2014

Young Children's Aggression: Links Between Emotion Regulation, Mother-Child Shared Affect, Parenting Practices and Parenting Support

Erin L. Romanchych
University of Windsor

YOUNG CHILDREN'S AGGRESSION: LINKS BETWEEN EMOTION REGULATION, MOTHER-CHILD SHARED AFFECT, PARENTING PRACTICES AND PARENTING SUPPORT

By

Erin L. Romanchych

A Thesis
Submitted to the Faculty of Graduate Studies
through the Department of Psychology
in Partial Fulfillment of the Requirements for
the Degree of Master of Arts
at the University of Windsor

Windsor, Ontario, Canada

2014

Young Children's Aggression: Links Between Emotion Regulation, Mother-Child Shared Affect, Parenting Practices, and Parenting Support

by

Erin Romanchych

APPROVED BY:

_____

R. Wright
School of Social Work

_____

K. Babb
Department of Psychology

_____

R. Menna, Advisor
Department of Psychology

September 17, 2014

DECLARATION OF ORIGINALITY

I hereby certify that I am the sole author of this thesis and that no part of this thesis has been published or submitted for publication.

I certify that, to the best of my knowledge, my thesis does not infringe upon anyone's copyright nor violate any proprietary rights and that any ideas, techniques, quotations, or any other material from the work of other people included in my thesis, published or otherwise, are fully acknowledged in accordance with the standard referencing practices. Furthermore, to the extent that I have included copyrighted material that surpasses the bounds of fair dealing within the meaning of the Canada Copyright Act, I certify that I have obtained a written permission from the copyright owner(s) to include such material(s) in my thesis and have included copies of such copyright clearances to my appendix.

I declare that this is a true copy of my thesis, including any final revisions, as approved by my thesis committee and the Graduate Studies office, and that this thesis has not been submitted for a higher degree to any other University or Institution.

ABSTRACT

The present research examined links between children's emotion regulation, mother-child shared affect, mothers' perceived parenting support, parenting practices (i.e., mothers' involvement, limit setting, communication), and young children's physical aggression. Participants were 129 young children (3 to 6 years) and their mothers. Mothers completed questionnaires assessing parenting practices, parenting support, and their children's emotion regulation and aggressive behaviour. Mother-child dyads participated in a free play task and a structured block task. These mother-child interactive tasks were coded for shared positive and negative affect between the dyads. Higher levels of mothers' limit setting and communication were each related to lower levels of children's physical aggression. Higher levels of mothers' involvement, and limit setting were related to lower levels of children's physical aggression, partially because children were better at regulating their emotions. These findings are discussed with regards to implications for working with aggressive young children and their parents.

ACKNOWLEDGEMENTS

I would like to express my sincerest gratitude to my research supervisor, Dr. Rosanne Menna, for her ideas in developing this project, her tireless encouragement for me to develop my own ideas, and for her constant support and guidance. Beyond her significant contributions to this project, Dr. Menna has inspired me to incorporate my research and clinical work to become the best scientist-practitioner that I can be.

Thank you to Dr. Kimberley Babb and Dr. Robin Wright for their support and feedback, which greatly contributed to the final product. I appreciate their warm encouragement and help in making this a positive experience.

Thank you to Cassandra Pasiak and Kyle Lago for their endless hours of coding. Without their commitment this project would not have been possible.

I am grateful for my friends and family for their unwavering emotional support, patience, and encouragement. Thank you to Julian Franch, my best friend and partner, for helping me stay grounded and balanced throughout this process. Most importantly, thank you to my friends and family, especially my parents, for believing in me and pushing me to pursue my dreams.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

Introduction

Statement of the Problem

Recently, researchers and clinicians have been studying the socio-emotional development of young children to better identify and address young children's behavioural and emotional problems. In young children, externalizing problems, including aggression, are reported as one of the most common reasons for referral for mental health services (Keren, Feldman, & Tyano, 2001; Landy & Menna, 2001; Luby & Morgan, 1997; Renk, 2005). Aggression is reported as one of the most common types of behaviour problems in young children, with prevalence rates in Canada of approximately 8% (Raos & Janus, 2011), and higher rates reported for boys (Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Nolan, Gadow, & Sprafkin, 2001; NICHD Early Child Care Research Network, 2004; Raos & Janus, 2011). High rates of behaviour problems in young children are consistent across Great Britain and the United States (Campbell, 1995; Egger & Angold, 2006; NICHD ECCRN, 2004; Nolan et al., 2001), and a number of studies have shown that behaviour problems can have detrimental effects on the individual, family, and society. Outcomes for aggressive children can include problems in school (e.g., Campbell, Spieker, Vandergrift, Belsky, & Burchinal, 2010; Moilanen, Shaw, & Maxwell, 2010; NICHD ECCRN, 2004; Tremblay, 2004), drug and alcohol use (e.g., Moffitt, Caspi, Harrington, & Milne, 2002; Timmermans, van Lier, & Koot, 2008; Tremblay, 2004), premature sexual encounters (e.g., Timmermans, et al., 2008; Tremblay, 2004), mood disorders (e.g., Cleverley, Szatmari, Vaillancourt, Boyle, & Lipman, 2012; Tremblay, 2004), peer rejection (Card, Stucky, Sawalani, &

Little, 2008; Chen, McComas, Hartman, & Symons, 2011; Crick et al., 2006; Coie & Dodge, 1983; McEachern & Snyder, 2012; Menna & Landy, 2001), symptoms of oppositional defiant disorder and conduct disorder, continued violence, and nonviolent forms of delinquency in adolescence (Broidy et al., 2003; Campbell, Spieker, Burchinal, & Poe, 2006; Loeber, Green, Keenan, & Lahey, 1995; McEachern & Snyder, 2012; Menna & Landy, 2001; NICHD ECCRN, 2004; Tremblay, 2004; van Lier & Crijnen, 2005). Almost all children with externalizing disorders experience impairments in global functioning (Keenan, Shaw, Walsh, Delliquadri, & Giovannelli, 1997) and difficulties in relationships with parents, teachers, and peers (NICHD ECCRN, 2004). In addition to causing significant distress to the individual child, behavioural problems are associated with problems in family functioning and increased family stress (Campbell, 1995; Egger & Angold, 2006). A study in the United Kingdom indicated that the presence of behavioural problems at age 10 at least tripled the cost of public services used by age 28, compared to having no behavioural problems as a child (Scott, Knapp, Henderson, & Maughan, 2001). Furthermore, problem behaviour reported in young children has been found to increase children's risk for greater detrimental outcomes, compared to problem behaviour beginning when children are older (Patterson, DeBaryshe, & Ramsey, 1989). Despite the vast research suggesting poor outcomes of childhood aggression on the individual child, family, and society, the processes that influence the development of aggression in young children are not well understood.

There have been a number of risk and protective factors identified in the development of disruptive behaviour problems in young children. Risks are external factors that predispose individuals to maladaptive outcomes (Cummings, Davies, &

Campbell, 2000), whereas, protective factors manipulate an individual's response to an external danger (Rutter, 1985). Results from the National Longitudinal Survey of Children and Youth indicated that the most influential risk factor for high levels of physical aggression is gender, followed by low levels of maternal education, family income, and poor parenting (Cote et al., 2006). Similarly, findings from the Ontario Child Health Study (Rae-Grant, Thomas, Offord, & Boyle, 1989) and the NICHD ECCRN (2004) suggested that the most important risk factor for young children developing behavioural problems, including physical aggression, is difficulties in family functioning. Additional risk factors that have been identified in previous research include negative emotionality and ineffective emotion regulation in children, poor parenting practices (Campbell, Shaw, & Gilliom, 2000; NICHD ECCRN, 2004), and difficult child temperament (Campbell et al., 2000; Egger & Angold, 2006). Children who experience risks in multiple domains are at an increased risk for experiencing behaviour problems into adolescence (Campbell et al., 2000). Protective factors, which reduce the risk of children developing behaviour problems, have been identified in samples of Canadian children and include effective strategies to cope with stress, easy child temperament, expressing one's emotions freely (Grizenko & Pawliuk, 1994), having positive relationships with others, being a good student, and being involved in two or more activities (Rae-Grant et al., 1989). Although a number of risk and protective factors have been identified, the processes, which explain the relation between risk and protective factors and young children's aggression, are not well understood.

During the preschool age, children's communication improves, allowing them to become more active members in their interactions with their parents, and parents are able

to interact in a more responsive manner with their children (Harrist & Waugh, 2002). Young children are able to learn to comply and internalize their parents' demands, but also can intentionally refuse them (Kochanska & Aksan, 1995). Although the parent-child relationship becomes more mutual in the preschool years, parents are still responsible for adjusting their behaviours to their child's level of development (Harrist & Waugh, 2002). Because child development occurs in the context of the parent-child relationship, studying the relationship between the parent and child is crucial to understanding aggression in young children. In particular, investigating the emotional exchange between parents and children may provide researchers with a better understanding of the link between parenting practices and the development of aggressive behaviour in young children.

The few studies that have examined parent-child interactions with young children suggest that young children who engage in more problematic behaviour also demonstrate more conflict in their parent-child relationship (see Campbell, 1995, for a review). Due to the bi-directionality of the parent-child relationship, negative family interactions may not provide children with the ability to learn how to understand and regulate their emotions (Fonagy & Target, 1997). For instance, research examining the relation between parent-child reciprocal affect and childhood aggression suggests that reciprocal negative affect is positively related to aggression in school age children (Carson & Parke, 1996).

The purpose of this study was to examine the role of children's emotion regulation and mother-child shared affect as mediators between mothers' parenting support, parenting practices, and aggression in young children. Shared affect is the emotional communication between parent and child involving both the parent and child

acknowledging each other's emotional signals (e.g., child cries and parent is sad and upset, or child and parent are both enthusatic and excited). It also represents a synchronous interaction between the parent and child (Kochanska & Aksan, 1995; Mize & Pettit, 1997). Shared positive affect is when both the parent and child demonstrate positive emotions, such as enthusiasm, joy, laughter, or neutral expressions that are pleasant and comfortable, and no negative emotions are displayed. Shared negative affect is when both the parent and child engage in negative emotions, which may include crying, whining, anger, frustration, worry, or neutral expressions that demonstrate boredom or lack of engagement, and no positive emotions are present (Kochanska & Aksan, 1995).

In the present study, the specific parenting practices that were examined were mothers' communication, involvement, and limit setting. Mothers' communication can be defined as mothers' effectiveness in talking with their children, including the ability to direct an initiation toward the listener, engage in alternate turn-taking, contribute relevant information, and respond accordingly (Black & Logan, 1995; Gerard, 1994). Mothers' involvement is defined as mothers' level of interest and engagement in their children's activities, the amount of time spent with their children, how well mothers know their children (i.e., awareness of children's interests and characteristics), and mothers' monitoring of their children (Gerard, 1994; Kawabata, Alink, Tseng, van IJzendoorn, & Crick, 2011). Mothers' limit setting is defined as the disciplinary technique that mothers use with their children to change or control their children's behaviour (Gerard, 1994; Houck & Le Cuyer-Maus, 2002).

The role of mothers' perceived parenting support on parenting practices was also

considered. In this study, perceived parenting support can be defined as the instrumental support (i.e., help with child care, advice), emotional support (i.e., explicit statements, caring actions), and information regarding social expectations (i.e., what is appropriate and inappropriate behaviour), which parents receive from other adults (Belsky, 1984).

In this study, aggression is defined as physically harming others or employing a physical threat to harm others. Physical aggression in preschool children can involve a variety of behaviours including hitting, punching, and kicking (Crick, Casas, & Mosher, 1997).

Because physical aggression can be identified in young children and is associated with long-term detrimental effects, there is a need for researchers to understand the factors and processes involved in the early development of aggression. Research suggests that interventions targeted at young children may be more effective than if implemented later in the school years because children's behaviour control begins to develop during this period and disruptive behaviour is not yet ingrained in young children (Keenan & Wakschlag, 2000). Furthermore, Offord, Kraemer, Kazdin, Jensen, & Harrington (1998) emphasize the need for research to examine causal risk factors involved in children's psychiatric disorders to create preventative interventions, which would help reduce the burden of suffering in young children, families, and society.

Aggression in Preschool Children

A number of studies have shown that physical aggression is relatively stable over time, and the frequency of aggressive behaviour declines with children's age (Bennett et al., 1999; Broidy et al., 2003; Campbell et al., 2000; Coie & Dodge, 1998; Cote et al., 2006; Cummings, Iannotti, & Zahn-Waxler, 1989; Keenan & Shaw, 1994; NICHD

ECCRN, 2004; Olweus, 1979). For example, Cummings et al. (1989) observed 43 children's play interactions with their mothers and measured children's physically aggressive behaviour at 2 and 5 years of age. Results indicated that physically aggressive behaviour at age 2 predicted physically aggressive behaviour at age 5. The overall frequency of aggressive behaviour declined from 2 to 5 years; however, aggressive behaviour demonstrated at age 2 still predicted relatively more aggressive behaviour at age 5.

In another study, Nagin and Tremblay (1999) assessed 1,037 boys using teacher reports and self-reports of externalizing behaviour at several time points between ages 6 and 15 years. The authors identified four developmental trajectories: "lows" accounted for about 15-25% of the sample and included boys who rarely engaged in problem behaviour; "moderate-level desisters" accounted for about 50% of the sample and included children who at age 6 displayed modest levels of problem behaviour, but by age 10 to 12 their problem behaviour had mostly desisted; "high-level near desisters" were children who displayed high levels of problem behaviour at age 6, but showed a decline in this behaviour by age 15, and this group accounted for about 20-30% of the sample; finally, the "chronics" consisted of less than 5% of the sample who displayed high levels of problem behaviour at age 6 and maintained high levels of problem behaviour throughout the study. Thus, these findings suggest that there may be a developmental trend for children who engage in moderate to high levels of physical aggression at a very young age to show a decline in severity of aggressive behaviours as they become older.

These findings suggest that researchers should study physical aggression in young children; however, very few studies have explored aggressive behaviour in young

children (Tremblay, 2004). In one study by Tremblay, Japel, Perusse, and McDuff (1999), 511 mothers reported the onset of physical aggression in their infants and 80% reported onset between 12 to 17 months. In a cross-sectional study of 20,000 Canadian children between 2 to 11 years old, physical aggression was found to peak between ages two and three (Tremblay et al., 1996). Based on these findings, physical aggression is reported in children as young as 1 year old and may be the highest during the preschool age. Children may be learning to inhibit aggressive behaviour with age, instead of learning to behave aggressively (Tremblay, 2001). Therefore, further research into understanding the factors and processes that contribute to the development of physical aggression in young children is needed.

Social Learning Theory

Bandura's (1973) social learning theory proposes that individuals learn behaviour by imitating others (i.e., models) and experiencing reinforcement for their behaviour. Bandura (1973) suggests that when an observer witnesses a model behave in a physically aggressive manner, followed by a negative consequence for the model, the observer is likely to inhibit that behaviour. However, when an observer witnesses a model who behaves in a physically aggressive manner, but who does not receive a negative consequence, the observer may be more likely to engage in the aggressive behaviour. Bandura (1973) suggests that aggression can be modeled to young children through behaviours demonstrated by family members, lack of consequences from society for aggressive behaviour, and through symbolic modeling in the media. Furthermore, if aggressive behaviour is modeled to be acceptable, observers will learn that aggression is acceptable and may even think that this behaviour is expected of them (Bandura, 1973).

In a study conducted by Bandura, Ross, and Ross (1961), 72 young children were exposed to a physically aggressive adult model, a nonaggressive adult model, or no model. The children who were exposed to the aggressive model behaved more aggressively compared to the children who observed a nonaggressive model and to the children who did not observe a model. In addition, the children who imitated the aggressive models also imitated the model's verbally aggressive behaviour. This study illustrates the effects of modeling on children's development of physically aggressive behaviour and provides support for Bandura's (1973) social learning theory.

Patterson, Capaldi, & Bank (1991) propose an Early Starter Model for Delinquency, in which it is hypothesized that aggression is reinforced by family members, and then generalized to subsequent environments outside of the home. In this model, the researchers used social learning theory (Bandura, 1973) to predict children's aggression and delinquency. Based on social learning theory, it is suggested that problem behaviour is first learned in the home, before children are exposed to deviant peer groups, suggesting that children's interactions with their parents might be very influential in children's development of early problem behaviour. Building on social learning theory, the coercion model (Patterson, 1982), suggests that coercive interactions between children and parents may lead to children's problem behaviours, through negative reinforcement from parents. In Patterson et al. (1991), longitudinal data from 206 boys and their parents in the Oregon Youth Study were obtained in Grades 4, 6, 7, and 8. In Grades 4 and 6, participants completed assessments of children's achievement and intelligence, peer nominations, teacher ratings, videotaped interactions of parent-child problem solving tasks in the home, and interviews. Any contact with police and self-

reports of delinquency were also obtained at the beginning of Grade 4. In Grade 7, self-reports of delinquency were obtained from the boys, and in Grade 8, police records were reported. The results indicated that antisocial behaviour in Grade 4 predicted delinquency in Grades 7 and 8. It was also noted that boys who had higher levels of antisocial behaviour in Grade 4 were more likely to come from families who experienced more distress, than boys with moderate-low levels of antisocial behaviour. These findings support social learning theory by suggesting that children might learn delinquent and antisocial behaviours from coercive and distressing interactions with their parents. Much of the findings in the literature support social learning theory in understanding the origins of aggression in children (Tremblay, 2000).

