aggression and anger based on teacher measures.

Social skills. Eisenberg and colleagues (1994) found that school personnel's ratings of social skills were negatively related to venting anger reactions and anger intensity. Although a relationship exists, it is unclear if children who have better social skills are less likely to be angered or if children are rated as more socially skilled if they are less angry. In addition, they found that there were children in their sample who were never observed to be angry (Eisenberg et al., 1994). These children were described as having higher attentional control, being lower in acting out versus avoidant coping, and being lower on emotional intensity, according to school personnel ratings (Eisenberg et al., 1994).

Inhibitory control, impulsivity, and negative emotionality. Colasante, Zuffianó, and Malti (2015) found that inhibitory control was negatively correlated with both anger and aggression. Additionally, their research findings suggest that as age, socioeconomic status, and inhibitory control increase, aggression decreases. Research conducted by Joireman and colleagues (2003) suggested that children with higher levels of motor impulsivity and trait anger were more likely to be verbally aggressive. Suurland and colleagues (2016) found similar results. They found that negative emotionality and inhibitory control were significantly related to aggressive behavior and physical aggression in their sample of children aged 2 to 5 years. Their research revealed that the association between negative emotionality and aggressive behavior increases when a child has lower levels of inhibitory control. Therefore, they proposed that negative emotionality and inhibitory control interact to either reduce or increase aggression.

Moral emotions. Colasante et al. (2015) also examined the role of moral emotions in the anger-aggression relationship. They found that anger and aggression continued to be positively correlated at low and medium levels of guilt and empathy but not at high levels of guilt and empathy, suggesting that moral emotions, if strong enough, may disrupt the anger-aggression

link. Strayer and Roberts (2004) found that 5-year-old children who were rated as more empathetic were less angry and less physically and verbally aggressive when playing with peers, suggesting that empathy may serve as a protective factor against anger and aggression. They asked their participants to engage in free play in a group of same-aged peers at two different time points. In most of their groups, Strayer and Roberts (2004) found a positive correlation between aggression and anger. Interestingly, Strayer and Roberts found that in their two most aggressive groups, aggression increased between the first and second time points, but anger decreased. Although the type of play the children engaged in is not specified, it is possible, as the Mastery/Catharsis hypothesis would suggest, that in these two groups the children's anger decreased as their aggression increased because they were engaging in thematic aggression to work through aggressive impulses related to their anger. However, it is not possible to know if the children were engaging in thematic or inappropriate aggression as the coding system did not capture this. Possible codes included physical aggression, verbal aggression, and social play. It is not clear where aggressive play would have been classified in this coding system. As of yet, no research has examined whether children's anger results in aggressive play, and whether that aggressive play results in a reduction of aggression.

Goals of the Current Study

This study adds to the current literature on pretend play, aggression, and anger by exploring the relationships among the three. Several studies have examined the relationships between anger and aggression (Eisenberg et al., 1994; Hubbard et al., 2002; Hubbard et al., 2004; Klaczynski & Cummings, 1989) and aggression and pretend play (Dunn & Hughes, 2001; Fehr & Russ, 2013; Landy & Menna, 1997). However, an extensive review of the literature failed to reveal research that examined the interactions of anger, aggression, and pretend play in

the same study. By inducing anger in preschoolers and then evaluating their level of aggression in play, this study aimed to determine if anger increases aggression in pretend play.

Furthermore, this study aimed to reveal the role of pretend play in reducing and regulating children's anger. Other studies have found pretend play helps children to regulate their emotions and cope with anxiety (Christian et al., 2011; Galyer & Evans, 2000; Hoffmann & Russ, 2012), but the role of pretend play in regulating and coping with anger specifically has not been investigated. Additionally, as both aggression and pretend play peak in the preschool years (Alink et al., 2006; Fein, 1981; Tremblay et al., 2004) this study addresses a common developmental issue with a developmentally appropriate task. As previous research has found that children who pretend play more often and exhibit more aggression in their play are less aggressive outside of their play (Fehr & Russ, 2013), it follows that children should be able to use play to process and work through their aggressive impulses as the Mastery/Catharsis hypothesis suggests. Because there is a well-established relationship between anger and aggression (Eisenberg et al., 1994; Hubbard et al., 2002; Hubbard et al., 2004; Klaczynski & Cummings, 1989) it would make logical sense that children could also use play to process, cope, and regulate their anger. The current study evaluated this possibility and aimed to uncover implications for clinicians as they work to help young children learn to regulate their anger and reduce their aggression.

Hypotheses

Aim 1: Examine whether the mood induction procedure was effective.

Hypothesis 1: Children were expected to choose a lower scored mood before the mood induction procedure than after the mood induction procedure.

Aim 2: Determine whether anger increases aggression in pretend play.

Hypothesis 2: It was hypothesized that inducing anger in children would increase the frequency count of Total Aggression on the APS-P-BR from Time 1 to Time 2.

Aim 3: Evaluate whether pretend play is effective in improving mood and reducing anger.

Hypothesis 3: It was hypothesized that there would be a greater improvement in mood in the treatment group from Time 2 to Time 3 compared to the control group.

CHAPTER 3

METHODS

Participants

Participants were 37 children, 4 or 5 years of age, able to speak and understand English. Forty total children were recruited, but three participants were not included in analyses. One did not assent to be in the study, one was not fluent in English as evidenced by an inability to answer the researchers' questions, and one participant was excluded due to technical difficulties with the video during data collection. Therefore, 37 participants were used in final analyses. A priori power analyses were conducted using G*Power Version 3.1.9.2. A power analysis for an alpha level of 0.05 and power of 0.80 for a paired-samples t-test was run. An effect size from a previous similar study examining the change in play after a mood induction (Christian, Russ, & Short, 2011) was 0.62. Thus, samples of 18 participants were needed for the first two analyses, which were both paired-samples t-tests comparing Time 1 and Time 2 play scores in the treatment group only. As these paired-samples t-tests were only conducted on half of the sample, a total of 36 participants was needed. An additional paired-samples t-test was conducted for mood scores before and after the mood induction procedure. A power analysis for a mixed two-way analysis of variance with two groups and two measurements, an alpha level of 0.05, power of 0.80, and a medium effect size indicated that a sample size of 34 was needed. Therefore, the researcher aimed to collect a total of 36 participants.