Relations between Parenting Practices and Aggression in Young Children

Baumrind (1971) suggested that parenting style is an important component in children's development because it influences the emotional context of the parent-child relationship. Parenting style guides parents' attitudes expressed towards their children and can be authoritative, authoritarian, or permissive. Research suggests that there is an association between authoritarian parenting practices-- which include punitive, forceful, and controlling behaviours -- with children's aggressive behaviour (Baumrind, 1971; Pettit, Harrist, Bates, & Dodge, 1991). Extending Baumrind's (1971) research, Darling and Steinberg (1993) proposed that parenting style indirectly influences child development through parenting practices, the specific parenting behaviours that are driven by parents' socialization goals, and impact children's behaviour and development directly. Previous research has shown that parenting practices, such as communication, involvement, and limit setting, have the strongest and most direct influence on young

children's problem behaviours (Davenport & Bourgeois, 2008). Specifically, the absence of any of these positive parenting practices may be associated with problem behaviour in young children (Olson, Bates, Sandy, & Lanthier, 2000).

Olson et al. (2000) conducted a longitudinal study examining mothers' responsiveness towards their children as a predictor of children's problem behaviour. The study initially included 168 mother-child pairs, but due to attrition subsequent analyses included 90 to 136 mother-child pairs, based on the timing and specific procedure. On three occasions, naturalistic observations in participants' homes were rated for mother's responsiveness to her child. From preschool age to adolescence, mothers reported on their toddler's temperament, their perception of their toddler's behaviour, their toddler's developmental level, their child's behavioural adjustment, and finally, their adolescent's aggressive and hyperactive behaviour. The researchers reported that mothers who were lacking in affectionate caregiving and maternal teaching, who had relatively high rates of control, or who perceived their child as unresponsive, were more likely to have children who engaged in problem behaviour later on. Thus, these findings suggest that the absence of positive parenting practices might predict the likelihood of children engaging in problem behaviour.

In addition, negative parenting practices shape children's beliefs about themselves and may encourage and reinforce the development of problem behaviour through cyclical interactions (Bandura, 1973; Davenport & Bourgeois, 2008; Menna & Landy, 2001; Patterson, 1982). Cyclical, coercive parent-child interactions are comprised of ineffective parenting practices and negative arousal from the child. These coercive interactions may contribute to the development of aggression in young children (Davenport & Bourgeois,

2008) through negative reinforcement from parents (Patterson, 1982) or because when parents have negative perceptions of their children, children may develop negative self-perceptions and negative perceptions of others (Davenport & Bourgeois, 2008; Menna & Landy, 2001). Based on the literature, it follows that negative parenting practices may be associated with young children's physical aggression.

The present study examined the relations between specific parenting practices (i.e., communication, involvement, limit-setting), parenting support, and physical aggression in young children. Each parenting practice considered is discussed below.

Parenting Practices

Communication. Communication as a parenting practice is defined as mothers' effectiveness in talking with their children, including the ability to direct an initiation toward the listener, alternate turn-taking, contribute relevant information, and respond accordingly (Black & Logan, 1995; Gerard, 1994). Successful communication patterns require both the parent and the child to communicate in a cooperative manner that is relevant to their interaction, and to share a mutually accepted goal to guide their conversation (Grice, 1975). In a study of 49 children, ages 2 to 9 years old, and their parents, parents were asked to complete measures of their children's temperament; their parent-child relationship, assessed by the Parent-Child Relationship Inventory (PCRI; Gerard, 1994); and parents' perceptions of their young children, assessed by the Perceptions of Parents Scale-Parent Version (POP; Phares & Renk, 1998). Parents who scored high on the communication subscale of the PCRI, held more positive perceptions of their young children, compared to parents who did not score high on the communication scale (Aring & Renk, 2010). Baumrind (1968) suggested that high levels

of communication within the parent-child dyad might be related to parents encouraging positive behaviour from their children, which is consistent with the findings from Aring and Renk (2010).

In addition, effective parent-child communication requires parents to be aware of their children's needs and to know how to accurately respond to these needs. In a study conducted by Landry, Smith, and Swank (2006), 264 mother-infant dyads participated in ten home visits when the infants were 6 to 10 months old. The intervention group consisted of trained facilitators who taught mothers targeted behaviour to use with their infants to increase mothers' awareness of their infants' behavioural cues. In the control group, mother-infant dyads were provided feedback on their infants' skill levels; however, when mothers asked about how to enhance their infants' development, the facilitators directed the mothers to their health care provider. During the visits, mother-child dyads participated in a free play task and then a toy play task, in which mothers were asked to play with their infant using one or more toys. Both of the interaction tasks were coded for infant behaviours that followed the mother's direction. Then the infant played alone with toys presented by the examiner and this segment was coded for infant's goal-directed play. Mothers in the intervention group, who had learned appropriate problem solving strategies and how to be responsive to their infant's needs, were more responsive to their infant's signals for contact and used rich language when communicating with their infant. These infants' skills were rated as more competent, compared to ratings before their mothers participated in the educational program. Thus, infants of mothers who had learned to recognize and appropriately respond to their needs, showed increases in social, communicative, and affective skills.

In contrast, parents who are nonresponsive towards their children may have a negative impact on children's peer competency and communication. Black and Logan (1995) examined 43 children, ages 2 to 5 years old, and their parents, on parent-child communication and children's peer sociometric status. Sociometric status was measured by correlating children's peer assessments and teachers' nominations of three liked and three disliked children for each child in their class. Then, parent-child interactions were observed. Next, each child participant was observed playing with a familiar child in his or her class; however, this child was not a child whom the teacher nominated as liked or disliked by the child participant. Then, a third child was brought into the room, and the interaction between all three children was observed. All interactions were coded for communication patterns. The findings indicated that the pattern of communication that children used with their parents was similar to the manner in which the children communicated with their peers. This study also found that children were more likely to be rejected by their peers when their parents did not respond appropriately, or at all, to their needs. The findings suggest that it is important for parents to appropriately attend to and respond to their children's needs, as this communication pattern generalizes beyond the parent-child relationship and influences children's behaviour in other social contexts.

Involvement. Mothers' involvement can be defined in a variety of ways including mothers' level of engagement in their children's activities, the amount of time spent with their children, how well mothers know their children (i.e., awareness of children's interests and characteristics), and mothers' monitoring of their children (Gerard, 1994; Kawabata et al., 2011). Parents who are uninvolved with their children are less aware of their children's needs and tend to lack in caring behaviours towards their children. These

parents may ignore their children in the form of neglecting their children's needs (Kawabata et al., 2011). Kawabata et al. (2011) hypothesized that uninvolved parents may lack control or supervision over their children's aggressive behaviour; thus, parents who are uninvolved with their children may be less likely to intervene with their children's problem behaviour.

Previous studies have found that parents who are not as involved with their children tend to have children with more problem behaviour than parents who are more involved in their children's lives (e.g., Amato & Rivera, 1999; Stormshak, Bierman, McMahon, & Lengua, 2000). For example, Amato and Rivera (1999) analyzed data from 994 parents in the National Survey of Families and Households (NSFH), investigating behaviour problems in children aged 5 to 18 years old. The authors examined the influence of maternal and paternal involvement, including the amount of time a parent spends, helps, and communicates with their child, praises and hugs their child, and the closeness of the parent-child relationship, in children's behaviour problems. The researchers found that higher levels of maternal involvement and paternal involvement were both related to lower levels of behaviour problems in children. These findings suggest that parental involvement is associated with fewer problem behaviours in children.

Consistent with previous findings (e.g., Amato & Rivera, 1999), Gryczkowski, Jordan, & Mercer (2010) provided additional evidence that parental involvement is important in children who show low levels of problem behaviours. Using a sample of 135 school age children and their parents, Gryczkowski et al. (2010) examined the relation between children's externalizing behaviour and the parent-related variables of parenting practices, which included involvement, parenting style, parental monitoring/supervision,

and parental discipline. Higher levels of paternal involvement were related to lower levels of externalizing behaviours in young boys. In addition, for both mothers and fathers, poor monitoring of their children was related to higher levels of externalizing behaviours in young girls. These findings suggest that the influence of mother and father involvement on children's externalizing behaviours may differ based on children's gender.

In another study, Stormshak et al. (2000) conducted interviews and administered questionnaires to 631 parents of children, ages 4 to 6 years old, to measure parenting practices (i.e., warmth and involvement, consistency, and punitive discipline tactics) and child behaviour problems (e.g., oppositional defiant disorder, conduct disorder, and attention-deficit/hyperactivity disorder). Low levels of parental involvement added a unique contribution in predicting higher levels of child behaviour problems, beyond the contribution of punitive and aggressive parenting styles; thus, parental involvement may be more influential in children's behaviour problems than negative parenting styles.

Limit setting. Limit setting can be defined as the style of disciplinary technique that parents use with their children to change or control their children's behaviour (Gerard, 1994; Houck & LeCuyer-Maus, 2002). Limit setting has implications for children's behaviour, such that when parents are clear about their rules and children understand what behaviour is appropriate compared to behaviour that is not appropriate, children demonstrate fewer behaviour problems (Baumrind, 1971). In addition to parents stating clear rules, it is important that the parent's disciplinary style matches the individual characteristics of the child, as this encourages children's compliance to their parents' demands (Kochanska, 1995). It has been suggested that when maternal

disciplinary style is not appropriate to children's developmental level and incorporates physical punishment, children are more likely to demonstrate aggressive behaviour and experience peer rejection (Travillion & Snyder, 1993).

When mothers' disciplinary patterns are inconsistent and punitive, children may be more likely to engage in externalizing behaviours (Burke, Pardini, & Loeber, 2008; Gryczkowski et al., 2010), such as aggressive behaviour (Stormshak et al., 2000). In addition to the findings discussed above, Gryczkowski et al. (2010) found a significant relation between mothers' inconsistent disciplinary style and higher levels of children's externalizing behaviours, but this relation was not supported with fathers. This suggests that mothers who are more inconsistent in their discipline tend to have young children who demonstrate greater externalizing problems.

Stormshak et al. (2000) examined the relation between parenting practices and various behaviour problems in 631 behaviourally disruptive children, ages 2 to 8 years, and their parents. The results indicated that higher levels of parents' inconsistent and punitive discipline were related to higher levels of young children's oppositional, hyperactive, and aggressive behaviour. In a longitudinal study by Houck and LeCuyer-Maus (2002), 126 mother-toddler dyads were observed and mothers who used more inconsistent limit setting with their toddlers were found to have toddlers' with less well-developed self-concepts and lower social competence scores. Thus, based on the findings discussed above, mothers who use an inconsistent pattern of limit setting may not provide their children with opportunities to learn the distinction between appropriate and inappropriate behaviour through testing their parents' limits and may be associated with negative developmental outcomes.

Other studies have suggested that punitive parenting styles may serve as risk factors for aggression in children. For example, in a study conducted by McNamara, Selig, and Hawley (2010), children of mothers who used a controlling disciplinary style without providing support for their children's autonomy, were found to behave more aggressively, display more negative personality traits, were less conscientious, less extroverted, and were more often rejected by their peers. In addition, Deater-Deckard, Dodge, Bates, and Pettit (1996), examined the relation between parental physical discipline and child aggression in 466 European American and 100 African American families. The researchers reported that European American parents who used harsh and punitive disciplinary behaviour with their children had children who engaged in more aggression. In another study, Travillion and Snyder (1993) examined whether poor discipline in the family was related to children's social aggression and peer rejection in 61 preschool children. Measures included observations of the quality of the home environment and parent-child interactions, a questionnaire assessing children's perceived self-confidence and acceptance, teachers' perceptions of the children's problem behaviour, observer ratings of the quality of the children's social interactions, and finally, peer nominations by each classmate were collected involving each child indicating which classmates they liked, disliked, or neither liked nor disliked. Maternal discipline in the home accounted for a sizeable portion of the variance in social aggression; as well, social aggression accounted for a signiifcant amount of the variance in peer rejection. Therefore, maternal discipline that was rated as poor quality was associated with children's social aggression and peer rejection. Thus, all of these findings discussed above suggest that parental discipline that is consistent, appropriate to children's

developmental stage, supportive of children's autonomy, and is not harsh or punitive may be crucial for children to learn how to self-regulate their behaviour and inhibit aggressive tendencies (Menna & Landy, 2001).

Relations between parenting practices and parenting support. Parenting support can be defined as the instrumental support (i.e., help with child care, advice), emotional support (i.e., explicit statements, caring actions), and information regarding social expectations (i.e., what is appropriate and inappropriate behaviour), which parents receive from other adults (Belsky, 1984). The importance of support has been well documented in the literature, suggesting that support provides emotional and material benefits to parents including help with child care, information about parenting and child behaviour, and helps parents to feel a sense of belonging (Belsky, 1984; Koeske & Koeske, 1990). Mothers' support, involving their experiences and contact with other adults, is associated with parenting style, quality of parenting, and parent-child interactions (Anthony et al., 2005; Belsky, 1984; Colletta, 1979; Farmer & Lee, 2011; Kopala-Sibley, Zuroff, & Koestner, 2012; McConnell, Breitkreuz, & Savage, 2010; Szykula, Mas, Turner, Crowley, & Sayger, 1991).

To study the influence of parental support on parenting practices, Colletta (1979) conducted interviews with 72 mothers of preschool children. The effects of total support (i.e., from friends, spouse, and relatives) on maternal restrictiveness and punitiveness were examined. It was found that mothers who received the least amount of support were more authoritarian (i.e., more restrictive and punitive) in their disciplinary technique and set more rules with their children. This suggests that maternal support may be associated with parenting style and specific parenting practices regarding discipline.

Koeske and Koeske (1990) provide support for the direct impact of social support on parenting practices. In their study of 125 mothers, social support was related to mothers feeling less stressed about their children's functioning, reporting feeling greater parental satisfaction and higher maternal self-esteem. In addition, social support was found to buffer the relation between maternal stress and low parental satisfaction; thus, mothers who felt stressed about their children, but received adequate social support, were more likely to feel satisfied with parenting, than mothers who were stressed and who did not receive adequate social support (Koeske & Koeske, 1990).

The relations between maternal social support, the mother-child interaction, and children's externalizing behaviours were assessed in a study conducted by Szykyla et al. (1991). Results from home observations and questionnaire data from 32 mother-child dyads indicated that higher levels of maternal social support were associated with more frequent mother-child prosocial interactions, compared to lower levels of maternal social support. Fewer mother-child prosocial interactions were observed on days when mothers reported low levels of social support, in families who had children who were identified as high in externalizing behaviour. Thus, if children engaged in externalizing behaviours and mothers did not receive high levels of social support, the mother-child interactions were less prosocial. These results suggest that social support influences the manner in which mothers and children interact with each other, and this is especially true for children who demonstrate externalizing behaviour.

Parental social support can influence parents' behaviours and reactions to their children. Additionally, because the parent-child relationship is cyclical parents' perceived support may influence children's behavioural outcomes. In another study, Crnic,

Greenberg, Ragozin, Robinson, and Basham (1983) interviewed 105 mothers about life stress and satisfaction with life, satisfaction with parenting, and social support. Then, mother-infant dyads were observed during free play, structured, and imitation tasks. The findings indicated that mothers who felt greater stress behaved less responsively and less positively towards their infants. The infants would then become less responsive toward their mothers, creating a cyclical interaction that further increased mothers' feelings of stress. However, findings also indicated that higher levels of social support were related to mothers feeling more positive towards their infants and this encouraged positive mother-child interaction and healthy infant development (Crnic et al., 1983). The studies discussed above indicate that children's problem behaviour may be related to parenting support, and suggest that parenting support is an important factor to examine in understanding parenting practices, parent-child interactions, and aggressive behaviour in young children.

Emotion Regulation

To understand the expression of aggressive behaviour in young children, it is necessary to examine the way in which children learn to regulate their emotions, which is referred to as emotion regulation. Emotion regulation is defined as the external and internal processes that individuals use to monitor, evaluate, and adapt their emotional reactions to achieve a particular goal, and it either enhances or inhibits the emotional experience (Thompson, 1994). Emotion regulation is an important skill for children to develop in order to appropriately manage their emotion and it is associated with preventing under-regulation problems, such as aggressive behaviour problems (e.g., conduct disorder; Landy & Menna, 2001). If children experience negative emotion,

adequate emotion regulation processes can often inhibit impulses to behave inappropriately (Eisenberg & Fabes, 1998). Emotion regulation involves understanding that emotional responses are flexible, situationally dependent, and that emotion can change to adapt with the current conditions. Emotion is regulated by the self and by external influences including parents (Thompson, 1994). Parents can teach their children about their own emotions by mirroring children's emotions back to their children (Fonagy & Target, 1997) or through emotion coaching (Gottman, Katz, & Hooven, 1996).

Emotion coaching is a component of meta-emotion, which is an individual's feelings and thoughts about emotion. Individuals might have a philosophy regarding his or her awareness of emotions and how, or if, they differentiate different emotions (Gottman et al., 1996). Emotion coaching involves parents' awareness of low intensity emotions in them and in their children and using children's negative emotions as a chance to teach children about emotion, rather than ignoring or dismissing children's emotions. It also includes validating children's emotions, helping children to label their different emotions, and problem solving with children to help them deal with the situation that generated the negative emotion (Gottman et al., 1996).

Gottman et al. (1996) conducted a longitudinal study of 56 five-year-old children and their parents. Parents participated in meta-emotion interviews, parent-child dyads participated in interaction tasks, and then children's physiological functioning was assessed during a viewing of an emotion-eliciting film. Parents' awareness of emotion, self-regulation, emotion coaching, and engagement were coded from the parent-child interaction tasks and interviews. Three years later, children's behaviour problems, affect expression, and emotion regulation were assessed. The findings indicated that low levels

of parents' meta-emotion (i.e., emotional awareness and emotion coaching) were indirectly related to higher levels of children's behaviour problems through low levels of emotion regulation; thus, the authors suggested that emotion coaching might contribute to children's regulation of negative emotion. This provides support for the belief that parents' emotion socialization plays an influential role in the development of children's emotion regulation.