The 37 participants included in the analyses were primarily male (62.2%) and Caucasian (64.9%). The mean age of the participants was 4.35 ($SD = 0.48$). Sample demographics are provided in Tables 1 and 2. One participant's parent did not provide complete demographics. Therefore, only their gender and age were known. A Chi Square analysis was performed to

determine whether there were even distributions of gender between the control and treatment groups. An alpha level of .05 was used for all statistical analyses. The control group had significantly more males than females (14 males, 3 females) compared to the treatment group (9 males, 11 females) $\chi^2(1) = 5.45, p = .02$. The groups were not significantly different regarding age $t(35) = -0.66, p = .515$.

Procedure

Local school principals and program directors were contacted about their willingness to allow their students to participate in the study. Consent forms and demographics questionnaires were sent home with children attending preschool programs and kindergarten at rural midwestern schools. Additionally, several participants were recruited through email from an existing registry of families interested in participating in research studies. A total of 400 children were targeted for the study. Forty-five parents provided consent for their children to participate, the (11.25% participation rate). However, five children were not eligible to participate due to the children being outside the eligible age range. As noted above, three of the eligible children were excluded. Thus, a total sample size of 37 children was obtained. Parents who were interested in allowing their child to participate in the study returned the forms in a sealed envelope to their child's school, or if recruited through the recruitment registry, responded to recruitment emails and scheduled visits in a campus laboratory. As part of a larger study parents were given the option to complete parent report forms. Assent was obtained from all participants prior to the administration of the child study measures. Data were collected at the schools and daycares where participants were recruited during 15- to 20-minute periods deemed appropriate by school personnel. Participants recruited from the registry visited the university laboratory at a time convenient for their families. Sessions were conducted in a separate room or in a quiet area of

classrooms at the participants' schools or in a quiet laboratory room. All sessions were videotaped, unless a child refused assent for videoing, via a camera on a tripod to facilitate scoring procedures. Participants were randomly assigned to a control or treatment group in varying sized blocks as consent forms were returned (condition procedures listed in Table 3).

At the beginning of the study all children participated in baseline assessment of their mood (Time 1) and the APS-P-BR. Then participants engaged in the mood induction in which they were told that they and a second researcher were both going to reach for a prize in a bag and the first person to reach in the bag would get a prize while the other person would not. Children were asked to explain the procedure back to the researcher to ensure understanding. If children were not able to describe the procedure it was explained a second time. The child was blocked from reaching into the bag by the second researcher and thus did not receive a prize. The second researcher then said "yes! I got a really cool prize and you didn't!" Although both researchers were in the room during the study, this was the only interaction the second researcher had with the child. All other measures were administered by the author. It should be noted that each child eventually received a prize at the conclusion of the study and an apology from the second researcher.

After the mood induction, participants were again asked about their mood by the first researcher (Time 2). After the measure of mood, participants in the treatment group completed the APS-P-BR again. Participants in the control group were asked to watch a 5-minute age appropriate video about training horses while the researcher gathered her papers to account for the passage of time. Mood was measured again after the APS-P-BR or 5-minute video (Time 3). At the conclusion of the study, participants were given the opportunity to pick out a prize and were debriefed about the cheating behavior of the second researcher and the purpose of the

study. Mood was measured at this time to ensure children's mood had returned to baseline. This measure was not included in any analysis or recorded. All the children reported either returning to baseline or an improvement in their mood.

Measures and Materials

Questionnaires

Demographic questionnaire. Parents were asked to provide basic demographic information about their child and family. Information about household income, parent education level, parental relationship status, child age, child gender, child grade in school, child race, and child ethnicity were collected. In addition, as part of a larger study, the questionnaire included questions about the child's amount of time engaged in pretend play and types of toys used.

Measures

Measure of Mood. Children were shown an array of cartoon faces of increasing size and intensity. The first face was a small happy face and the last face was a very large, red angry face. Children were asked to point to the picture of how they felt. The faces were coded 1 through 5 with 1 being the happy face and 5 being the angriest face. Thus, higher scores indicated a worse mood.

Affect in Play Scale – Preschool Version – Brief Rating (APS-P-BR; Fehr & Russ, 2014; Kaugars & Russ, 2009). The APS-P is a standardized play task that was adapted from the Affect in Play Scale (APS; Russ, 2004; Russ et al., 2000) for younger children 4 to 6 years old. It is both a measure of pretend play and a scoring system. The Affect in Play Scale – Preschool Version – Brief Rating form (APS-P-BR) is a version of the APS-P (Kaugars & Russ, 2009) that allows for live coding of play. Children are presented with a variety of toys (i.e., stuffed and

plastic animals, koosh ball, car, and three cups) and then are read a standardized story stem. The stem reads:

That's all the toys in the basket. Now we're going to make up a story using the toys on the table. See how you can play with the toys. This is the bear. (Exaggerate voice tones) He says, "I'm really hungry! Where can I find some food?" (Goes over to cups) "Oh look, I found some cookies. I love cookies. Yum! Yum! Here's another cup. Oh yucky! I don't like what's inside there! Yuck!" Now you keep playing. What happens next? Make up a story and I'll tell you when to stop.