Relations between Parenting Practices and Emotion Regulation

Parents may help regulate children's negative emotion by managing children's exposure to negative, emotionally-arousing stimuli, and directly teaching children strategies for regulating their emotions. For example, parents can redirect children's attention during a threatening event towards positive aspects and limit children's exposure to the upsetting information (Miller & Green, 1985). Previous research suggests that by parents teaching children to regulate their emotions, children will learn to self-regulate. For example, parents may instruct or model to children to cover their ears or eyes when they feel scared (Thompson, 1994). The literature suggests that parenting practices and parents' perceptions of children's emotionality are associated with children's emotion regulation.

In a study by Calkins, Smith, Gill, and Johnson (1998), 65 mothers and their preschool children participated in various interaction tasks, which were coded for maternal interactive style, maternal positive guidance, emotional reactivity of the mother and the child, behavioural reactivity of the mother and the child, and the child's emotion regulation. The findings indicated that children of mothers who used a controlling parenting style tended to use non-adaptive emotion regulation strategies. Also, high

levels of maternal warmth and responsiveness were associated with higher levels of children's emotion regulation.

Furthermore, parents who are warm and responsive towards children's emotional behaviour may encourage children's emotional self-regulation. In a study conducted with 102 mothers and their preschool-age children, mothers completed measures assessing parenting practices (i.e., maternal warmth and maternal responsiveness to children's negative emotion), children's internalization of rules of conduct, children's temperament, and children's behaviour regulation. The researchers reported that maternal warmth predicted high levels of behaviour regulation, and maternal responsiveness to children's negative emotion was related to high levels of children's internalization of rules of conduct (von Suchodoletz, Trommsdorff, & Heikamp, 2011). These findings suggest that parents who use positive parenting practices that include maternal warmth and responsiveness to children's emotional behaviour may have children with better emotional and behavioural regulation.

Parents who engage in parenting practices that communicate they are unsupportive of children's negative emotion also have been shown to have an effect on children's emotion regulation. Shaffer, Suveg, Thomassin, and Bradbury (2012) measured maternal risk factors, children's negative emotions, and maternal perceptions of children's emotion regulation strategies in 97 mother-child dyads, with children's ages ranging from 7 to 12 years old. The authors reported that mothers who were less unsupportive of their children's negative emotion had children who had poorer emotion regulation and greater emotion dysregulation. These findings suggest links between mothers who are less

responsive to their children's emotions tend to have children with more difficulties regulating their emotions.

In another study, Brophy-Herb, Stansbury, Bocknek, and Horodynski (2012), asessed parent emotion-related socialization behaviours in 123 low-income parents and their toddlers, ages 1 to 3 years old. Emotion-related socialization behaviours include maternal positive emotional expressivity, support towards children's self-regulation attempts, and disclosure of emotion between the parent and child. In the study, mothers and their children narrated a wordless book together, and then mothers were asked to teach their children an age-specific task with which the children were not familiar. These interactions were coded for maternal emotional supportiveness towards the child's attempts at learning the new task and children's emotion regulation. Higher levels of mothers' emotion-related socialization behaviours were associated with higher levels of toddlers' self-regulation, suggesting that using emotion-related parenting practices may be related to greater self-regulation for at-risk toddlers. Therefore, the studies discussed suggest that parenting practices may directly influence children's emotion regulation.

Relations between Emotion Regulation and Aggression in Young Children

It is well understood that parents can socialize children's emotion regulation strategies; however, coercive family interactions marked by hostility, anger, yelling, and aggression do not provide children with an appropriate context to learn how to self-regulate their emotion (Eisenberg & Fabes, 1998). Research suggests that children are vulnerable to parental displays of negative affect (Carson & Parke, 1996); thus, when parents do not demonstrate self-regulation it may interfere with children's development of emotion regulation and their self-regulation of aggressive behaviour (Landy & Menna,

2001). This research provides support for Bandura's (1973) social learning theory, in that parent behaviours in parent-child interactions are especially important for modeling prosocial behaviour to children (Patterson et al., 1991).

In a study conducted by Carson and Parke (1996) physical play interactions between 41 father-child and mother-child dyads were analyzed to examine the relation between reciprocal negative affective displays between parents and children (4 to 5 years old), and children's peer competence. Higher levels of both mothers' and fathers' displays of negative affect were associated with higher levels of children's displays of negative affect. Fathers who responded with negative affect to their children's displays of negative affect were more likely to have children who shared less, were more verbally abusive, avoided peers, and behaved in a more physically aggressive way, compared with children of fathers who did not respond with negative affect. In addition, children who responded with negative affect to their father's displays of negative affect were more physically aggressive than children who did not respond to their fathers with negative affect. Therefore, following social learning theory (Bandura, 1973), fathers who engaged in reciprocal negative affect with their child may not have created a context for the child to learn to appropriately regulate his or her emotions and thus predicted poor socio-emotional outcomes for the child. Mother-child reciprocal negative affect displays did not predict children's peer competency. The authors suggested possible reasons for this finding including that mothers may not frequently engage in physical play with their children or that physically aggressive behaviour may be less frequent in mother-child play compared to father-child play interactions (Carson & Parke, 1996). However, the findings from this study demonstrate that the reciprocal exchange of negative emotion

between parents and children may be associated with more aggressive behaviour in young children.

To examine the hypothesis that by improving parents' emotion regulation strategies, children's problem behaviour would decrease, Wilson, Havighurst, and Harley (2012) randomly assigned 128 parents to a waitlist condition or an intervention program called Tuning in to Kids (TIK) parenting program. TIK aims to improve parents' emotion socialization strategies by teaching parents about emotional awareness and regulation. Parents completed measures of emotion socialization, parenting practices (i.e., positive involvement, corporal punishment, and inconsistent discipline), and their preschool children's problem behaviour. Compared to pre-treatment, at follow-up the parents who participated in the intervention condition were more positively involved with their children, less emotionally dismissive in their beliefs about emotions, and were less dismissive and used more coaching techniques in their parenting practices towards children's negative emotion. Parents who learned about their own emotional awareness and emotion regulation strategies had children who demonstrated fewer behaviour problems compared to behaviour problems at pre-treatment and to children in the waitlist condition. These findings demonstrate that parents' beliefs about emotions, emotion socialization practices, and parents' emotion regulation strategies may affect children's ability to regulate emotion and thus, influence children's engagement in problematic behaviour. This provides further support that the expression of emotion between the parent and child may have consequences for children's behaviour.

The expression of emotion between parent and child was examined in another study conducted by Laible and Song (2006) in which 51 mothers and their preschool children

participated in narrative emotional discourse tasks. The emotional discourse tasks involved narrating a wordless storybook and engaging in a reminiscing task, in which mothers were asked to elicit their child's memory about a past positive emotional experience and a past negative emotional event. Then, the children participated in an affective perspective-taking task that assessed children's socio-emotional development, and finally, children completed a shortened version of the MacArthur Story-Stem Battery (MSSB) to measure children's representations of their relationships with their family (Oppenheim, Nir, Warren, & Emde, 1997). Children in dyads high in shared positivity were more likely to represent relationships in a prosocial manner. The results also indicated that mothers with high levels of positive emotional tone (i.e., communication, warmth, and intersubjectivity) during the discourse tasks predicted high levels of children's prosocial development. Therefore, the researchers suggested that open emotional communication may allow for children to have their feelings validated by their parents, and to learn how to accurately identify and label their feelings, which was associated with more prosocial behaviour in children. These findings are consistent with those of another study in which it was found that mothers who explained emotions to their children tended to have children who behaved in a prosocial manner and were less likely to engage in the hostile attribution bias and physical aggression with their peers (Garner, Dunsmore, & Southam-Gerrow, 2008). Taken together, these studies provide support that emotion regulation strategies transmitted through the parent-child relationship may be associated with decreased levels of physical aggression and problem behaviour in children.

Relations between Parenting Practices, Emotion Regulation, and Aggression in Young Children

Research has suggested that parenting practices and childhood aggression are indirectly related through children's emotion regulation. For example, in a study by Duncombe, Havighurst, Holland, and Frankling (2012) with 373 school-aged children, mothers reported on their parenting practices (i.e., parental monitoring and supervision, inconsistent discipline, corporal punishment, positive parenting, and involvement), emotion coaching practices, dismissiveness of children's emotion, mother's emotional expressiveness within the family, and mother's mental health. Mothers were also asked to report on children's disruptive behaviour problems and emotion regulation management. Inconsistent discipline, mother's negative emotional expressiveness, and mother's poor mental health predicted higher levels of children's disruptive behaviours and children's emotion dysregulation. Interestingly, children's emotion regulation mediated the relation between parenting practices and children's disruptive behaviour problems. Thus, children whose mothers did not provide positive parenting practices (i.e., inconsistent discipline and corporal punishment) were more likely to engage in disruptive behaviour problems, partly because they were less likely to engage in effective self-regulation. Similarly, Baker and Hoerger (2012) found that self-regulation partially mediated the relation between parental child-rearing practices and socio-emotional adjustment. Children of parents who demonstrated higher levels of positive child-rearing practices were more likely to have higher levels of socio-emotional adjustment because of their tendency to engage in self-regulation. Thus, these findings suggest that children's emotion regulation

may be an important variable in understanding the relation between parenting practices and childhood aggression.

In a study by Eisenberg et al. (2001), parental warmth was indirectly related to children's externalizing problem behaviour, through children's unregulated expressivity and parents' emotional expressivity. In this study, 169 school-aged children were presented slides of images depicting pleasant, unpleasant, and neutral affect. Then, parents were asked to join their children and briefly discuss each slide with their children. These interactions were coded for children's facial expressivity and parental warmth. Parents' discussions of the slides with their children were coded for parents' ability to link the slide to their children's emotional experiences, which is called parental linking. The discussions were also coded for parent's labeling of his or her own emotion, and parent's attempt to encourage the child to report their own emotion. Findings suggested that higher levels of parental warmth were related to higher levels of children's externalizing problem behaviour. In addition, higher levels of children's unregulated expression of emotion were related to higher levels of children's externalizing problem behaviour. Furthermore, the findings indicated an indirect relation between parental warmth and children's externalizing problem behaviour through children's unregulated expression of emotion and parental linking (i.e., warm parents were better able to link emotional events to children's experiences, have children who were low on unregulated emotional expression and externalizing problems). This suggests that emotion regulation, and parental acknowledgement and discussion of children's emotional experiences, may help to explain the relation between parental warmth and children's externalizing problem behaviours. A study by Ramsden and Hubbard (2002) also examined the relation

between emotional expression in the family to aggressive behaviour in young children. The findings indicated that families who displayed higher levels of negative emotions were associated with lower levels of children's emotion regulation, and lower levels of children's emotion regulation were related to higher levels of children's physical aggression. Thus, these findings provide support for emotion regulation as a mediator between parenting practices and children's physical aggression.

Shared Affect

Although the methods parents use to influence children's emotion regulation are not clear, there is support that children are sensitive to parent displays of affect. Parent-child shared affect is the emotional communication between parent and child involving both the parent and child acknowledging each other's emotional signals (e.g., child cries and parent is sad and upset, or child and parent are both enthusatic and excited; Kochanska & Aksan, 1995; Mize & Pettit, 1997). Shared affect can be positive or negative, depending on the expression of emotion from both partners (Kochanska & Aksan, 1995).

The literature suggests that when parents express negative affect, children experience difficulty regulating their emotion. Dix (1991) suggests that parents' expression of negative affect may not model emotion regulation for children. Furthermore, if children respond to parents' displays of negative affect with more negative affect, this can escalate the negative arousal in the interaction (Carson & Parke, 1996). These negative emotional responses can create mutual reinforcement for negative behaviour from children and parents, perpetuating the cycle of negative affect (Patterson, 1982; Shaw & Bell, 1993). For example, Termine and Izard (1988) observed 36 infants'

facial expressions in response to their mother's expression of either joy or sadness. The infants expressed more sadness and gaze aversion when their mothers expressed sadness, and more joy and looked at their mothers longer during the joyful condition, suggesting that infants' emotion may be influenced by their mother's emotion. The research provides support for shared affect as a method that parents may use to socialize children's emotion regulation. To further understand the role of emotion regulation in the parent-child relationship, the present study will examine mother-child shared affect and its relation to young children's aggression.

Relations between Shared Affect and Aggression in Young Children

In a study by Pasiak (2011), 59 mother-child dyads, with children ranging from 3 to 6 years old, were classified as either clinically aggressive or non-aggressive based on the preschooler's score for Aggressive Behaviour Syndrome. The dyads participated in interaction tasks, which were later coded for shared positive and negative affect. Greater levels of shared negative affect and lower levels of shared positive affect were found in the aggressive mother-child dyads, in comparison to the non-aggressive mother-child dyads. These findings suggest a relation between aggression and shared affect, such that young children who are aggressive are more likely to be involved in mother-child dyads marked by shared negative affect.

Carson and Parke (1996) also examined the relation between shared affect in parent-child dyads and aggression in preschool children. The authors reported that fathers who responded to their children's displays of negative affect with negative affect of their own, had children who were more aggressive, avoided others, and shared less. Children who responded with negative affect to their father's displays of negative affect were more

physically aggressive, and both mothers and fathers who displayed more negative affect were related to their children displaying more negative affect (Carson & Parke, 1996). These results are consistent with previous research suggesting that high levels of negative affect are associated with problem behaviour (Cummings et al., 1985). Thus, shared negative affect in parent-child dyads may influence children's aggressive behaviour and expression of negative affect beyond the parent-child relationship.

Numerous studies have found support for the positive relation between shared positive affect in parent-child dyads and children's positive early developmental outcomes and socialization. In a study of 99 toddlers and their mothers, Kochanska and Aksan (1995) observed mother-child dyads in their home and in the laboratory participating in various interaction tasks. First, the dyads were videotaped in an interactive control task, which involved the mothers providing a "do" or "don't" task (e.g., do put the toys away; don't touch the toy), which was coded for children's compliance and mother-child shared affect. In the coding scheme for mother-child shared affect, mother and child positive and negative affect were coded for every 30-second interval. Then, shared positive and shared negative affect scores were created based on intervals with positive affect for both mother and child, and negative affect for both mother and child. This specific coding scheme was used in the present study and is explained in more detail below. The second task consisted of a mother and child playing in a room. Then, the mother was asked to leave the room and the child was asked to sort through cutlery. This task was coded for children's internalized conduct. The results from this study indicated that shared positive affect was comprised of mutual positivity in the dyad and children's cooperation with their mothers. In addition, the findings revealed that

shared positive affect was associated with children's future compliance. Using the same sample and procedure from the study by Kochanska and Aksan (1995), Kochanska, Aksan, and Koenig (1995) examined the relation between children's compliance and children's internalization in their daily lives. The researchers reported that shared positive affect at toddler age predicted internalization, as reported by their mothers, at preschool age. In addition, higher levels of shared positive affect were related to lower levels of children's overt protest, and higher levels of shared positive affect were related to higher levels of children's committed compliance. In another study of 42 preschool children by Laible and Thompson (2000), it was found that preschool children in mother-child dyads who scored high on measures of positive affect had greater behaviour internalization and committed compliance than children in dyads low in positive affect. These findings suggest that shared positive affect may be associated with positive outcomes in children's early development and socialization.

Kochanska (1997) further studied shared positive affect by examining the construct, mutually responsive orientation (MRO), which is comprised of shared mother-child cooperation and shared positive affect. MRO was examined as a predictor of children's willingness to accept rules several years later, and also the relation between MRO and mothers' use of power was examined. Children and their mothers were assessed first when the children were 2 to 3 years old (N= 103) and then again, when the children were 3 to 5 years old (N =99). The dyads participated in several interaction tasks, which were coded for shared cooperation and shared positive affect, using the coding scheme for shared affect as described in Kochanska and Aksan (1995). Children of mother-child dyads high in MRO were more likely to have internalized rules and have mothers who

used less power, when compared to dyads low in MRO. These findings suggest that shared positive affect may be associated with greater use of non-controlling disciplinary tactics and children who are socialized to society's rules and norms. In another study, Kochanska and Murray (2000) examined MRO using the same sample and procedure as used in Kochanska (1997), to investigate the relation between MRO and children's internalization of mother's demands and rules set by researchers. Mother-reported MRO at toddler age and at preschool age predicted children's future internalization of demands, emphasizing the importance of an early foundation, built on shared cooperation and shared positive affect between mothers and their children, for positive developmental outcomes in children.

Further research has demonstrated a link between shared positive affect and children's prosocial behaviours. Laible and Song (2006) extended the study of shared positive affect by examining 51 mothers and their preschool children as they participated in narrative emotional discourse tasks. Children in mother-child dyads high in shared positive affect tended to engage in more prosocial behaviour than children in dyads low in shared positive affect. Lindsey, Cremmens, Colwell, and Caldera (2009) measured shared emotion in 134 mother-child and father-child dyads, when the children were 15 and 18 months old, in three interaction tasks: semi-structured play task, the strange situation task, and a caregiving task. The tasks were coded for interactional synchrony and parent-child emotion, as well as children's communicative competence and self-control. The results indicated that dyads high in interactional synchrony and shared positive affect were associated with greater communicative competence and self-control in preschool children. All of these findings suggest that parent-child shared positive

affect may foster children's healthy social development and may be associated with lower levels of physical aggression.