Children were given 5 minutes to play. With 1 minute remaining, all children were told "you have one minute left to play with the toys." Other prompts were provided as necessary according to the standardized instructions.

The author and another researcher, who double coded videos to determine interrater reliability with this dataset, were previously trained on the APS-P-BR. The codes and the live coding process were first discussed with a trained APS-P-BR coder. Each individual watched several training videos and then met interrater reliability with a trained rater by achieving interclass correlations of .80 or higher for all APS-P-BR scores.

All coding in the present study was done live by the author. The current study used the Aggression and Oral Aggression codes from the APS-P, which were coded based on frequency counts. The Aggression code, which will be referred to as Physical/Verbal Aggression for the remainder of this manuscript, captures aggressive themes in play such as fighting, attacking, and crashing and references to aggressive themes (e.g., guns). The Oral Aggression code captures aggression that uses the mouth such as biting and eating other characters as well as disgust related to eating (e.g., "that's yucky"). Live coding of these two scores was previously used by

Fehr (2010). Oral Aggression and Physical/Verbal Aggression were combined into a Total Aggression code, which was used in all analyses. The APS-P-BR also includes live coding of the following scores: Total Affect, Positive Affect, and Negative Affect. Total Affect is the frequency count of instances of affect within the play narrative, positive or negative, exhibited in the 5 minutes. Positive and negative affect are further divided into subcategories. Therefore, Positive Affect, Negative Affect, Physical/Verbal Aggression, Oral Aggression, and Undefined Affect frequencies were coded live. The comfort, imagination, and organization of the play were scored immediately after administration. The Comfort, Imagination, and Organization scores are coded according to 4-point Likert scales. Comfort on the APS-P-BR is a measure of how engaged the child is in the task. Imagination is a measure of how much fantasy is used within the child's play. Finally, Organization is a measure of how logical and coherent the child's play and stories are. In the present study, only Total Aggression (the sum of Oral Aggression and Physical/Verbal Aggression) from the APS-P-BR was used in analyses.

The APS-P-BR has good psychometric properties with interrater reliability ranging from .70 to .96 (Fehr & Russ, 2014) and good construct validity compared to the APS-P ranging from .84 to .92 (Fehr & Russ, 2014). Additionally, the APS-P has good split-half reliability, with $r = .88$ (Kaugars & Russ, 2009). Furthermore, the APS-P-BR scores were correlated with teacher ratings of prosocial behavior, physical aggression, and relational aggression thus showing good external validity (Fehr & Russ, 2014). In the present study interrater reliability for the Physical/Verbal Aggression and Oral Aggression scores was calculated by comparing the author's live coding with the coding of another researcher trained on the APS-P-BR who watched 10 (17.54%) of the play sessions. Interrater reliability was assessed using a two-way mixed model testing for absolute agreement. A 95% confidence interval was used. For

Physical/Verbal Aggression interrater reliability was .93 and for Oral Aggression it was 1.00 based on single measure interclass correlations of the frequency counts of each rater for each of the codes.

CHAPTER 4

RESULTS

Preliminary Analyses

Boxplots were used to determine whether there were outliers. However, outliers were not removed from analyses as variability in mood and play scores were anticipated and removal would result in loss of important variability. According to Shapiro-Wilk's test of normality, the data were not normally distributed ($p < .05$). However, this was also anticipated as it was expected that data would be skewed towards the ends of the data as all participants were expected to have relatively positive baseline moods, negative mood after the mood induction, and positive mood after watching the video in the control condition and less aggressive play before the mood induction and more aggressive play after the mood induction. Given that these abnormalities were expected and make sense conceptually, the data were not transformed. As assessed by Levene's Test of Equality of Variances there was homogeneity of variances ($p > .05$) for baseline mood and induced mood, but there was not homogeneity of variance ($p = .007$) for measurement of mood after the video or play task. The assumption of sphericity for a two-way interaction was met as assessed by Mauchly's test of sphericity, $\chi^2(2) = 1.54, p = .46$.

Pearson correlations were calculated comparing Total Aggression, mood scores, and age in months (see Table 4). There was a statistically significant, medium, positive correlations between Time 1 Total Aggression and Time 1 mood, $r(35) = .34, p = .043$, indicating that children who reported worse moods at Time 1 engaged in higher frequencies of Total Aggression in pretend play at that time. All other correlations were nonsignificant and are reported in Table 9 (i.e., correlations among age in months, Time 1 Total Aggression, Time 2 Total Aggression, Time 1 mood, Time 2 mood, and Time 3 mood).

Hypotheses

Hypothesis 1

The first hypothesis was that children would choose an image of a lower scored (better) mood as their mood before the mood induction procedure (Time 1) and a higher scored (worse) mood for their mood after the mood induction procedure (Time 2). At Time 1, 34 children selected the least negative mood (scored 1), 1 selected the middle mood (scored 3), and 2 selected the most negative mood (scored 5). At Time 2, after the mood induction, there was more variability. Twelve children chose the mood scored 1, 19 chose the mood scored 2, and 6 chose the mood scored 5. The final measure of mood, Time 3, saw the most variability in scores. Twenty-three children indicated a mood score of 1, 5 chose a mood score of 2, 6 chose a mood score of 3, 1 chose a mood score of 4, and 2 chose a mood score of 5.

This hypothesis was analyzed using a paired-samples t-test (see Table 5). The results of this analysis indicated that on average participants selected a worse mood after the mood induction procedure ($M = 2.16$, $SD = 1.34$) than they did prior to the mood induction procedure ($M = 1.27$, $SD = 0.96$). This was a statistically significant difference $t(36) = -3.52$, $p = .001$ and had a medium effect size, $d = 0.58$. This indicates that the mood induction procedure effectively induced a negative mood in the participants.

Hypothesis 2

The second hypothesis was that inducing anger in children would increase aggression in their pretend play. To measure this, frequency counts of Total Aggression were obtained before and after the mood induction procedure for the treatment group. A paired-samples t-test was run to compare the mean frequency count of Total Aggression before the mood induction (Time 1) to

the mean frequency count of Total Aggression after the mood induction (Time 2). On average, participants exhibited more Total Aggression after the mood induction ($M = 7.25$, $SD = 6.36$) than they did before the mood induction ($M = 1.85$, $SD = 2.23$). This difference was significant $t(19) = -3.71$, $p = .001$, and represented a large effect size, $d = 1.13$ (See Table 5).

Hypothesis 3

A mixed design repeated measures analysis of covariance controlling for gender was conducted to analyze the third hypothesis that there would be a greater improvement in children's mood from Time 2 to Time 3 after engaging in pretend play during the APS-P compared to watching an emotionally neutral video for 5 minutes (see Tables 7-8). Gender was entered as a categorical covariate as described by Howell (2012). The decision to control for gender was made because gender was not evenly distributed between the control and treatment groups. Given that males tend to exhibit more aggression (Di Maggio, Zappulla, & Pace, 2016; Suurland et al., 2016; Trembley et al., 1999) and aggression was hypothesized to influence mood, it followed that gender should be controlled for. The independent factors entered into the model were time (Time 1, Time 2, and Time 3) and condition (treatment and control). The dependent factor was mood. Gender was entered as a covariate. The main effect of time was significant when gender was controlled for, $F(2, 70) = 7.60$, $p = .001$, partial $\eta^2 = .18$. Pairwise comparisons using the Bonferroni correction indicated there was a significant ($p = .001$) increase in negative mood score between Time 1 mood and Time 2 mood (1.27 ± 0.96 vs 2.16 ± 1.34 , respectively). There was not a significant difference between Time 2 mood and Time 3 mood nor between the Time 1 mood and Time 3 mood. The interaction between time and condition on mood when gender was controlled almost reached statistical significance, $F(2, 70) = 2.61$, $p = .072$, partial $\eta^2 = .07$. There was a statistically significant interaction between time and gender

on mood, $F(2, 70) = 4.87, p = .011$, partial $\eta^2 = .13$. Follow-up independent samples t-tests (see Table 8) indicated that males reported a statistically significant higher final mood ($M = 2.09, SD = 1.35$) than females ($M = 1.21, SD = 0.43$), $t(35) = -2.35, p = .025$.

CHAPTER 5

DISCUSSION

The results supported the first hypothesis that the mood induction would lead children to select a worse mood after the mood induction. On average, the participants selected a worse mood after the mood induction than they did prior to the mood induction. Additionally, the results supported hypothesis two that stated children would play more aggressively after a mood induction that aimed to create a negative mood. Children exhibited more instances of oral aggression and physical/verbal aggression within the play on the APS-P-BR after they were angered. The third hypothesis was not supported by the results. Children in the treatment/play condition did not show a greater reduction in negative mood than children in the control/video group.

Mood Induction

Previous literature has found mood inductions to be effective at inducing anger in children (Dearing et al., 2002; Feldman et al., 2011; Hubbard et al., 2002; Hubbard et al., 2004). However existing mood inductions tend to be lengthier (e.g., a cheating procedure during a board game; Hubbard et al., 2002) and with children other than preschoolers (e.g., school-aged children; Hubbard et al., 2002). The results of hypothesis two indicated that the mood induction procedure used in this study was also effective. As this was a novel procedure, it is important to note that it was effective in inducing a negative mood in children aged 4 to 5 years. Further replication of this mood induction will determine whether it can be consistently used in this population and/or with other populations.

Additionally, there was not much variability in mood ratings among the participants with very few choosing moods that fell in the middle of the scale. Therefore, at this developmental level, a 2-point or 3-point Likert scale rating may be more appropriate.

Aggression in Pretend Play

This study's research design allowed for the examination of the effects of anger on aggression in pretend play. Furthermore, it allowed for the evaluation of the effects of pretend play over time. Previous research on anger, aggression, and pretend play has primarily examined correlations among these domains (e.g., Dunn & Hughes, 2001; Fehr & Russ, 2013). This study used a mood induction to induce anger which allowed for the immediate observation of the effects of anger on pretend play. The study of these effects over time provided more generalizable findings to daily life as it examined the temporal effect between anger and aggression.

Children in the treatment group exhibited more aggressive affect in their play after the mood induction than before the mood induction. Although previous literature has also shown that aggression occurs in pretend play in this population (e.g., Fehr & Russ, 2014), this is the first to examine the rate of aggressive pretend play directly following anger induction. Thus, these findings provide preliminary support for the normality of aggression in pretend play following an upsetting event in preschool aged populations.

The increase in aggressive affect in play after mood induction was unsurprising as both the General Aggression Model and Mastery/Catharsis hypothesis would predict an increase in aggression after a child was angered. Where the two theories differ is in their explanation of the aggressive play. Unfortunately, this study could not determine whether children are simply playing aggressively or processing their anger. Therefore, it is difficult to draw conclusions

from this data to support either theory. However, it should be noted that there was a decrease in anger after playing. The General Aggression Model does not propose that aggression in pretend play would lead to an improvement in mood. However, given that both groups saw a decrease in anger, it could be that aggression in pretend play has no effect on mood and it was simply the passage of time that led to a reduction in anger.