Present Study

The present study aimed to contribute to the childhood aggression literature by investigating the role of emotion regulation in explaining the relationship between mothers' parenting practices and parenting support, and young children's physical aggression. Previous studies suggest that children's emotion regulation may be an important factor in influencing the relation between parenting practices and childhood aggression (e.g., Baker & Hoerger, 2012; Duncombe et al., 2012; Eisenberg et al., 2001; Ramsden & Hubbard, 2002). Furthermore, most of the previous research examining relations between children's emotion socialization and behavioural outcomes is correlational (Duncombe et al., 2012). Therefore, the first goal was to examine the influence of children's emotion regulation in the relation between parenting practices (i.e., mothers' involvement, limit setting, communication) and mothers' perceived parenting support, and children's physical aggression. In addition, the second goal of this study was to examine a specific form of emotion regulation, shared affect, as a mediator in the relation between parenting practices (i.e., mothers' involvement, limit setting, communication) and mothers' perceived parenting support, and young children's physical aggression.

Furthermore, much of the research examining shared affect focuses on adolescents and school-age children; thus, the present study extends this literature by examining factors that contribute to aggression in preschool age children. Only a few studies have examined shared affect and behavioural outcomes in young children (e.g., Carson &

Parke, 1996; Kochanska & Aksan, 1995; Kochanska, 1997; Kochanska et al., 1995; Kochanska & Murray, 2000; Pasiak, 2011); therefore, increasing our understanding of the factors that influence the development of aggression in young children would be advantageous for informing prevention and intervention programs for parents and young children at risk of developing aggressive behaviour.

The present study used an archival data set consisting of a community sample of mothers and young children collected between 2008 and 2011 (PI: Dr. Rosanne Menna). In the present research mother-child dyads were observed during a free play task and a structured block task to examine differences in mother-child shared positive and negative affect. In the shared affect literature, parent-child dyads are often observed in free play tasks, and structured, goal-oriented tasks (Carson & Parke, 1996; Kochanska, 1997; Laible & Thompson, 2000; Lindsey et al., 2009). A free play task involves a parent and child playing with specified toys without any direction for the play, whereas a structured, goal-oriented task involves the parent directing and guiding the children's behaviour towards a specified goal. The literature indicates that parents have an important role in children's play by being engaged in the play while at the same time responding to children's emotional experiences, interests in the play activity, and attending to parents' own needs (Davenport & Bourgeois, 2008). However, Davenport, Hegland, and Melby (2008) suggest that parent and child behaviours differ during free play tasks and structured problem-solving tasks. The authors suggested that free play may elicit symbolic play between parent and child, and a structured problem-solving task may bring out structuring and guiding behaviours in the parent. Structuring and guiding behaviours may elicit frustration from the child, which may influence the parent's negative response.

In addition, Ambrose and Menna (2012) found greater levels of interactional synchrony between mother and child during a free play task, than in a structured teaching task. In structured tasks parents may become too focused on achieving the goal and enforcing structure on children's behaviour (Ambrose & Menna, 2012). This may influence children's frustration and increase children's and parents' negative arousal during the task, contributing to higher levels of shared negative affect (Davenport et al., 2008). Consistent with this hypothesis, Pasiak (2011) found higher levels of shared positive affect in mother-child dyads during a free play task, than in a structured teaching task. Pasiak (2011), however, examined differences in shared affect across types of parent-child interaction tasks using a small clinical sample of aggressive children and a small community sample of young children. Furthermore, Davenport et al. (2008) found that parents of boys who demonstrated externalizing behaviours were less likely to engage in developmentally appropriate play with the child, and during the free play interactions, they were observed to engage in fewer positive behaviours toward the child. Based on previous research (e.g., Davenport et al., 2008; Landy & Menna, 2001) parent behaviours during play interactions may influence children's developmental outcomes. Thus, the present study examined mother-child shared affect in a free play task and in a structured, goal-oriented task, to identify if there were any differences in shared affective displays between these two interaction tasks in a community sample of mothers and their children.

Hypotheses

The first goal of the present study was to investigate the role of children's emotion regulation in influencing the relation between parenting practices (i.e., mothers' involvement, limit setting, communication) and mothers' perceived parenting support,

and young children's physical aggression. The second goal of the present study was to further examine the role of emotion regulation, through mother-child shared affect, in influencing the relation between mothers' perceived parenting support and parenting practices (i.e., mothers' involvement, limit setting, communication), and young children's physical aggression.

Previous research suggests that parent and child behaviours may differ between free play and structured interaction tasks, such that parents may provide more guidance and structure in their interactions with their children during a structured task, as compared to a play task. The third goal of this study was to examine whether there were any differences in mother-child shared affect in a free play task, as compared to a structured task, in a community sample.

The following hypotheses were proposed:

1. Children's emotion regulation would mediate the relation between each of the parenting practices (i.e., mothers' involvement, limit setting, communication) and mothers' perceived parenting support, and children's physical aggression.

   (1a) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be related to lower levels of children's physical aggression.

   (1b) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be associated with higher levels of children's emotion regulation, which would then be associated with lower levels of children's physical aggression.

2. Children's emotion dysregulation would mediate the relation between each of the levels of the parenting practices (i.e., mothers' involvement, limit setting, communication) and mothers' perceived parenting support, and children's physical aggression.

   (2a) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be related to lower levels of children's physical aggression.

   (2b) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be related to lower levels of children's emotion dysregulation, which would then be associated with lower levels of children's physical aggression.

3. Mother-child shared positive affect would mediate the relation between each of the parenting practices (i.e., mothers' involvement, limit setting, communication) and mothers' perceived parenting support, and children's physical aggression.

   (3a) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be related to lower levels of children's physical aggression.

   (3b) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be related to higher levels of mother-child shared positive affect, which would then be associated with lower levels of children's physical aggression.

4. Mother-child shared negative affect would mediate the relation between each of the parenting practices (i.e., mothers' involvement, limit setting, communication) and mothers' perceived parenting support, and children's physical aggression.

   (4a) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would each be related to lower levels of children's physical aggression.

   (4b) Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be related to lower levels of mother-child shared negative affect, which would then be associated with lower levels of children's physical aggression.

5. There would be higher levels of mother-child shared positive affect and lower levels of mother-child shared negative affect in the free play task, as compared to the structured block task.

CHAPTER II

Method

Participants

This study was conducted using an archival data set. Mother-child dyads were recruited for participation in a study examining the correlates of parenting and social and emotional competence in young children (Dr. Rosanne Menna, Primary Investigator; University of Windsor Internal Humanities and Social Sciences Research Grant). Participants were recruited from brochures distributed through daycares, learning centres, libraries, parent resource centers, community events, parenting magazines, parenting websites, the Participant Research Pool at the University of Windsor, and word of mouth. Children were included if they could speak English and had not been diagnosed with a developmental disability (e.g., fetal alcohol spectrum disorders or pervasive developmental disorders). Mothers who were interested in participating in the study scheduled two, one-and-a-half hour sessions in laboratory rooms at the University of Windsor. As a token of appreciation, at each visit children were provided with a small age-appropriate token, (e.g. toy car, bouncy ball, stickers). After the mothers completed the set of questionnaires, they received $10 compensation for parking and/or transportation costs, as well as a $5 gift certificate for a popular coffee shop chain. Mothers who were enrolled in psychology courses received three bonus marks toward one psychology course of their choice. Compensation was provided to participants who were not able to complete the entirety of the study.

In the total sample, participants were 154 mother-child pairs. For hypotheses 1 and 2, a subset of the larger sample was analyzed because the Emotion Regulation Checklist

was not administered to the first 52 participants, as this measure was added to the battery of measures part of the way through completion of the larger study. Thus, the first 52 participants were excluded from the analyses for hypotheses 1 and 2. In addition, ten participants were excluded, from the 102 remaining participants, because they did not complete 50% of the questionnaires. The final sample used in the analyses for hypotheses 1 and 2 consisted of 92 mother-child pairs, with 59.8% (55) male and 39.1% (36) female children.

For hypotheses 3, 4, and 5, thirteen participants were excluded, from the original 154 participants, because they did not complete 50% or more of the measures. In addition, eight participants were not included in the analyses because they were used as training tapes for the shared affect coding. An additional four participants were not included because two participants did not consent to videotaping, and for two participants the video camera was not working properly. The final sample consisted of 129 mother-child pairs, with 58.9% (76) male and 40.3% (52) female children. The data for child gender was not provided for one participant.

The demographic data, presented in Table 1, is presented for the total sample (N = 129). The children's ages ranged between 3.1 and 6.9 years, with a mean age of 4.9 years (SD = 0.89). The mother's ages ranged from 24 to 52 years, with a mean age of 35.7 years (SD = 5.3). The ethnicities reported for mothers included 77.5% Caucasian and 58% of mothers graduated college or university. Eighty-nine percent of mothers were married or living with their partners and 7% were divorced or separated. Twenty-seven percent of mothers reported family total income ranging from $61,000 to $100,000.

Table 1

Demographic Characteristics of the Mothers in the Total Sample

Characteristic	N= (*N* Percent)
Education	
Junior High	1 (0.8)
Graduated High School	6 (4.7)
Some College or University	23 (17.8)
Graduated College or University	76 (58.9)
Graduate or Professional School	22 (17.1)
Missing	1 (0.8)
Marital Status	
Married	108 (83.7)
Divorced	2 (1.6)
Separated	7 (5.4)
Living Together	8 (6.2)
Other	4 (3.1)
Total Income	
Under 30,000	18 (14.0)
30,000 to 60,000	29 (22.5)
61,000 to 100,000	36 (27.9)
101,000 to 150,000	31 (24.0)

Table 1 (cont.)

Characteristic	N= (*N* Percent)
150,000 to 250,000	11 (8.5)
Missing	4 (3.1)
Ethnicity	
South Asian	4 (3.1)
East Asian	4 (3.1)
Caucasian	100 (77.5)
African Canadian	1 (0.8)
Hispanic	1 (0.8)
Native Canadian	5 (3.9)
Bi-Racial	3 (2.3)
Croatian	1 (0.8)
Other	9 (7.0)
Missing	1 (0.8)

Procedure

The study was completed over two visits in a laboratory at the University of Windsor. At the first visit, informed consent was obtained from the mothers and assent was obtained from the children by asking them if they would like to do some activities. Children were asked to participate in a video recorded interaction with their mother, complete an evaluation of cognitive ability, a language assessment, and some social-emotional tasks. Mothers were asked to complete a set of questionnaires assessing their parenting practices, depression, and their children's behaviour, aggression, social skills, and emotional competence. The order of the questionnaires and tasks were randomized, across two testing days to avoid order bias in responding. The questionnaire measures used it this study were a demographics questionnaire, the Child Behaviour Checklist (CBCL; Achenbach, 1991), the Parent-Child Relationship Inventory (PCRI; Gerard, 1994), the Preschool Social Behaviour Scale (PSBS; Crick, Casas, & Mosher, 1997), and the Emotion Regulation Checklist (EMC; Shields & Cicchetti, 1997).

In addition, children and their mothers participated in a video recorded interaction task. For the interaction task, a room was prepared with a video camera, a preschool sized table and chairs, task-specific materials, and a digital video camera positioned in one corner of the room. First, mothers and children were instructed to sit in specific seats, to provide children with sufficient space to complete the tasks and to be situated in optimal view of the camera for viewing participants' behaviours. The researcher or a research assistant explained to the participants that they would be completing a number of interaction tasks (described below), each for a limited amount of time. Participants were also informed that at the end of each task the research assistant would stop the task,

remove the materials, and provide new materials and instructions for the following task. Participants were made aware that the research assistants would be monitoring the interaction from behind the one-way mirror; however, the interaction would not be interrupted except when changing tasks or if necessary (e.g., to go to the bathroom).

There were three interaction tasks each dyad was asked to complete. The three interaction tasks involved a structured task, a planning task, and a free play task. Prior to completing the tasks, mothers and children were asked to play with a toy in the room for five minutes to become more comfortable in the room. To counterbalance, the order of the three interaction tasks was randomized. Each task lasted ten minutes, with the entire set of interaction tasks lasting 45 minutes. For the purposes of the present study, only the structured block task and the free play task were coded for shared affect.

For the structured block task, mothers and children were provided 96 colored blocks, comprised of an equal number of blocks in six different colors. Four cards with images of block patterns were also provided to the participants on an easel. The mothers were instructed by the research assistant to help their child construct a tower using nine blocks and a bridge using three blocks, and then assist their child in constructing the block patterns that were shown on the cards.

For the free play task, mothers and their children were asked to participate in free play with a variety of toys from within the provided bin. The toys included blocks, crayons and paper, cars, a dollhouse with figures, animal figurines, and play dough. The participants were instructed to play with the toys as they would normally play at home. The research assistant also asked the mothers to try to keep their child in the seat and the box of toys on the ground to prevent obstruction of the video camera. Finally, mothers

were instructed to not clean up the toys, as they would have an opportunity to do so after completion of this task.

Measures

Background information. The mothers completed a demographics questionnaire that included questions pertaining to mother's age, occupation, education, ethnicity, marital status, family structure, and family income. Mothers also answered questions regarding children's age, education, and history of medical or psychological problems.

Children's aggression. The Child Behaviour Checklist (CBCL; Achenbach, 1991) is a standardized parent-report measure that was administered to the mothers to assess children's internalizing and externalizing problems, as well as adaptive skills. Mothers were asked to rate their children's behaviour now or within the past two months on 100 items, each on a 3-point Likert-type scale ranging from 0 (*Not true*) to 2 (*Very true or often true*). There were also three additional open-ended items for mothers to record any other problems their child was experiencing. There are two forms, based on the age of the child (i.e., CBCL 1 1/2-5, CBCL 6-18). For the purpose of this study, the Aggression Behaviour subscales of the CBCL were used to measure children's aggressive behaviours. Sample items from the Aggressive Behaviour subscale from the CBCL 1 ½-5 include, "defiant", and "hits others". Sample items from the Aggressive Behaviour subscale from the CBCL 6-18 form include "gets into many fights", and "physically attacks people". Because two different forms of the CBCL were included in the present study (i.e., CBCL 1 ½-5 and CBCL 6-18), standardized t-scores for the Aggressive Behaviour subscales were examined. Higher scores on the Aggressive Behaviour subscale suggest higher levels of aggressive behaviour. The CBCL is widely used, has

been shown to have excellent test-retest reliability (r = .89), and good inter-rater reliability that ranges from r = .67 to .74. In addition, this measure correlates well with other widely used behaviour checklists. Support for these psychometric properties has been reported in subsequent research (Achenbach & Rescorla, 2000; 2001).

Children's physical aggression. An adaptation of the Preschool Social Behaviour Scale (PSBS; Crick et al., 1997) was used as a parent-report measure completed by the mothers regarding their young children's aggressive and social behaviour (O'Neil, 2008). The PSBS consists of 27 items and is comprised of 5 subscales: Physical Aggression, Relational Aggression, Total Aggression, Prosocial Behaviour, and Depressed Affect. Two items were created and added to this measure to create a Physical Aggression scale consisting of a total of eight items. Mothers rated items on a 5-point Likert-type scale, ranging from 1 (*never or almost never true of this child*) to 5 (*always or almost always true of this child*). Sample items that assess physical aggression include, "This child pokes peers," and, "This child punches peers". Total scores on the Physical Aggression subscale were examined in the present study as measure of children's physical aggression, with higher scores on the Physical Aggression subscale suggesting higher levels of physical aggression. Crick et al. (1997) standardized this measure on a group of teachers and the PSBS was found to have excellent internal consistency, and the estimated Cronbach's alpha was .94 for the Physical Aggression subscale, using the original six items. The reliability of this measure has been supported in subsequent studies (Carpenter & Nangle, 2006; Crick, Casas, & Ku, 1999; Helmsen, Koglin, & Petermann, 2012; Juliano, Werner, & Cassidy, 2006; Ostrov, Gentil, & Mullins, 2013).

As part of the larger study, the PSBS was used as a parent-report measure and Cronbach's alpha of .90 has been reported for the parent report of physical aggression, using all eight items (Ambrose & Menna, 2012; O'Neil, 2008; O'Neil Woods, 2012). In the present study, Cronbach's alpha was .86 for the parent report of children's physical aggression, using all eight items.

Parenting practices and perceived support. Mothers completed the Parent-Child Relationship Inventory (PCRI; Gerard, 1994) to assess parents' attitudes toward parenting practices and the relationship with their children. The PCRI is a 78-item, standardized, self-report questionnaire. The PCRI has seven content subscales: Parental Support, Satisfaction with Parenting, Involvement, Communication, Limit Setting, Autonomy, and Role Orientation. Mothers rated each item on a 4-point Likert-type scale 1 (*Strongly Agree*) to 4 (*Strongly Disagree*) and total standard scores from the Communication, Involvement, Limit Setting, and Parental Support subscales were used as measures of perceived parenting support and each of the parenting practices. The Communication, Involvement, Limit Setting, and Parental Support subscales contain 9, 14,12, and 9 items, respectively. Sample items from the Communication, Involvement, Limit Setting, and Parental Support subscales include: "My child would say I am a good listener"; "I spend a great deal of time with my child"; "I have trouble disciplining my child"; and, "When it comes to raising my child, I feel alone most of the time", respectively. Higher scores on the Communication, Involvement, Limit Setting, and Parental Support subscales indicate higher levels of parents' effective communication, involvement, consistent limit setting, and parents' perceived parenting support. The test-retest reliability for each of these four scales is good (varying from r = .49 to .93) and

internal consistency varies from Cronbach's alpha of .70 to .88, suggesting a high degree of homogeneity within each scale (Gerard, 1994). In the present study, Cronbach's alpha was .55 for the Parental Support scale, .87 for the Involvement scale, .84 for the Limit Setting scale, and .95 for the Communication scale. The internal consistency of the Parental Support scale was low, so the reliability of each item was examined. It was observed that by removing one item (i.e., "I sometimes wonder if I am making the right decisions about how I raise my child") the reliability of the Parental Support scale only slightly improved (Cronbach's alpha of .57). Therefore, all 9 items of the Parental Support scale were included in the analyses.