An increase in aggressive play following anger was common in this sample. However, as play was only measured over a 5-minute period it is unclear at what point persistent aggression in pretend play should become concerning. This is an area in need of further study. Although there is literature on the acceptance and perceptions of the normality of aggression in pretend play (Landy & Menna, 1997; Lehrer & Petrakos, 2011), there are no clear guidelines on when this behavior should be considered excessive or problematic. Landy and Menna (1997) found that many mothers in their sample allowed their children to engage in aggression in their pretend play. Conversely, Lehrer and Petrakos (2011) found that many parents discouraged violent play. Future research should examine when aggression in pretend play becomes concerning and develop guidelines for parents.

Measures of aggression outside of play (e.g., physical aggression, trait aggression) were not obtained for this sample. Thus, it is difficult to determine how much aggression this sample engaged in outside their play narratives. This relationship should be researched further to determine whether there is an association between aggression in pretend play and aggression outside play as the prior research on this topic tends to be mixed (Dunn & Hughes, 2001; Fehr & Russ, 2013).

It should be noted that the aggressive play within this study was measured during solo play. Findings have differed when there have been two children engaged in pretend play

compared to one child playing alone. Dunn and Hughes (2001) examined the pretend play of child dyads composed of one “hard to manage” child and one typical child. Children that scored above the 90th percentile on the hyperactivity and conduct disorder scales of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) received the “hard to manage” label. They found that the children who engaged in more violent themed play with their peer were more antisocial outside play with peers. Conversely, Fehr and Russ (2013) found that children who engaged in more aggression in pretend play individually were less aggressive outside play. When others are involved in a child’s play, aggression may get directed toward them. For example, DiLalla and John (2014) found that children who were aggressed against by a play partner were more likely to be aggressive themselves. Dunn and Hughes (2001) did not find that the aggressive play of one child influenced the other. Neither of these studies differentiated aggression that occurred within the play narrative from aggression that occurred outside the narrative but rather coded aggression overall. However, the research suggests that if a child is aggressive towards their peers outside of play, aggressive themes may be directed toward the child within the play. Thus, if dyadic or group play had been examined in the current study, the results may have been different.

The pretend play seen in Dunn and Hughes (2001) likely differed from the pretend play the Mastery/Catharsis hypothesis addresses. The Mastery/Catharsis hypothesis proposes that children process their emotions within their pretend play. If some of the children in Dunn and Hughes (2001) were directing their aggression toward a playmate, they were not containing their affect within their play narrative. The continuing of aggression towards an individual into the play narrative was also exhibited by a few participants in the present study who “attacked” the researchers with the toys or made eye contact with them while having toys engage in aggression.

However, this was a subjective observation and not coded. Although these aggressive acts are still occurring through the play, they are not the type of play discussed by the Mastery/Catharsis hypothesis. The pretend play that is discussed in the Mastery/Catharsis hypothesis involves the child working through their emotions by containing them within their play. Directing the aggression at others using play seems as if it should be classified as an act of aggression, not aggression in pretend play, because the child is not containing the aggression within their play narrative.

Moustakas (1955) proposed that children who were more “disturbed” had more impulsive and diffuse hostility in their play whereas typically developing children tended to exhibit more focused aggression in their play. Additionally, it is highly unusual for children to direct their aggression in their pretend play towards an accepting adult (Moustakas & Schalock, 1955). Therefore, the fact that several of the children in this study directed their aggression towards the examiner suggests an area for further research. Children who are unable to contain aggression within the pretend play narrative should be further examined to determine if they have different traits or play skills that are related to their abilities to use pretend play to process their emotions or if there are other individual differences that could account for this discrepancy. It was also observed that most aggressive play occurred at the beginning of the play period, and there was little aggression in pretend play acts at the end of the play period. Although this scenario was not analyzed statistically, it may be that children exhibit less aggression as they either calm down and/or work through their anger. Further research should examine how long children need to play to work through their anger. Results comparing the mood scores of the control and treatment groups indicated that play and the passage of time did not significantly differ in their regulation effect. Given the non-significant findings regarding the use of play to calm down, it

may be that five minutes was more than a sufficient amount of time to work through anger. Future research evaluating shorter periods of play may reveal significant findings regarding play as a more efficient mechanism than the passage of time in helping children to regulate their anger. The effects of pretend play may also differ depending on the intensity of the child's anger or the stressor.

Effect of Pretend Play on Mood

No significant differences between the control and treatment groups regarding mood changes were observed. This was surprising as research on anxiety has found that play can lead to a decrease in anxiety (Christian et al., 2011; Christiano & Russ, 1996). The differences in findings between this study and others may be that play simply has no effect on anger/aggression. However, it could also be related to the studies' designs. The video in this study was designed to serve as a control for the passage of time. It is plausible that despite the hope that the video would serve as a control for the passage of time, it may have served as a distraction from the child's anger, thus providing another way to reduce anger. Feldman and colleagues (2011) and Tan and colleagues (2013) both found that children tend to use distraction to cope with anger. These results do not necessarily indicate that play does not help with emotion regulation but rather that it was not more effective than the potentially distracting 5-minute video in reducing anger in the current study. Had the child simply been told to sit quietly then different effects may have been found. Additionally, Christian and colleagues (2011) and Christiano and Russ (1996) did not have control groups in their studies to control for the passage of time. The main effect of time suggests that both the passage of time and pretend play improve mood. It is unclear whether pretend play has any additive effect for emotion regulation based on these findings. However, the interaction between mood change over time and condition was

trending suggesting that the pretend play may have had a different effect on mood than the video. Thus, if there had been a larger sample, a more upsetting event, a shorter time period, or comparison to a control group that did not provide any alternate coping strategies, pretend play may have been more effective in reducing anger than the passage of time alone. Future research could examine this relationship in a larger sample, with a more intensely angering event, over a shorter time period, or with a control group that sits quietly rather than watches a video.

Additionally, there appeared to be gender differences regarding mood. Males exhibited less mood improvement after the play or video than the females. It may be that females have better emotion regulation than males and are able to recover more quickly. However, given the differential distribution of males and females between the control and treatment groups, it could also be the effect of the play or video that affected this change. Future research should examine if males need more time to regulate their anger than females as findings in this area are currently divided and vary based on the observer of the emotion regulation (Fan, 2011; Goldstein, 2015).

Strengths

This study addresses a gap in the current literature by examining the relationships among aggression, anger, and pretend play. The study includes many methodological strengths. First, the study design included both a treatment and control group and randomization of the sample to condition. Using two groups allowed the researcher to control for time to determine the role of play in the regulation of anger. Having a control group that engaged in a neutral task accounted for the effect of the passage of time in the improvement of mood. Additionally, a powerful analysis, repeated measures design, was used eliminating the effects of several extraneous variables.

Second, a well-validated, standardized measure of pretend play was used (Fehr & Russ, 2014; Kaugars & Russ, 2009). This measure has been shown to reliably measure aspects of play including aggression (Fehr & Russ, 2013). Additionally, it measures different types of aggression including oral aggression (e.g., biting) and physical or verbal aggression (e.g., hitting, roaring), thus capturing a range of aggressive content that children might exhibit at this age.

Third, a realistic anger induction procedure was used. Children frequently encounter someone cheating during games. Thus, using cheating as a mood induction allowed for a reaction similar to what may be seen in children's everyday life. Despite the mood induction procedure being relatively mild, a statistically significant change in mood was seen. Therefore, it was determined that research on anger can be conducted in this population without an overly lengthy interaction like has been seen in other mood inductions (Dearing et al., 2002; Hubbard et al., 2002; Hubbard et al., 2004).

Limitations

There were several limitations in the current study. First the sample may not be representative of the general population. The sample was primarily male, Caucasian, and enrolled in preschool programs or kindergarten. It may not be as representative of female children, children of other races/ethnicities, or children not enrolled in formal educational programs, such as those that stay with a caregiver during the day. Additionally, all the participants were recruited from rural areas. Finally, this sample may not be representative of all children as it was a specific subset of children whose parents were open to them participating in a study that could potentially involve in a temporary negative or unpleasant mood. Thus, the results may not be generalizable to other populations. Future research should replicate this study with more diverse samples.

Second, the results are representative of reactions to an induced mood. Although the mood induction was standardized, results may have varied if measured after children became upset in a natural way or if the interaction had been with a peer rather than an adult. Furthermore, different children may have different reactions to various incidents. Although most of the children reported a negative mood after the mood induction, a few indicated that they were still happy (rating of 1 on the measure of mood). Therefore, if the mood induction had been more severe, stronger effects may have been found. Additionally, some of the children appeared to be sad (e.g., teary eyes) rather than angry. It is possible that children in this age range may not have adequate skills in differentiating moods and therefore simply picked a more severe looking mood (e.g., larger face). Thus, the results may have been influenced by some of the participants experiencing sadness rather than anger. It may be beneficial in future studies to use more objective measures of affect such as physiological measures (e.g., skin conductance) in children who may not have good emotional awareness.

Finally, there was no measure of baseline/trait aggression. It is possible that children who have more trait aggression may have played differently than children who are typically nonaggressive. However, information regarding trait aggression was not collected. Furthermore, previous research has shown that other variables (e.g., emotion regulation, inhibitory control) can influence aggression and anger (Colasante et al., 2015; Di Maggio et al., 2016; Joireman et al., 2003; Suurland et al., 2016). This information was not collected in the current study. Future studies should control for these variables to remove extraneous variables that may influence findings among anger, aggression, and pretend play.

Conclusion

The present study is the first to examine the relationships among anger, aggression, and pretend play. While other studies have evaluated the relationships between anger and aggression or aggression and pretend play, none have combined the three. The use of a standardized play task, a standardized mood induction, and a control group strengthen the methodology and results of this study. However, limited information regarding individual differences (e.g., emotion regulation, trait aggression) limit the generalizability. Results of the present study indicate that anger can be effectively induced in preschoolers with a simple procedure. Furthermore, findings support the hypothesis that children play more aggressively when angry. Although both play and the passage of time (controlled for with a neutral video) reduced anger, there was no clear support for the additive nature of pretend play in regulating emotions. This conflicts with studies of anxiety (Chistian et al., 2011; Christiano & Russ, 1996) that have found pretend play helps lead to reduction in distress. Future research should examine the effects of individual differences and simple distraction on the regulation of anger using pretend play.

EXHIBITS

Table 1
Child Demographics

Characteristic	Percentage of Sample
Gender	
Female	37.8
Male	62.2
Race	
Caucasian	64.9
Asian	0.0
African American	8.1
Hispanic/Latino	2.7
Native American	2.7
Bi-racial/Multi-racial	16.2
Other	2.7
Age	
Four years old	64.9
Five years old	35.1

Note. $N = 37$; data on race was missing for one participant

Table 2
Parent Demographics

Characteristic	Percentage of Sample
Gender	
Female	85.0
Male	10.0
Marital Status	
Single	22.5
Married/Partnered	67.5
Divorced	7.5
Income	
<25,000	22.5
25,001-50,000	35.0
50,001-75,000	15.0
75,001-100,000	10.0
>100,000	15.0
Education	
High School	10.0
Some College	37.5
Bachelor's Degree	30.0
Master's Degree	12.5
Doctoral/Professional	7.5

Note. $N = 36$; parent demographics was missing for one participant

Table 3
Procedures for Treatment and Control Groups

Treatment Group	Control Group
1. Baseline measure of mood	1. Baseline measure of mood
2. Baseline APS-P	2. Baseline APS-P
3. Mood Induction	3. Mood Induction
4. Measure of mood	4. Measure of mood
5. APS-P	5. 5-minute video
6. Measure of mood	6. Measure of mood
7. Debrief	7. Debrief