Children's emotion regulation and emotion dysregulation. The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) is a 24-item parent report measure that was completed by the mothers. The ERC is comprosed of two subscales: Emotion Regulation and Lability/Negativity. The Lability/Negativity scale was used in the present study to measure children's emotion dysregulation. Mothers were asked to rate how well each item described their child on a 4-point Likert-type scale, ranging from 1 (*Never)* to 4 (*Almost always*). Example items assessed in the Emotion Regulation scale include, "Responds positively to neutral or friendly overtures by adults," and, "Can say when s/he is feeling sad, angry or mad, fearful or afraid". Example items measuring Lability/Negativity scale include, "Is prone to angry outbursts/tantrums easily," and, "Is easily frustrated". Scores on the Emotion Regulation scale range from 8 to 32 and higher scores indicate greater ability in regulating emotions. Scores on the Lability/Negativity scale range from 15 to 60 and higher scores indicate a greater tendency to experience emotional dysregulation and negativity. In the present study, Cronbach's alpha was 0.62

for the Emotion Regulation scale and 0.85 for the Lability/Negativity scale. Due to low internal consistency for the Emotion Regulation scale, one item was removed (i.e., "displays appropriate negative emotions"). After this deletion, the internal consistency of the Emotion Regulation scale increased to 0.70. This seven-item scale was used for children's emotion regulation in the analyses.

Mother-child shared affect. A coding scheme developed by Kochanska and Aksan (1995) was used to code shared affect in the videotaped mother-child interactions during the 10-minute structured teaching task and the 10-minute free play task. The mother-child interactions were coded for every 30-second interval, based on previous research that suggests that 30 seconds is an optimal time interval to reliably observe parent-child interaction at a microanalytic level (Kochanska, 1998; Lindsey, Mize, & Pettit, 1997).

Every 30-second interval of the interaction tasks were coded for mother and child affect using four affect codes: (1) highly positive (joyful, smiling, giggling, physically or verbally affectionate); (2) neutral/pleasant (no clear "full-blown" joy, but the mood is pleasant, comfortable); (3) neutral/negative (no clear signs of negative affect, but there is negativity expressed such as impatience, boredom, irritation, an impression the child "would rather be elsewhere"); and (4) highly negative (angry, crying, screaming, whining, frowning, pouting, worrying). Codes were applied to each interval based on the presence of the affect during the interval. The affect codes are not mutually exclusive and more than one discrete affect can be coded per interval, if more than one affect is present during the interval (i.e., highly positive and highly negative can be coded for one interval if both affects are present). However, the neutral affect codes are not coded when a

discrete affect is present (i.e., highly positive or highly negative affect). When neutral affect is coded for the interval, only one neutral affect code can be coded; thus, the more dominant (i.e., affect that is greater in intensity and/or longer in duration) affect code is applied to the interval.

A total shared positive affect score and a total shared negative affect score were derived for each mother-child dyad by averaging the scores for each mother and child across the time intervals. The total shared positive affect only included intervals in which highly positive or neutral/pleasant affect codes, and no negative affect codes, were assigned to the interval for the mother and the child. The total shared negative affect only included intervals in which highly negative or neutral/negative affect codes, and no positive affect codes were assigned to both the mother and child. The intervals that included both positive and negative affect codes were not included in the following analyses. On average, 9% of the intervals coded were not analyzed due to the presence of both positive and negative affect codes (3% of the free play tasks, 15% of the structured block tasks).

A doctoral student who has used this coding system in a previous study trained the investigator and a research assistant to code shared affect. In the present study, the doctoral student was the primary coder and the research assistant, a fourth year undergraduate student, was the secondary coder. Coders were blind to all information regarding the participants in the videotapes that they coded.

Training involved reviewing the coding manual (Kochanska & Aksan, 1995), which provides a definition of shared positive and shared negative affect, descriptions of each code and specific behaviours that are involved with each code, and examples of

mother-child interactions that can help identify each code. Then, videotapes were randomly selected as training tapes. The first interaction task was coded and reviewed together. Then, each coder coded three interaction tasks separately. The coders met to discuss any discrepancies between their codes for each 30-second interval of the interaction tasks, until all codes were agreed upon. Next, the coders coded another three interaction tasks separately and again, discussed any discrepancies between their codes. The inter-rater agreement ranged from 70 to 81 percent throughout the training with an average of 75 percent agreement on the six free play tasks and 78 percent agreement on the six structured block tasks.

Previous research has reported kappas ranging from .87 to .92 (Kochanska, 1995; Kochanska & Aksan, 1995) for both shared positive and negative affect. In the present study, inter-rater reliability was based on 18% of the interaction tasks. In this study, good to excellent inter-rater reliability was achieved for shared positive affect, ICC (30) = .85, $p < .001$, and for shared negative affect, ICC (30) = .97, $p < .001$.

CHAPTER III

Results

Data Cleaning

The statistical analyses were conducted using SPSS (Version 22). Prior to conducting the analyses, demographic, independent, and dependent variables were examined for missing data and outliers. From examining the data set for the entire sample, 16% (23 cases) of the participants were missing data on the PCRI, 7% (10 cases) on the CBCL, and 5% (8 cases) on the PSBS. Taking into account that the first 52 participants did not complete the ERC, less than 5% of the remainder of the sample were missing data on the ERC. A Missing Value Analysis was conducted and the patterns of missing data were analyzed to determine the nature of the pattern in the sample. The primary reasons for the missing data included participants not returning a completed measure at a later date, or not attending the second date of testing in order to complete all of the measures. Little's MCAR test suggested that the missing data were not missing in a manner that suggested completed randomness, χ^2 (28) = 65.13, $p < .001$. Missing data were checked for any significant relations to children's aggression, as measured by the CBCL, and children's physical aggression, as measured by the PSBS. Mothers' involvement, limit setting, communication, and perceived parenting support were related to children's physical aggression. The missing data on the maternal predictor variables were further examined and other variables in the data set were found to predict the missing data on the maternal predictor variables; thus, this information mitigates the potential bias of the missing data (El-Masri & Fox-Wasylyshyn, 2005). Therefore, the missing data can be assumed to be Missing At Random (MAR). MAR can be assumed

because the reasons for the missing data are not precisely known (Schafer & Graham, 2002) because the participants were not requested to provide a reason for not completing the questionnaires. However, Collins, Schafer, and Kam (2001) suggest that in real-life applications, most departures from MAR are not sufficient enough to invalidate the results when the analyses used are based on data MAR. Therefore, assuming data are MAR, expectation maximization methods for imputing missing data are adequate (Schafer & Graham, 2002). Expectation maximization methods provide data for unknown parameters with accurate probability (Schafer & Graham, 2002) and realistic estimates of variance (Tabachnick & Fidell, 2006).

Examination of the Assumptions of Univariate Analyses

The data were analyzed to evaluate the assumptions of univariate analyses, including independence of observations and normality. To evaluate the assumption of independence of observations Cook's distance was calculated for all independent and dependent variables. Based on Field's (2009) cutoff value of 1, one influential observation was noted. The value was winsorized in order to preserve the data. To test the assumption of normality, the distributions of the independent and dependent variables were analyzed by examining the skewness and kurtosis values for each of the independent and dependent variables. Skewness and kurtosis values were converted to *z*-scores by dividing the skewness and kurtosis value by their standard error. If the skewness and kurtosis statistics were equal to or exceeded 1.96, it was assumed that normality was violated at $p < .05$, and if the statistics were equal to or exceeded 2.58, normality was assumed to be violated at $p < .01$, and at $p < .001$ if the statistics were equal to or exceeded 3.29 (Field, 2009). For the subset of data used in the analyses for

hypotheses 1 and 2, all of the study variables exhibited a normal distribution. However, for the total data set used in the analyses for hypotheses 3, 4, and 5, the distributions of mothers' perceived parenting support, mothers' communication, children's aggression as measured by the CBCL, shared positive affect during the free play task and the structured block task, and shared negative affect during the free play and the structured block task displayed significant departures from normality at $p < .01$. Reflection and logarithmic transformation was applied to mothers' communication scores in the total data set to correct for the significant negative skew (Field, 2009). The transformation slightly improved skewness and kurtosis. The communication scores were then reflected back to their original direction to allow for interpretation in the intended direction (i.e., higher scores indicate higher levels of mothers' effective communication with their children). Mothers' parenting support scores were transformed; however, the transformation did not improve the kurtosis. Thus, the non-transformed scores were included in the analyses. Additional transformations were not performed because the sample was a community sample, thus low levels of negative affect and children's aggression, and high levels of positive affect are to be expected.

Examination of the Assumptions of Regression Analyses

The data were examined to ensure the assumptions of regression analyses were met. First, any potential outliers were examined. For each of the predictor variables, Hat's Element (Leverage Values) was examined based on Stevens' (2002) recommended formula (three times the value of (K+1)/n). Seven outliers were noted. To examine outliers on the dependent variables, the standardized residuals were computed and analyzed based on Field's (2009) recommended cutoff value of 2.5. Four outliers were

found for children's aggression and three outliers were found for children's physical aggression. Finally, to evaluate any influential observations, Cook's Distance values were calculated and examined based on Field's (2009) recommended cutoff value of 1. One influential observation was found. Twelve outliers were winsorized in order to preserve the data.

The assumption of independence of errors was assessed by examining the Durbin-Watson statistic. The Durbin-Watson values fell in between 1.5 and 2.5 (Field, 2009), suggesting that this assumption was met. The assumption of multicollinearity was also assessed and was met (Field, 2009; Myers, 1990).

Next, histograms comprised of the standardized residuals were examined to assess the assumption of normally distributed errors. The distribution of errors was approximately normal; however, the distribution was slightly negatively skewed.

Finally, the assumption of a large enough sample size was assessed. Based on Field's (2009) recommendation of including 10-15 cases per predictor variable, this assumption was met. The present study included 92 cases in the analyses for hypotheses 1 and 2, and 129 cases for hypotheses 3, 4, and 5. Therefore, the regressions in hypotheses 1 and 2 could include six to nine predictor variables, and eight to twelve predictors for hypotheses 3, 4, and 5. In hypotheses 1 and 2 there were six predictor variables and eight predictors variables for hypotheses 3, 4, and 5, indicating that the sample sizes were large enough (Field, 2009).

Preliminary Analyses

Descriptive statistics. The means, standard deviations, and ranges for the study variables in the total sample are presented in Table 2.

Correlations: Hypotheses 1 and 2

Bivariate correlations were conducted between the study variables to examine the relations between each of the variables (Table 3). In addition, the bivariate correlations were used to determine which variables to control for while testing hypotheses 1 and 2. *T*- tests were conducted to examine child gender differences in all of the study variables (Table 4). There was a significant gender difference in children's physical aggression ($p = 0.035$) and children's emotion dysregulation ($p = 0.010$), with significantly higher mean physical aggression and emotion dysregulation scores for boys, as compared to girls.

As shown in Table 3 children's aggression, as measured by the CBCL, and children's physical aggression, as measured by the PSBS, are highly correlated, thus only physical aggression was used in the remaining analyses. The PSBS was chosen to measure children's physical aggression instead of the CBCL because the items included in the PSBS Physical Aggression subscale examines children's physical aggression, whereas, the CBCL Aggression subscale more broadly measures aggression. Furthermore, there were no significant differences between children's aggression as measured by the CBCL, and children's physical aggression as measured by the PSBS, in the statistical analyses conducted in the present study.

Hypothesis 1. Prior to testing mediation, it was hypothesized that higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would be related to lower levels of children's physical aggression (Hypothesis 1a). This hypothesis was partially supported. Higher levels of mothers' involvement, limit setting, and communication with their children, were each related to

Table 2

Mean, Standard Deviation, and Range of Study Variables for the Total Sample

Measure	*N*	*M*	*SD*	Min.	Max.
Parent-Child Relationship Inventory					
Support	129	53.19	9.40	27.00	74.00
Involvement	129	52.84	9.59	25.00	77.00
Communication	129	50.33	8.55	10.00	62.00
Limit Setting	129	52.88	9.62	36.76	77.00
Emotion Regulation Checklist					
Emotion Regulation	92	24.25	2.81	16.00	28.00
Emotion Dysregulation	92	30.31	7.16	17.00	48.00
Shared Negative Affect					
Free play task	128	0.002	0.01	0.00	0.11
Structured block task	128	0.01	0.02	0.00	0.65
Child Behavior Checklist					
Aggression	129	54.97	6.65	50.00	75.00
Preschool Social Behavior Scale					
Physical Aggression	129	10.37	3.70	7.00	20.00

Note. Non-transformed data for the communication subscale were presented in the table; however, transformed data for the communication subscale were included in the analyses. One participant was missing a videotaped recording of the free play task and a second participant was missing a videotaped recording of the structured block task.

Table 3

Bivariate Correlations Between all Study Variables for Hypotheses 1 and 2

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Child Age											
2. Mother Age	0.004										
3. Mother Education	-0.13	0.16									
4. Support	-0.002	0.28*	0.09								
5. Involvement	0.03	0.17	0.25*	0.37**							
6. Communication	0.04	0.29*	0.31**	0.32**	0.62**						
7. Limit Setting	0.04	0.22	0.30**	0.37**	0.43**	0.42**					
8. CBCL Aggression	0.07	-0.09	-0.29**	-0.32**	-0.23*	-0.29**	-0.56**				
9. Physical Aggression	0.10	-0.08	-0.24*	-0.16	-0.39**	-0.53**	-0.37**	0.51**			
10. Emotion Regulation	0.21	0.12	0.12	0.41**	-0.35**	0.54**	0.37**	-0.24**	-0.38**		
11. Emotion Dysregulation	-0.05	-0.18	0.21*	-0.29**	-0.26*	-0.45**	-0.58**	0.77**	0.60**	-0.55**	

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

Table 4

Comparison of Child Gender in Maternal Parenting Practices, Children's Physical Aggression, Emotion Regulation, and Emotion Dysregulation for Hypotheses 1 and 2

	Male		Female				
	M	*SD*	*M*	*SD*	*df*	*t*	*p*
Support	54.34	9.33	52.01	9.10	89	1.178	0.242
Involvement	53.05	7.16	51.22	10.61	89	0.983	0.328
Communication	50.77	7.09	50.31	7.63	89	0.294	0.769
Limit Setting	51.02	8.69	52.50	10.89	89	-0.718	0.475
CBCL Aggression	56.71	7.59	54.49	6.83	89	1.420	0.159
Physical Aggression	11.69	4.06	9.86	3.87	89	2.143	0.035
Emotion Regulation	23.83	2.97	24.96	2.44	89	-1.909	0.060
Emotion Dysregulation	31.89	6.90	27.96	7.17	89	2.618	0.010

Note. N = 55 male children, 36 female children.

lower levels of children's physical aggression (see Table 3). Mothers' perceived parenting support was not related to children's physical aggression.

It was also predicted that higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would each be related to higher levels of children's emotion regulation (Hypothesis 1b). Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication were each related to higher levels of children's emotion regulation (see Table 3).

It was also predicted that higher levels of children's emotion regulation would be related to lower levels of children's physical aggression (Hypothesis 1b), and the findings support this hypothesis. Higher levels of children's emotion regulation were related to lower levels of children's physical aggression (see Table 3).

It was hypothesized that children's emotion regulation would mediate the relations between mothers' perceived parenting support, mothers' involvement, limit setting, and communication, and children's physical aggression. Three models were tested based on the significant relations decribed above. This hypothesis was partially supported as children's emotion regulation partially mediated the relation between mothers' involvement, and limit setting, and children's physical aggression. Preacher and Hayes' (2008) Indirect Mediation macro for SPSS was employed to test mediation effects. Mediation was analyzed by examining the significance of the indirect effect of the independent variable (X) on the dependent variable (Y), through a mediator (M). The Indirect macro formally tests the null hypothesis that the indirect effect of X on Y is equal to zero. Preacher and Hayes' (2008) Indirect mediation macro does not assume normal distribution or require a large sample. It also provides a bootstrapping estimate of

the indirect effect, which involves sampling without replacement (Preacher & Hayes, 2004). Therefore, the Indirect macro was chosen to test mediation effects because it compares the total effect (*c*) to the indirect effect (*c'*), and provides significance testing with bootstrapping. Mothers' perceived parenting support was not analyzed in a mediation model predicting children's physical aggression, through children's emotion regulation, because parenting support was not significantly related to children's physical aggression (see Table 3).

Involvement. As shown in Table 5, the results revealed that mothers' involvement was significantly related to children's physical aggression, through children's emotion regulation, as zero was not included in the 95% confidence interval. Figure 1 shows that the direct effect of mothers' involvement on children's physical aggression became less significant when children's emotion regulation was included in the model. Therefore, children's emotion regulation partially mediated the relation between mothers' involvement and children's physical aggression, such that mothers who were more involved with their children had children who engaged in less physical aggression, partially because children were better able to regulate their emotions.

***Limit setting*.** Mothers' limit setting was significantly related to children's physical aggression, through children's emotion regulation, as zero was not included within the 95% confidence interval (Table 5). As shown in Figure 2, the direct effect of mothers' limit setting and children's physical aggression became less significant when children's emotion regulation was included in the model. Thus, children's emotion regulation partially mediated the relation between mothers' limit setting and children's physical aggression, such that mothers who set more consistent and appropriate limits

Table 5

Mediation of the Effect of Parenting Practices to Children's Physical Aggression Through Children's Emotion Regulation (5,000 bootstrap samples)

Independent Variable (IV)	Mediating Variable (M)	Dependent Variable (DV)	Point Estimate (*SE*)	BC 99% CI	
				Lower	Upper
Involvement	Emotion regulation	Physical aggression	-.0467 (.0195)	-.0959	-.0162
Communication	Emotion regulation	Physical aggression	-.0364 (.0373)	-.1079	.0392
Limit setting	Emotion regulation	Physical aggression	-.0440 (.0180)	-.0885	-.0152

Note. SE = standard error; BC = bias corrected; CI = confidence interval.

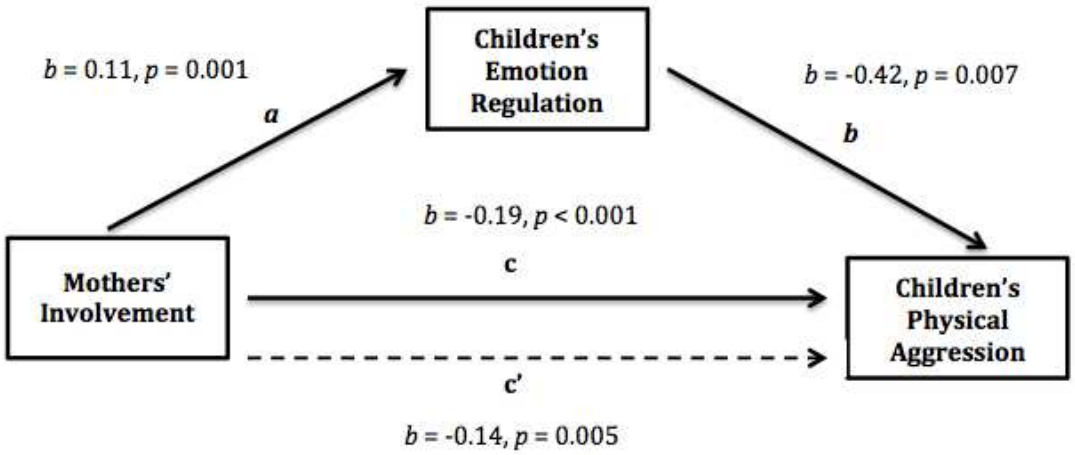

Figure 1. Associations between (a) mothers' involvement and children's emotion regulation, (b) children's emotion regulation and children's physical aggression, (c) mothers' involvement and children's physical aggression, and (c') mothers' involvement and children's physical aggression with children's emotion regulation as a mediator.

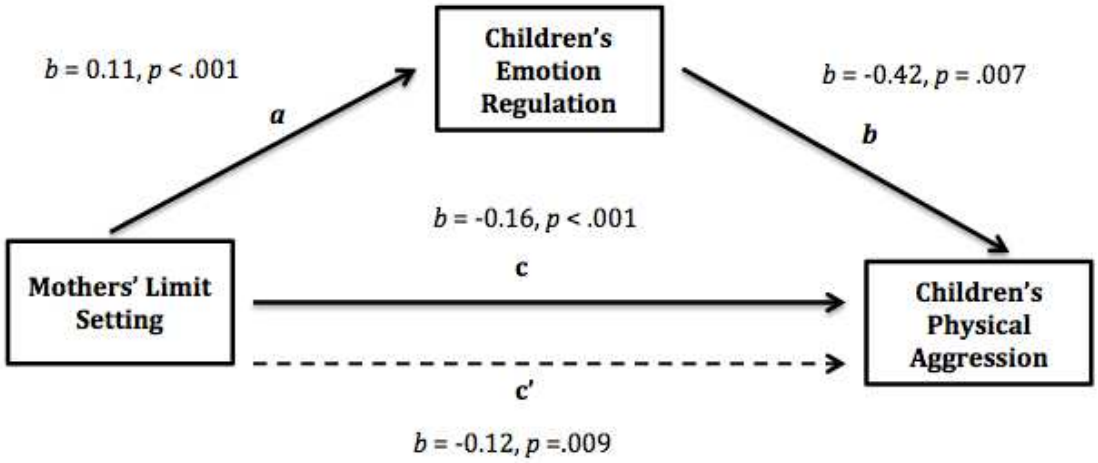

Figure 2. Associations between (a) mothers' limit setting and children's emotion regulation, (b) children's emotion regulation and children's physical aggression, (c) mothers' limit setting and children's physical aggression, and (c') mothers' limit setting and children's physical aggression with children's emotion regulation as a mediator.

with their children had children who engaged in less physical aggression, partially because children were better able to regulate their emotions.

Communication. Mothers' communication was not significantly related to children's physical aggression, through children's emotion regulation, as zero was included within the 95% confidence interval (Table 5). Thus, children's emotion regulation did not mediate the relationship between mothers' communication and children's physical aggression.

Hypothesis 2. It was predicted that higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would each be related to lower levels of children's physical aggression (Hypothesis 2a). This was partially supported because higher levels of mothers' involvement, limit setting, and communication were each related to lower levels of children's physical aggression. Mothers' perceived parenting support was not related to children's physical aggression (see Table 3).

It was also predicted that higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication would each be related to lower levels of children's emotion dysregulation (Hypothesis 2b). This results support this hypothesis. Higher levels of mothers' perceived parenting support, mothers' involvement, limit setting, and communication were each related to lower levels of children's emotion dysregulation (see Table 3).

It was also hypothesized that lower levels of children's emotion dysregulation would be related to lower levels of children's physical aggression (Hypothesis 2b), and this was supported. Lower levels of children's emotion dysregulation were related to

lower levels of children's physical aggression (see Table 3).

It was hypothesized that children's emotion dysregulation would mediate the relation between each of mothers' perceived parenting support, mothers' involvement, limit setting, and communication, and children's physical aggression. This was partially supported because children's emotion regulation partially mediated the relation between mother's involvement, and communication, and children's physical aggression. The relation between mothers' limit setting and children's physical aggression was fully mediated by children's emotion regulation. Mothers' perceived parenting support was not tested in a mediation model predicting children's physical aggression, through children's emotion regulation, because parenting support was not significantly related to children's physical aggression (Table 3). Three models were tested.

Involvement. Using Preacher and Hayes (2008) Indirect Macro, the indirect effect of mothers' involvement to children's physical aggression, through children's emotion dysregulation was significant, as zero was not included in the 95% confidence interval (Table 6). Figure 3 shows that the direct effect of mothers' involvement became less significant when children's emotion dysregulation was included in the model. Therefore, children's emotion dysregulation partially mediated the relation between mothers' involvement and children's physical aggression, suggesting that mothers who were more involved with their children had children who engaged in less physical aggression, partially due to having less difficulty regulating their emotions.

Limit setting. The indirect effect of mothers' limit setting to children's physical aggression, through children's emotion dysregulation was significant, as zero was not included in the 95% confidence interval. Figure 4 shows that the direct effect of mothers'

Table 6

Mediation of the Effect of Parenting Practices to Children's Physical Aggression Through Children's Emotion Dysregulation (5,000 bootstrap samples)

Independent Variable (IV)	Mediating Variable (M)	Dependent Variable (DV)	Point Estimate (*SE*)	BC 95% CI	
				Lower	Upper
Involvement	Emotion Dysregulation	Physical aggression	-.0698 (.0310)	-.1363	-.0148
Communication	Emotion Dysregulation	Physical aggression	-.1259 (.0333)	-.2038	-.0726
Limit setting	Emotion Dysregulation	Physical aggression	-.1453 (.0325)	-.2348	-.0663

Note. SE= Standard Error; BC = bias corrected; CI = confidence interval.

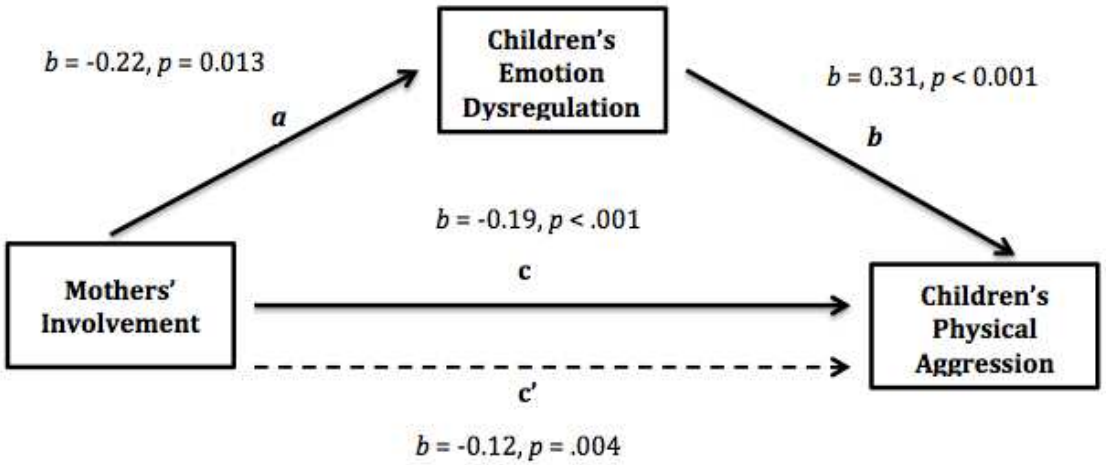

Figure 3. Associations between (a) mothers' involvement and children's emotion dysregulation, (b) children's emotion dysregulation and children's physical aggression, (c) mothers' involvement and children's physical aggression, and (c') mothers' involvement and children's physical aggression with children's emotion dysregulation as a mediator.

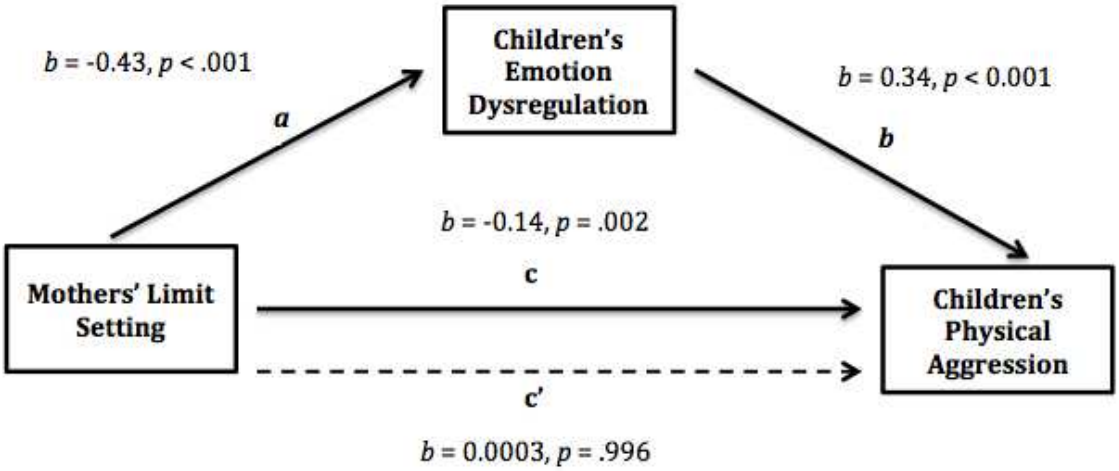

Figure 4. Associations between (a) mothers' limit setting and children's emotion dysregulation, (b) children's emotion dysregulation and children's physical aggression, (c) mothers' limit setting and children's physical aggression, and (c') mothers' limit setting and children's physical aggression with children's emotion dysregulation as a mediator.

limit setting was no longer significant when children's emotion dysregulation was included in the model. Therefore, children's emotion dysregulation fully mediated the relation between mothers' limit setting and children's physical aggression, such that mothers who set more consistent and appropriate limits with their children had children who behaved less physically aggressive, because they had less difficulty regulating their emotions.

Communication. The indirect effect of mothers' communication to children's physical aggression, through children's emotion dysregulation was significant, as zero was not included in the 95% confidence interval (Table 6). Figure 5 shows that the direct effect of mothers' communication on children's physical aggression became less significant when children's emotion dysregulation was included in the model. Thus, children's emotion dysregulation partially mediated the relation between mothers' communication and children's physical aggression, such that mothers who communicated more effectively with their children, had children who engaged in less physical aggression, partially because children had less difficulty with emotion regulation.

Correlations: Hypotheses 3 and 4

As a larger sample was used in the analyses for hypotheses 3 and 4, bivariate correlations were calculated between all of the study variables to examine the relations between each of the variables, and to determine demographic variables to control for while testing hypotheses 3 and 4 (Table 7). Children's aggression (measured by the CBCL) and children's physical aggression (measured by the PSBS) were highly correlated, therefore the physical aggression scale was used in all of the analyses.

Examination of the demographic variables showed that mother age was

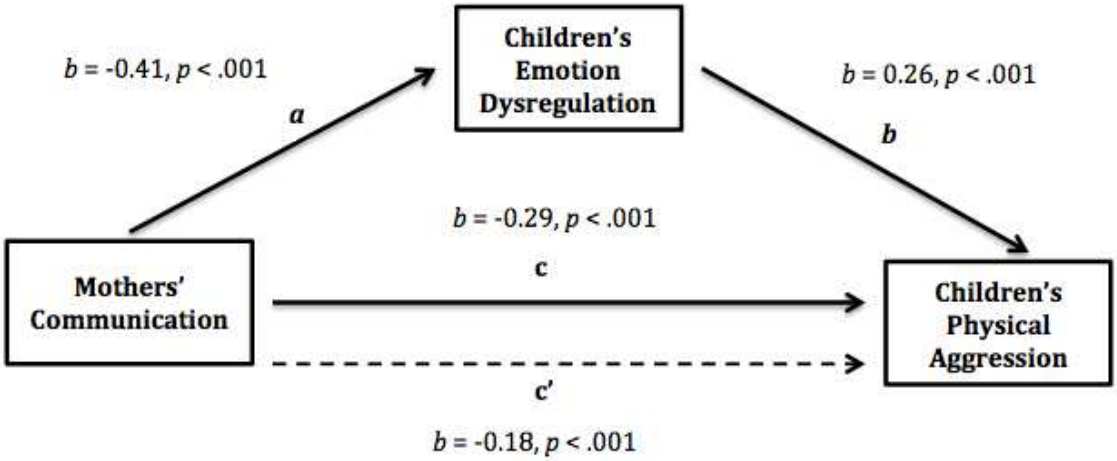

Figure 5. Associations between (a) mothers' communication and children's emotion dysregulation, (b) children's emotion dysregulation and children's physical aggression, (c) mothers' communication and children's physical aggression, and (c') mothers' communication and children's physical aggression with children's emotion dysregulation as a mediator.

Table 7

Bivariate Correlations Between Study Variables Included in Hypotheses 3, 4, and 5

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Child Age													
2. Mother Age	0.23*												
3. Mother Education	0.08	0.17											
4. Support	0.18*	-0.01	-0.20*										
5. Involvement	0.09	0.23*	0.20*	-0.10									
6. Communication[a]	0.11	0.24*	0.21*	0.13	0.57**								
7. Limit Setting	-0.04	0.16	0.28**	-0.24**	0.28**	0.34**							
8. CBCL Aggression	0.18*	-0.02	-0.29**	0.58**	-0.12	-0.19*	-0.58**						
9. Physical Aggression	0.02	-0.01	-0.25**	0.33**	-0.22*	-0.34**	-0.41**	0.49**					
10. Shared Positive Affect[b]	0.03	0.003	0.09	-0.24	0.15	0.16	0.13	-0.08	-0.18*				
11. Shared Negative Affect[b]	0.19*	0.13	-0.07	0.09	0.05	-0.05	0.01	0.10	0.01	-0.41**			
12. Shared Positive Affect[c]	0.02	-0.10	0.01	0.14	0.03	0.06	0.11	-0.04	-0.04	0.52**	-0.15		
13. Shared Negative Affect[c]	0.03	0.13	0.02	-0.05	-0.06	-0.06	-0.06	0.07	0.01	-0.49**	0.33*	-0.60**	

Note. [a] Transformed; [b] Free play task; [c] Structured block task.
*$p < .05$. ** $p < .01$.

significantly positively related to mothers' involvement and communication. Child age was significantly positively related to mother-child shared negative affect during the free play task.

To examine potential child gender differences in all of the study variables independent samples *t*-tests were conducted (Table 8). There was a significant gender difference in maternal-report of children's physical aggression, with significantly higher mean physical aggression scores for boys, as compared to girls.

It was predicted that higher levels of mother's perceived parenting support, involvement, limit setting, and communication would be related to lower levels of children's physical aggression (Hypotheses 3a and 4a). These hypotheses were partially supported because higher levels of mothers' involvement, limit setting, and communication, were each related to lower levels of children's physical aggression (Table 7).

Higher levels of mothers' perceived parenting support, involvement, limit setting, and communication were predicted to be related to higher levels of mother-child shared positive affect, and lower levels of mother-child shared negative affect (Hypotheses 3b and 4b). These hypotheses were not supported because mothers' perceived parenting support, involvement, limit setting, and communication were not significantly related to mother-child shared positive or negative affect across the play and structured block tasks.