Table 4
Pearson Correlation Matrix among Age, Aggression Scores, and Mood

	1	2	3	4	5	6
1. Age in months	--					
2. Time 1 Total Aggression	.09	--				
3. Time 2 Total Aggression	-.23	.11	--			
4. Time 1 Mood	.01	.34	-.08	--		
5. Time 2 Mood	.01	.04	.37	.14	--	
6. Time 3 Mood	-.22	.15	.15	.21	.27	--

*P < .05

**p < .01

Table 5
Results of t-test for Mood and Total Aggression at Time 1 and Time 2

Outcome	Time 1		Time 2		95% CI for Mean Difference		r	t	df	p
	M	SD	M	SD						
Mood Rating ^a	1.27	0.96	2.16	1.34	-1.41, -0.38		.14	-3.52	36	.001
Total Aggression ^b	1.85	2.23	7.25	6.36	-8.45, -2.35		.11	-3.71	19	.001

Note. ^aN = 37

^bn = 20

Table 6
Summary of ANCOVA for Mood Controlling for Gender

	Sum of Squares	df	Mean Square	F	Partial Eta Squared	p
Time	14.55	2	7.27	7.60	.18	.001
Time x Condition	5.23	2	2.61	2.73	.07	.074
Time x Gender	9.32	2	4.66	4.87	.13	.011
Error	65.05	68	0.96			

Note. $N = 37$

Table 7
Summary of ANCOVA for Mood Controlling for Gender

	Sum of Squares	df	Mean Square	F	Partial Eta Squared	p
Intercept	17.58	1	17.58	9.38	.22	.004
Gender	0.47	1	0.47	0.25	.007	.618
Condition	3.27	1	3.27	1.75	.049	.195
Error	63.71	34	1.87			

Note. $N = 37$

Table 8
Bonferroni Pairwise Comparison for Time of Measure of Mood

Comparisons	Mean Difference for Mood Score	Std. Error	95% CI		p
			Lower Bound	Upper Bound	
Time 1 vs. Time 2	-0.94	0.23	-1.53	-0.35	.001
Time 2 vs. Time 3	0.42	0.23	-0.17	1.00	.241
Time 1 vs. Time 3	-0.52	0.22	-1.06	0.027	.067

Table 9
Results of t-test Time 2 Mood by Gender

	Gender						95% CI for Mean Difference	t	df	p
	Male			Female						
	M	SD	n	M	SD	n				
Mood	2.09	1.35	23	1.21	0.43	14	-1.63, -0.12	-2.35	35	.025

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APPENDICES

APPENDIX A

INFORMED CONSENT

Dear parent(s),

You and your child are being asked to participate in a research study about the interaction between emotions, behavior, and pretend play in children. This study is being conducted by Kristen E. Boog, B.S., a graduate student in the Psychology Department at Southern Illinois University – Carbondale. Please read this letter to determine whether you would like to allow your child to participate in this study. If you would like your child to participate, please return one copy of this consent form (the other is for your records) and the demographics questionnaire to your child's school or daycare in the included envelope.

Background Information

Emotions have been shown to impact play. Additionally, pretend play has been shown to help children cope with differing emotions. The purpose of this study is to evaluate how children's pretend play is altered by emotions following a game designed to induce a negative mood and how children use pretend play to regulate their emotions.

Procedures

This study is open to all children aged 4 to 5 years who are fluent in English. If you agree to have your child participate in this study, your child will be asked to play with toys and answer questions about their mood during free time at their school or daycare facility. As one part of the play session, your child will be prevented from receiving a prize by a trained researcher. This may frustrate some children. At the end of the study, your child will be told that the researcher pretended to cheat so we could learn about his or her emotions. The researcher will apologize to your child and your child will receive the prize. If your child still reports a negative mood, they will be allowed to engage in positive play time and speak with the researcher about their feelings. Your child's response will be videotaped to facilitate coding. In addition, you will be asked to complete questionnaires about your child's behavior and emotions.

Risk and Benefits of Being in this Study

Your child may experience temporary unpleasant mood while engaging in some parts of this study. However, we will take steps to return children to a positive mood before the end of the study. Should you still have concerns about your child's mood or this study, please contact the researchers below. No other risks are anticipated. Most children enjoy playing with the toys.

Compensation

For participating in the study children will receive their choice of an array of prizes valued under 5 dollars.

Confidentiality

All of your child's and your responses will be kept confidential within reasonable limits. In any sort of report that may be published, we will not include any information that could make it possible to identify you or your child. Your child will be assigned a participant number that will be assigned to all of their data to protect their privacy. Research records will be kept in a

password protected file on a password protected computer and/or a password protected external hard drive in a locked office in the psychology department. Video recordings of your child's responses will be kept on an external hard drive and deleted at the conclusion of the study. Access to the research records will be limited to the researchers. No information will be shared with anyone outside the study, with the exception of the researchers learning of possible child abuse or neglect, possible elder abuse, or that a child is a threat to themselves or others. The researchers are mandated reporters and will have to be break confidentiality to contact the Department of Child and Family Services (DCFS) if they have reasonable cause to believe such an incident of abuse or neglect has occurred. Additionally, if the researchers believe that a child is a threat to themselves or others, their parents and/or the appropriate authorities will be contacted.

Contacts and Questions

If you have any questions regarding this study, please contact Kristen Boog, B.S., at kristen.boog@siu.edu or (618) 453-5490 or Karla Fehr, Ph.D., at kfehr@siu.edu or (618) 453-3554.

Thank you for taking the time to assist us in our research!

Consent to Participate in Research

I am the legal guardian authorized to provide consent for this child. I agree to have my child participate in this study. **I understand that my child will be videotaped and that the videos will be deleted at the end of the study.**

I agree _____ I disagree _____ to have my child's responses recorded on video tape.

Child Name: _____ Child's Date of Birth: _____

Parent Name: _____

Parent Signature: _____ Date: _____

Optional: I agree _____ I disagree _____ that Kristen Boog, B.S., and Karla Fehr, Ph.D. may quote me or my child. This means that we can use you or your child's exact wording (for example, to provide examples of how children play or parents' views and preferences). Your name or any other identifying information would not be included.

Check the following options if you would like to participate in this portion of the study:

_____ OPTIONAL: I am willing to complete the parent forms as part of this study. I understand my responses are confidential.

_____ I would prefer to complete paper forms and return them to my child's school or daycare.

_____ I would prefer to complete the forms online and will provide my email address below for the researchers to email me a link to the survey. I understand my email will be used solely for this purpose and that the confidentiality of email cannot be guaranteed.

Email: _____

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Sponsored Projects Administration, SIUC, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail: siuhsc@siu.edu

APPENDIX B**CHILD ASSENT FORM**

Hi, my name is Kristen, and I am doing a research project at Southern Illinois University to learn about children's play and feelings. Your parent(s) know that I am asking you questions and asking you to play with some toys, if you want to. Part of my job is to keep kids safe. What you tell me is between us, the other people working on this project, and your parent(s), unless you tell me someone is hurting you, then I will need to tell other grown-ups to make sure you are safe.

I would like you to play with some toys that I brought with me. It is alright if you do not want to do this. If you say yes, you can start playing and then change your mind later and stop playing. Do you have any questions for me? Would you like to play with the toys?

Child response: _____

Your parent(s) said it was OK for me to videotape you playing so I do not forget your stories. Is that OK with you?

Child response: _____

I have discussed this clinical research study with _____ using understandable language. I believe the participant understood this explanation and gave informed assent to participate in this study.

Signature: _____ Date: _____

APPENDIX C

DEMOGRAPHICS QUESTIONNAIRE

The following questions are being asked for statistical purpose. We would like to know the general demographic information of our participant sample. This information will not be used to identify any participants.

1. Relationship of person completing this form to participant _____
2. Age of child _____
3. Child's gender _____
4. What is your child's race/ethnicity?

<input type="checkbox"/> White/Caucasian	<input type="checkbox"/> Native American/Alaska Native
<input type="checkbox"/> Black/African American	<input type="checkbox"/> Bi-racial/Multiracial
<input type="checkbox"/> Hispanic or Latino	<input type="checkbox"/> Other _____
<input type="checkbox"/> Asian/Native Hawaiian/Other Pacific Islander	
5. What is your marital status?

<input type="checkbox"/> Single
<input type="checkbox"/> Married/Partnered
<input type="checkbox"/> Divorced/Separated/Widowed
6. What is your highest completed level of education?

<input type="checkbox"/> Some high school	<input type="checkbox"/> Bachelor's degree
<input type="checkbox"/> High school	<input type="checkbox"/> Master's degree
<input type="checkbox"/> Some college	<input type="checkbox"/> Doctorate degree
7. What is your yearly household income?

<input type="checkbox"/> Less than \$25,000	<input type="checkbox"/> \$75,001 to \$100,000
<input type="checkbox"/> \$25,001 to \$50,000	<input type="checkbox"/> Over \$100,000
<input type="checkbox"/> \$50,001 to \$75,000	
8. How much time does your child spend in free play each day (e.g., dolls, dress-up, building, drawing)?

_____ per/day
9. How much time does your child spend doing structured play activities (e.g., soccer, crafts, board games, hide-and-seek)?

_____ per/day
10. What is your child's favorite toy(s)? _____
11. Is there a certain type of toy(s) you do not allow your child to play with?

12. Is your child allowed to play with toy weapons?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------

13. Please place a X next to each of the toys you would allow your child to play with.

- | | |
|--|--|
| <input type="checkbox"/> Squirt/water gun | <input type="checkbox"/> Gun finger gesture |
| <input type="checkbox"/> BB gun | <input type="checkbox"/> Bubble gun |
| <input type="checkbox"/> Nerf gun | <input type="checkbox"/> Gun made with blocks/Legos/etc. |
| <input type="checkbox"/> Foam/plastic sword | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Plastic/Wooden gun that doesn't shoot items | |

14. Have you ever been concerned about your child's play being too aggressive or violent?

Why or why not?

15. When would you become concerned that your child's play was becoming too aggressive or violent?

APPENDIX D
MEASURE OF MOOD



APPENDIX E**MOOD INDUCTION SCRIPT**

Hold bag and say: *In this bag I have a lot of different prizes. Look! (show bag). Whoever reaches into the bag first gets a prize. The other person will not get a prize. Can you explain to me what we are going to do now? (check for understanding). Great! When I say “go” you are both going to try to reach into the bag. The person who reaches in the bag will get a prize. The other person will not get a prize. Ready? Go!*

Research Assistant blocks child from reaching in the bag and says *“yes! I got a really cool prize and you didn’t!”*

APPENDIX F**DEBRIEFING SCRIPT**

Today we played games and with toys to learn about your play and emotions. In the game you played you lost to the other person because they cheated. It does not feel very good when people cheat. I told the other person to pretend to cheat so we could learn about your feelings. She does not normally cheat but had to pretend to be a cheater today. Because the game was not fair, you still get to pick out a prize. Do you want to pick out a prize now? Thank you for helping us with our research project! You did a great job!

VITA

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Thesis Paper Title:

An Evaluation of the Impact of Anger on Aggression in Pretend Play and the Role of Pretend Play in Regulating Anger in Preschoolers

Major Professor: Karla K. Fehr, Ph.D.

Publications:

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