It was also hypothesized that higher levels of mother-child shared positive affect and lower levels of mother-child shared negative affect would be related to lower levels of children's physical aggression (Hypotheses 3b and 4b). Hypothesis 3b was partially supported because higher levels of mother-child shared positive affect during the free

Table 8

Comparison of Child Gender in Maternal Parenting Practices, Children's Physical Aggression and Shared Affect for Hypotheses 3, 4, and 5

	Male		Female				
	M	*SD*	*M*	*SD*	*t*	*df*	*P*
Support	53.55	12.43	52.94	9.74	0.281	126	0.779
Involvement	53.90	8.78	51.37	10.65	1.470	126	0.144
Communication[a]	0.98	0.43	1.00	0.38	-0.248	126	0.804
Limit Setting	52.42	9.20	53.68	10.11	-0.727	126	0.469
CBCL Aggression	55.82	7.81	53.98	6.23	1.417	126	0.159
Physical Aggression	10.98	3.98	9.43	3.31	2.307	126	0.023
Shared Positive Affect[b]	0.94	0.08	0.94	0.12	0.706	125	0.481
Shared Negative Affect[b]	0.003	0.01	0.002	0.02	0.234	125	0.815
Shared Positive Affect[c]	0.85	0.21	0.88	0.15	-0.795	125	0.428
Shared Negative Affect[c]	0.02	0.08	0.01	0.03	0.798	125	0.426

Note. [a] Transformed; [b] Free play task; [c] Structured block task.

N = 76 male children, 52 female children (except *N* = 75 male children and 52 female children for shared positive and negative affect during the free play task, and *N* = 51 female children and 76 male children for the structured block task).

play task were related to lower levels of children's physical aggression (Table 7). Hypothesis 4b was not supported as mother-child shared negative affect was not significantly related to children's physical aggression.

Based on the non-significant correlations, mediation models for shared positive and negative affect as mediators of the relations between mothers' involvement, limit setting, communication, and perceived parenting support, and children's physical aggression were not tested. However, two hierarchical regression analyses were conducted to examine the role of mothers' involvement, limit setting, communication, and mother-child shared positive affect during the free play task in predicting children's physical aggression.

In the first regression, child gender was included in the first step, to control for a possible confound. In the second step, mothers' involvement, limit setting, communication, and shared positive affect during the free play task were entered. The first step, with child gender as the predictor variable and children's physical aggression as the outcome variable, was significant, F (1,125) = 4.82, R = .193, R^2 = .037, SE = 3.70, p = .030. Child gender accounted for approximately 4% of the variance in children's physical aggression. Males (M = 10.98, SD = 3.98) were reported to experience greater levels of physical aggression than females (M = 9.43, SD = 3.31), t(126) = 2.31, p = .023. The second step, including child gender, mothers' involvement, limit setting, communication, and mother-child shared positive affect during the free play task as predictors, and children's physical aggression as the outcome variable, was also significant, F (5,121) = 7.66, R = .490, R^2 = .240, SE = 3.34, p < .001. Overall, child gender, mothers' involvement, limit setting, communication, and mother-child shared

positive affect during the free play task accounted for approximately 24% of the variance in children's physical aggression. The results revealed a significant change in the prediction of children's physical aggression with the addition of mothers' involvement, limit setting, communication, and mother-child shared affect, R^2 *Change* = 0.203, *F Change* (4, 121) = 8.099, $p < .001$. As mothers' limit setting increased, the likelihood of children engaging in physical aggression decreased, B = -0.110, SE = 0.033, β = -0.281, p = .001. As mothers' communication increased, the likelihood of children engaging in physical aggression decreased, B = -2.813, SE = 1.026, β = -0.209, p = .035. Mothers' involvement, B = -0.002, SE = 0.038, β = -0.005, p = .961, and mother-child shared positive affect, B = -5.391, SE = 3.083, β = -.142, p = .083, were not significant predictors of children's physical aggression. See Table 9 for a summary of the regression analyses. The results suggest that consistent and appropriate limit setting by parents, and higher levels of effective communication by parents predicted less physical aggression in young children, above and beyond the influence of child gender.

A second regression was conducted predicting children's physical aggression with child gender in the first step, mother-child shared positive affect during free play in the second step, and mothers' involvement, limit setting, and communication in the third step. Child gender accounted for approximately 4% of the variance in children's physical aggression. Step two, which included child gender and mother-child shared positive affect during free play as predictors, and children's physical aggression as the outcome variable, was also significant, F (2,124) = 5.66, R = .289, R^2 = .084, SE = 3.62, p = .004. Child gender and mother-child shared positive affect during free play accounted for approximately 8% of the variance in children's physical aggression. Addition of mother-

Table 9

Summary of Regression Analyses for Predicting Children's Physical Aggression with Parenting Practices and Mother-Child Shared Positive Affect in Second Step (N = 129)

Variable	*B (SE)*	*B*	*T*	*p*	*R*	R^2	*p*
Step 1					0.19	0.04	0.030
Child gender	-1.46 (0.67)	-0.193	-2.20	0.030			
Step 2					0.49	0.24	0.000
Involvement	-0.002 (0.04)	-0.005	-0.05	0.961			
Communication[a]	-2.18 (1.03)	-0.209	-2.13	0.035			
Limit setting	-0.11 (0.03)	-0.281	-3.31	0.001			
Shared positive affect[b]	-5.39 (3.08)	-0.142	-1.75	0.083			

Note. [a] Transformed; [b] Free play task.

child shared positive affect during free play revealed a significant change in the prediction of children's physical aggression, R^2 *Change* = 0.046, *F Change* (1, 124) = 6.285, p = .013. Step 3, which added mothers' involvement, limit setting, and communication as predictors of children's physical aggression was also significant, *F* (5,121) = 7.66, R = .490, R^2 = .240, *SE* = 3.34, p < .001, and accounted for 24% of the variance in children's physical aggression. The addition of mothers' involvement, limit setting, and communication revealed a significant change in predicting children's physical aggression, R^2 *Change* = 0.157, *F Change* (3, 121) = 8.332, p < .001. As mothers' limit setting increased, the likelihood of children engaging in physical aggression decreased, B = -0.110, *SE* = 0.033, β = -0.281, p = .001. As mothers' communication increased, the likelihood of children engaging in physical aggression decreased, B = -2.813, *SE* = 1.026, β = -0.209, p = .035. Mothers' involvement, B = -0.002, *SE* = 0.038, β = -0.005, p = .961, and mother-child shared positive affect, B = -5.391, *SE* = 3.083, β = -.142, p = .083, were not significant predictors of children's physical aggression. See Table 10 for a summary of the regression analyses. These results indicate that when mothers are consistent and appropriate in setting limits, and communicating with their children more effectively, their children engage in less physical aggression.

Hypothesis 5

T-tests were conducted to examine Hypothesis 5, which predicted higher levels of mother-child shared positive affect and lower levels of mother-child shared negative affect in the free play task, as compared to the structured block task. This hypothesis was supported. A significant difference was found for shared affect with more mother-child

Table 10

Summary of Regression Analyses for Predicting Children's Physical Aggression with Mother-Child Shared Positive Affect in the Second Step and Parenting Practices in the Third Step (N = 129)

Variable	*B (SE)*	*β*	*t*	*p*	*R*	R^2	*p*
Step 1					0.19	0.04	0.030
Child gender	-1.46 (0.67)	-0.193	-2.20	0.030			
Step 2					0.29	0.08	0.004
Shared positive affect[b]	-8.22 (3.28)	-0.216	-2.51	0.013			
Step 2					0.49	0.24	0.000
Involvement	-0.002 (0.04)	-0.005	-0.05	0.961			
Communication[a]	-2.18 (1.03)	-0.209	-2.13	0.035			
Limit setting	-0.11 (0.03)	-0.281	-3.31	0.001			

Note. [a] Transformed; [b] Free play task.

shared positive affect during the free play task, as compared to the structured block task, $t(126) = 5.025$, $p < .001$. In addition, as shown in Table 11 there was more mother-child shared negative affect in the structured block task than in the free play task, $t(126) = -2.082$, $p = .039$.

Table 11

Comparison of Shared Positive Affect and Shared Negative Affect Between Tasks (N = 127)

	Free Play Task		Structured Block Task		
	M	*SD*	*M*	*SD*	*t*
Shared Positive Affect	0.93	0.10	0.86	0.19	5.03**
Shared Negative Affect	0.002	0.01	0.01	0.06	-2.08*

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

CHAPTER IV

Discussion

The purpose of the present study was to develop a better understanding of the links between mothers' parenting practices, parenting support, young children's emotion regulation, and physical aggression. Specifically, this study aimed to add to the aggression literature through examining emotion regulation as a mediator in the relationship between mothers' perceived parenting support, mothers' involvement, limit setting, and communication, and young children's physical aggression. The second goal of the present study was to develop a greater understanding of children's emotion regulation, through investigating the role of mother-child shared affect as a mediator in the relation between mothers' perceived parenting support, mothers' involvement, limit setting, and communication, and children's physical aggression. Much of the research examining parenting practices, emotion regulation, and shared affect uses school-aged children and adolescents, and is correlational in nature. Thus, the present study extended this literature by using a preschool community sample to provide insight into factors involved in the development of aggression in early childhood.

Hypothesis 1 was partially supported. Children's emotion regulation significantly partially mediated the relations between mothers' involvement and limit setting, and children's physical aggression. Mothers who reported being more involved with their children, and who set more appropriate and consistent limits with their children were more likely to report having children who were better at regulating their emotions and less likely to engage in physical aggression. This is consistent with previous research indicating that parents who are more involved and consistent in their disciplinary

strategies tend to have children, who are better at regulating their emotions and engage in fewer disruptive behavioural problems (e.g., Amato & Rivera, 1999; Duncombe et al., 2012; Stormshak et al., 2000).

In addition, evidence for hypothesis 2 was also found. Children's emotion dysregulation significantly partially mediated the links between mothers' involvement, limit setting and communication, and children's physical aggression. Mothers who reported being less involved with their children, less appropriate and consistent in their limit setting, and less effective in communicating with their children, were more likely to have children who had more difficulty regulating their emotions and were more likely to engage in physical aggression.

These findings are consistent with previous research that has found more positive parenting practices (e.g., maternal responsiveness, parental warmth and involvement, parental disciplinary strategies, mothers' social support) are associated with fewer problem behaviours in children (e.g., Amato & Rivera, 1999; Davenport & Bourgeois, 2008; Landry et al., 2006; Stormshak et al., 2000; Szykyla et al., 1991). Furthermore, the findings from the present study are consistent with Duncombe et al. (2012)'s research, which included a sample of 373 5- to 9- year-olds and found that children's emotion regulation helped to explain the relation between parents' use of inconsistent discipline and corporal punishment, and children's disruptive behaviours. Thus, indicating that when parents are inconsistent in their disciplinary strategies or use corporal punishment with their children, their children engage in more disruptive behaviour, partially because of difficulties regulating their emotions. The present study extends this research by suggesting that mothers who are more involved with their children, set more consistent

and appropriate limits, and communicate effectively are more likely to have children who are better able to regulate their emotions and engage in less physical aggression.

Hypotheses 3 and 4 were not supported. Mothers' perceived parenting support was not significantly related to mother-child shared positive or negative affect. Mother-child shared positive affect during the free play task was significantly negatively related to children's physical aggression; however, mother-child shared positive affect during the structured block task and mother-child shared negative affect during both interaction tasks were not significantly related to children's physical aggression. Mothers' involvement, limit setting, and communication were significantly negatively related to children's physical aggression. Thus, based on the non-significant correlations the hypothesized mediation models (Hypotheses 3 and 4) predicting that shared affect would mediate the relations between perceived parenting support and parenting practices, and children's aggression were not tested.

The findings revealed that children in mother-child dyads who exhibited more shared positive affect exhibited less physical aggression. This finding is consistent with previous research that has found that higher levels of shared positive affect were related to higher levels of children's prosocial behaviour, self-control, compliance, and internalization of parental demands (Kochanska, 1997; Kochanska & Aksan, 1995; Kochanska et al., 1995; Laible & Song, 2006; Liable & Thompson, 2000; Pasiak, 2011). The results from the present study revealed that mother-child shared negative affect was not significantly related to children's physical aggression, which is inconsistent with previous research findings. Previous research has found a significant relation between shared negative affect and children's physical aggression (Carson & Parke, 1996; Pasiak,

2011), suggesting that children in parent-child dyads who engage in reciprocal negative affective displays tend to behave more aggressively. In the present study there were very few occurrences of shared negative affect. Low levels of shared negative affect have been reported in previous research, especially with community samples, and other studies examining shared affect only examine shared positive affect, indicating that shared negative affect may be more rare to observe in research, compared to shared positive affect (e.g., Kochanska, 1997; Kochanska & Aksan, 1995; Kochanska & Murray, 2000; Pasiak, 2011). It is also important to note that in the study by Carson and Parke (1996), shared affect was measured using a comprehensive coding system which evaluated shared positive and negative affect during each second of the parent-child interaction task, whereas the coding system used in the present study only coded shared affect in 30-second segments. Additionally, father-child dyads and mother-child dyads participated in Carson and Parke's (1996) study, and interestingly, the results only supported a significant relation between father-child shared negative affect and children's social skills. Mother-child shared negative affect did not significantly predict children's social skills. Thus, the results of the present study, specifically the shared negative affect scores, may be limited by the inclusion of only mother-child dyads.

Additional regression analyses examined mothers' involvement, limit setting, communication, and mother-child shared positive affect during the free play task as predictors of children's physical aggression. The findings indicated that higher levels of mothers' limit setting and communication predicted lower levels of children's physical aggression. Thus, children with mothers who were more appropriate and consistent with their limit setting and who reported more effective communication with their children

engaged in less physical aggression.

In the second regression analysis, mother-child shared positive affect during the free play task was entered in the model prior to mothers' involvement, limit setting, and communication. The findings revealed that mother-child shared positive affect during free play significantly predicted lower levels of children's physical aggression, suggesting that children in mother-child dyads who engaged in more reciprocal positive affective displays were less likely to behave aggressively. However, when mothers' involvement, limit setting, and communication were added into the model, mother-child shared positive affect was no longer significant, and mothers' limit setting and communication significantly predicted children's physical aggression. These findings indicate that when mothers and children display more reciprocal positive affect during free play, children may be less likely to behave aggressively. However, beyond the influence of mother-child shared positive affect, the findings indicated that mothers who are more consistent and appropriate in their limit setting and more effective in communicating with their children, may have children who engage in less aggression.

The finding that mother-child shared positive affect during the free play task predicted children's physical aggression is consistent with previous findings that shared positive affect is related to children's prosocial behaviour, self-control, and compliance (Kochanska, 1997; Kochanska & Aksan, 1995; Kochanska et al., 1995; Liable & Song, 2006; Liable & Thompson, 2000, Pasiak, 2011). However, because mothers' limit setting and communication predicted children's physical aggression, beyond the influence of mother-child shared positive affect, it is possible that mother-child shared positive affect

is not as important in predicting children's aggression as mothers' use of consistent and appropriate limit setting, and effective communication.

These findings are consistent with previous research that has found punitive discipline and parent-child responsive communication patterns to be strong predictors of children's aggression. A possible explanation for these findings based on social learning theory is that when parents set appropriate and consistent limits, they are modeling behaviour inhibition for behaviours that are not acceptable (e.g., aggression) in front of their children, who are then encouraged to imitate this behaviour inhibition and engage in less aggressive behaviour. Similarly, parents who engage in effective communication patterns with their children are providing children a model for appropriate communication patterns, which can be transferred to children's prosocial interactions with others (i.e., less aggression). Overall, social learning theory helps to interpret the findings from the present research and extend our understanding of aggression in early childhood.

The findings also indicate that maternal involvement may be less important in predicting aggression, which is consistent with previous research (Black & Logan, 1995; Davenport & Bourgeois, 2008; Duncombe et al., 2012 Gryczkowski et al., 2010; Stormshak et al., 2000). Specifically, Gryczkowski et al. (2010) found that maternal involvement was not related to children's problem behaviour, but paternal involvement was related to lower levels of boys' externalizing behaviour. The authors hypothesized that maternal involvement may be more important in predicting problem behaviour in children from a clinical or at-risk sample. Furthermore, Aldous and Mulligan (2002) suggested that maternal involvement might be more predictive of problem behaviours in

older children. Thus, mothers' consistent and appropriate limit setting, and effective communication with their children may be more important predictors of children's physical aggression due to a variety of developmental factors associated with preschool age children.

During toddlerhood, children use emotional cues and signals to communicate their needs and wishes, and begin learning to communicate verbally with their parents (Bloom, 1993). Additionally, an important developmental milestone for young children is learning to comply with parents' demands (e.g., Kochanska and Aksan, 1995), and internalizing rules and expectations (Kochanska, 1993). The literature suggests that responsive parenting encourages young children's socio-emotional and cognitive development, such that mothers who are sensitive and communicate in a responsive and appropriate manner tend to have children with better developed social, cognitive, and affective skills (Landry et al., 2006). Furthermore, Landy and Menna (2001) observed that when parents do not effectively address children's aggressive behaviour, parents may use punishment, which does not teach children alternative and more adaptive strategies for expressing their negative emotions. Therefore, these aggressive children will likely continue behaving aggressively. These previous findings indicate that mothers' use of effective communication and setting consistent and appropriate limits with their children are important parenting practices for encouraging prosocial behaviours in children, especially during the preschool years.

In the present study, mothers' perceived parenting support was related to mothers' involvement and limit setting. It is possible that parenting support is more influential in mothers' parenting practices, rather than directly influencing children's aggression. Much

of the literature supports an indirect relation between parenting support and children's behavioural outcomes, through parenting practices (e.g., Crnic et al., 1983; Szykyla et al., 1991).

Hypothesis 5, that there would be significantly higher levels of mother-child shared positive affect and lower levels of shared negative affect during the free play task, as compared to the structured block task, was supported. This is consistent with previous research that found higher levels of mother-child shared positive affect in the free play task using a sample of clinically aggressive children (Pasiak, 2011). Consistency in these findings across samples provides more support to the hypothesized theories that parenting behaviours vary across tasks (Davenport et al., 2008). Specifically, during structured tasks, parents may become overly focused on ensuring that their children complete the specified task (Ambrose & Menna, 2012) and this can increase the levels of frustration, anger, and annoyance experienced between mothers and their children, leading to higher levels of shared negative affect (Davenport et al., 2012), whereas during the free play task, parents are given more freedom to follow their children's lead, as there is no specific goal of the play. This may contribute to lower levels of stress experienced by parents, and in turn, lower levels of negative arousal expressed by children. It is important to investigate parenting behaviours during different interaction tasks, because as Davenport et al. (2008) and Landy and Menna (2001) found, parenting behaviours during parent-child interaction tasks may influence children's developmental outcomes.

Limitations and Future Research

The findings of this research are limited by several factors. Mothers' perceived parenting support, parenting practices and children's physical aggression were reported

solely by mothers. Previous research has included additional ratings of children's behaviours from fathers, teachers, and observers in order to evaluate children's behaviour across situations and broaden the scope of our understanding of these interactional processes (e.g., Deater-Deckard & Petrill, 2004; Duncombe et al., 2012). Thus, generalizations of the findings from the present research are limited to mother-child relationships.

The sample obtained included an overrepresentation of Caucasian mothers and children, and thus, the generalizability of the results is limited. Different cultures may employ different parenting practices, influencing the nature of parent-child interactions. Therefore, although in the present research the majority of the participants were of Caucasian ethnicity, the impact ethnicity had on the results is not known. It would be important for future research to examine differences across ethnicities and their influence on parenting practices and children's social and emotional development.

Due to the cross-sectional research design, causality of aggression cannot be inferred. Mediation analyses were conducted to deepen our understanding of the factors involved in helping to explain the relation between parenting practices and children's physical aggression. However, longitudinal research is necessary to extend the mediation findings of the present study by examining the temporal ordering between parenting practices, children's emotion regulation, and physical aggression.

Another important limitation to this study is the lack of participation from fathers. The original researchers involved in the larger study attempted to recruit fathers for participation in the study; however, their recruitment efforts were unsuccessful. Research has found paternal involvement to be related to children's problem behaviours, but this

relation was not as strong for mothers and their children (e.g., Gryczkowski et al., 2010; Harris et al., 1998). The lack of paternal participation in research examining parent-child relations is well documented and researchers have expressed the need for increased father-child research (e.g., Ambrose & Menna, 2009; Landy & Menna, 2006; Pasiak, 2011). This is particularly concerning because in the parenting practice literature maternal and paternal influences on children's behavioural outcomes differ (e.g., Gryczkowski et al., 2010; Lindsey et al., 2000). Therefore, it is important that future research, examining parenting practices and children's aggression to target recruitment of fathers, so that researchers can better understand the impact of fathers in aggressive behaviour during early childhood.

In addition, only mother-child dyads were observed during the interaction tasks. Although the research examining shared negative affect is limited, previous research has found greater levels of shared negative affect between father-child dyads, than mother-child dyads (Carson & Parke, 1996). Carson and Parke (1996) provide possible explanations for findings differences between father-child shared negative affect and mother-child shared negative affect. They hypothesized that mothers and their children may not behave as aggressively, even when they become upset with each other, as compared to fathers and their children. Furthermore, they suggest that it is possible that fathers might be more likely than mothers to allow aggression to escalate from negative affective interactions with their children. Therefore, negative affective interactions with children may be associated with fathers, and not observed as often with mother-child interactions. Carson and Parke (1996) recommended future research examine shared negative affect between parents and children in more naturalistic settings, rather than in

lab paradigms. It is clear that in the shared affect literature there is a need for increased research with fathers and their children to examine the above hypotheses regarding shared negative affect and parent-child interactions.

In addition, the shared affect coding procedure used in the present study has primarily been used in previous research to examine shared positive affect, rather than shared negative affect. Thus, this particular coding procedure may not be sensitive to capturing subtle expressions of negative affect in parents and children, which may also help to explain the low levels of shared negative affect in the present study. In a previous study examining shared negative affect, parent-child interactions were coded for every second, rather than coding 30 second intervals as in the present study. Thus, it is possible that the coding system used in the present study may not have captured the subtle nuances of shared negative affect observed within the mother-child dyads in the present study.

Furthermore, at present this is the first study known to the author to examine shared affect using the coding procedure outlined in Kochanska & Aksan (1995) in relation to mothers' involvement, communication, and limit setting. It is possible that the shared affect coding procedure did not measure the subtle emotional expressions that may be influential in the specific parenting practices measured in the present study. For example, the codes described for coding Neutral Positive and Neutral Negative parent-child interactions were not very discriminant from each other; thus, it is possible that subtle emotional cues may not have been coded, resulting in coding primarily explicit emotions (e.g., smiling, laughing, crying, angry yelling). In additon, only one neutral affect code, the more dominant affect, could be chosen for each interval. This may have

also limited coding subtle emotional expressions by focusing on coding the more dominant affect displayed. Therefore, future research examining shared affect may want to try to parse apart features of positive and negative affect to ensure that the more subtle emotional cues are captured.

Finally, the shared affect coding procedure used in the present study did not examine the intervals in which the mother and child exhibited discrepant affect, because the purpose of the present study was to further examine children's emotion regulation by investigating mother-child shared affect displays. Previous research indicates that cyclical, coercive parent-child interactions are associated with children's problem behaviours (e.g., Carson & Parke, 1996). When parents display negative affect, children may respond with negative affect, escalating the negative arousal in the parent-child interaction; thus, shared negative affect demonstrates a difficulty with emotional self-regulation, and consequently, shared positive affect represents effective emotion regulation. Because the purpose of the present study was to better understand children's emotion regulation and emotion dysregulation, only mother-child shared affect intervals were analyzed, resulting in 9% of the data not analyzed due to intervals containing discrepant mother-child affect displays. However, future research may want to consider examining the influence of parents and children who are not in sync with their emotional expressions on children's aggressive behaviour.

Applied Implications

Much of the literature indicates that parenting practices are one of the most influential factors in the development of children's aggressive behaviour (e.g., Cote et al., 2006; NICHD ECCRN, 2004; Rae-Grant et al., 1989). The findings from the present

research suggest the importance of children's emotion regulation in helping to understand the relation between parenting practices, and children's aggressive behaviour. Specifically, mothers who reported being involved with their children, and mothers who set appropriate and consistent limits, were more likely to have children who were better able to regulate their emotions and engage in less aggressive behaviour. Furthermore, mothers who set consistent and appropriate limits, and mothers who engaged in effective communication with their children were predictive of less aggressive behaviour in their children, above and beyond the influence of child gender. Thus, clinicians can use this knowledge to provide support to parents with regards to educating mothers on specific positive parenting practices (i.e., involvement, limit setting, communication) and encouraging effective emotion regulation in children. For example, when children present with aggressive behaviour, clinicians with this knowledge can investigate mothers' involvement in their children's activities, their ability to set consistent and appropriate limits, their communication patterns, and children's ability to regulate their emotions, determining which areas of the mother-child relationship may need additional support.

In addition, the present research may encourage clinicians working with aggressive children to consider the emotional exchanges between children and their parents. Although the nature of the relation between mother-child shared positive affect and children's physical aggression was not identified in this research, the factors were related, suggesting that the reciprocal emotional exchanges between mothers and their children are important in understanding children's physical aggression. Landy and Menna (2001) recommend that treatment of aggressive preschoolers should focus on components of the parent-child relationship, and develop behaviour management and discipline

strategies with parents. In the literature there is support for a group based treatment program aimed at reducing children's problem behaviour by focusing intervention efforts on improving emotion-focused aspects of parenting (Havighurst, Wilson, Harley, Prior, & Kehoe, 2010).

Finally, the results indicated higher levels of mother-child shared positive affect and lower levels of mother-child shared negative affect during free play task, as compared to a structured block task. Clinicians with this knowledge may be able to encourage parents of aggressive children to spend more time interacting with their children in a less structured environment, where parents can follow their children's lead during play. Research continues to emphasize the importance of free play interactions between parents and their children for fostering healthy parent-child relationships and providing children the opportunity to express and process their emotions, communicate their needs, and develop social and cognitive skills (e.g., Pasiak, 2011; Russell, Pettit, & Mize, 1998; Youngblade & Dunn, 1995). The finding from the present study further adds to this literature by suggesting that more positive emotional interactions occur between mothers and their children when play is less structured and flexible to the child's interests. Therefore, free play interactions can provide parents an environment to model positive emotion regulation to their children, and for children to learn and practice emotional self-regulation.

Furthermore, the literature indicates that parent-child interactions are cyclical in nature (e.g., Bandura, 1973; Davenport & Brougeois, 2008; Menna & Landy, 2001; Patterson, 1982) and may extend into children's interactions with peers (e.g., Lindsey & Mize, 2001; Scaramella & Leve, 2004), and influence overall family functioning (e.g.,

Campbell, 1995; Egger & Angold, 2006). Thus, early intervention targeted at improving these interactions may help to increase future positive parent-child interactions, increase positive outcomes in young children, and reduce the burden of suffering on children, families, and society.

Conclusion

The findings emphasize the importance of parenting practices in children's ability to better regulate their emotions and engage in less aggressive behaviours. The findings also highlight the significance of consistent and appropriate limit setting, and effective communication as some of the most important factors in predicting less physical aggression in preschool age children. Finally, the results suggest that mother-child shared positive affect is related to children's physical aggression; although, future research should continue to examine parent-child shared affect to better understand the nature of the relation. It is important that future research continue to examine the relations between parenting practices and children's aggression to determine additional causal risk factors and possible protective factors, which are essential to developing effective early prevention and intervention programs.

References

Achenbach, T. M. (1991). *Manual for the Child Behaviour Checklist 4-18 and 1991 Profile.* Burlington, Vermont: University of Vermont, Department of Psychiatry.

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms & profiles.* Burlington, Vermont: University of Vermont, Research Centre for Children, Youth, & Families.

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-aged forms and profiles.* Burlington, Vermont: University of Vermont, Research Center for Children, Youth, & Families.

Aldous, J., & Mulligan, G. M. (2002). Fathers' child care and children's behavior problems: A longitudinal study. *Journal of Family Issues, 23,* 624-647. doi:10.1177/0192513X02023005003

Amato, P. R., & Rivera, F. (1999). Paternal involvement and children's behaviour problems. *Journal of Marriage and Family, 61,* 375-384. Retrieved from http://www.jstor.org/stable/353755

Ambrose, H. N., & Menna, R. (2012). Physical and relational aggression in young children: The role of mother-child interactional synchrony. *Early Child Development and Care, 183,*1-16. doi:10:1080/03004430.2012.669756

Anthony, L. G., Anthony, B. J., Glanville, D. N., Naiman, D. Q., Waanders, C., & Shaffer, S. (2005). The relationships between parenting stress, parenting behaviour

and preschoolers' social competence and behaviour problems in the classroom. *Infant and Child Development, 14,* 133-154. doi:10.1002/icd.385

Aring, S., & Renk, K. (2010).Associations among young children's temperament, parents' perceptions of their young children, and characteristics of the parent-young child relationship.*Journal of Early Childhood and Infant Psychology, 6,* 59-83. doi:10.1037/t07623-000

Baker, C. N., & Hoerger, M. (2012). Parental child-rearing strategies influence self-regulation, socio-emotional adjustment, and psychopathology in early adulthood: Evidence from a retrospective cohort study. *Personality and Individual Differences, 52,* 800-805. doi:10.1016/j.paid.2011.12.034

Bandura, A. (1973). Aggression: A social learning analysis. New Jersey: Prentice-Hall, Inc.

Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63,* 575-582. doi:10.1037/h0045925

Baumrind, D. (1968). Authoritarian vs. authoritative parental control. *Adolescence, 3,* 255-272. Retreieved from https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/615583799?accountid=15115

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monograph, 4,* 1-103. doi:10.1037/h0030372

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55,* 83-96. doi:10.2307/1129836

Bennett, K.J., Lipman, E.L., Brown, S., Racine, Y., Boyle, M.H., & Offord, D.R. (1999). Predicting conduct problems: Can high-risk children be identified in kindergarten and grade 1? *Journal of Consulting and Clinical Psychology, 67,* 470-480. doi: 10.1037/0022-006X.67.4.470

Black, B., & Logan, A. (1995). Links between communication patterns in mother-child, father-child, and child-peer interactions and children's social status. *Child Development, 66,* 255-271. doi:10.2307/1131204

Bloom, L. (1993). *The transition from infancy to languagr: Acquiring the power of expression.* Cambridge, United Kingdom: Cambridge University Press.

Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame. B., Dodge, K. A., Fergusson, D., Horwood, J. L., Loeber, R., Laird, R., Lynan, D. R., Moffitt, T. E., & Pettit, G. S. (2003). Developmental trajectories of childhood disruptive behaviours and adolescnet delinquency: A six-site, cross-national study. *Developmental Psychology, 39,* 222-245. doi:10.1037/0012-1649.39.2.222

Brophy-Herb, H. E., Stansbury, K., Bocknek, E., & Horodynski, M. A. (2012). Modeling maternal emotion-related socialization behaviours in a low-income sample: Relations with toddlers' self-regulation. *Early Childhood Research Quarterly, 27,* 352-364. doi:10.1016/j.ecresq.2011.11.005

Burke, J. D., Pardini, D. A., & Loeber, R. (2008). Reciprocal relationships between parenting behaviour and disruptive psychopathology from childhood through adolescence. *Journal of Abnormal Child Psychology, 36,* 679-692. doi:10.1007/s10802-008-9219-7

Calkins, S. D., Smith, C. L., Gill, K. L., & Johnson, M. C. (1998). Maternal inteactive style across contexts: Relations to emotional, behavioural and physiological regulation during toddlerhood. *Social Development, 7,* 350-369. doi:10.1111/1467-9507.00072

Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79,* 1185-1229. doi:10.1111/j.1467-8624.2008.01184.x

Carpenter, E. M., & Nangle, D. W. (2006). Caught between stages: Relational aggression emerging as a developmental advance in at-risk preschoolers. *Journal of Research in Childhood Education, 21,* 177-188. Retrieved from https://www-lib-uwo-ca.proxy2.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/621829674?accountid=15115

Carson, J. L., & Parke, R. D. (1996). Reciprocal negative affect in parent-child interactions and children's peer competency. *Child Development, 67,* 2217-2226. doi:10.2307/1131619

Campbell, S. B. (1995). Behaviour problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36,* 113-149. doi:10.1111/j.1469-7610.1995.tb01657.x

Campbell, D. B., Shaw, D. S., & Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers at risk for later maladjustment. *Development and Psychopathology, 12,* 467-488. doi:10.1017/S0954579400003114

Campbell, S. B., Spieker, S., Burchinal, M., & Poe, M. D. (2006). Trajectories of aggression from toddlerhood to age 9 predict academic and social functioning through age 12. *Journal of Child Psychology and Psychiatry, 47*, 791-800. doi:10.1111/j.1469-7610.2006.01636.x

Campbell, S. B., Spieker, S., Vandergrift, N., Belsky, J., & Burchinal, M. (2010).Predictors and sequelae of trajectories of physical aggression in school-age boys and girls. *Development and Psychopathology, 22,* 133-150. doi:1 0.1017/S0954579409990319

Chen, C. McComas, J. J., Hartman, E., & Symons, F. J. (2011). A prospective sequential analysis of the relation between physical aggression and peer rejection acts in a high-risk preschool sample. *Early Education and Development, 22*, 574-592. doi:10.1080/10409289.2010.481706

Cleverley, K., Szatmari, P., Vaillancourt, T., Boyle, M., & Lipman, E. (2012). Developmental trajectories of physical and indirect aggression from late childhood to adolescence: Sex differences and outcomes in emerging adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry, 50,* 1037-1051. doi:10.1016/j.jaac.2012.07.010

Coie, J. D., & Dodge, K. A. (1983). Continuities and changes in children's social status: A five-year longitudinal study. *Merril-Palmer Quarterly, 29,* 261-282. Retrieved

from https://www-lib-uwo-ca.proxy2.lib.uwo.ca/cgibin/ezpauthn.cgi/docview/616840468?accountid=15115

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behaviour. In. W. Damon & Eisenberg (Eds.), Handbook of child psychology: Social, emotional, and personality development (pp. 779-862). New York, New York: John Wiley and Sons, Inc.

Colletta, N. D. (1979). Support systems after divorce: Incidence and impact. *Journal of Marriage and Family, 41,* 837-846. http://www.jstor.org/stable/351483

Collins, L. M., Schafer, J. L., & Kam, C. M. (2001). A comparison of inclusive and restrictive strategies in modern missing-data procedures. *Psychological Methods, 6,* 330-351. doi:10.1037//1082-989X.6.4.330

Cote, S. M., Vaillancourt, T., LeBlanc, J. C., Nagin, D. S., & Tremblay, R. E. (2006). The development of physical aggression from toddlerhood to pre-adolescence: A nation wide longitudinal study of Canadian children. *Journal of Abnormal Child Psychology, 34,* 71-85. doi:10.1007/s10802-005-9001-z

Crick, N. R., Casas, J. F., & Ku, H. C. (1999). Relational and physical forms of peer victimization in preschool. *Developmental Psychology, 35,* 376-385. doi:10.1037/0012-1649.35.2.376

Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33,* 579-588. doi:10.1037/0012-1649.33.4.579

Crick, N. R., Ostrov, J. M., Burr, J. E., Cullerton-Sen, C., Jansen-Yeh, E., & Ralsten, P. (2006). A longitudinal study of relational and physicla aggression in preschool. *Applied Developmental Psychology, 27,* 254-268. doi:10.1016/j.appdev.2006.02.006

Crnic, K. A., Greenberg, M. T., Ragozin, A. S., Robinson, N. M., & Basham, R. B. (1983). Effects of stress and social support on mothers and premature and full-term infants. *Child Development, 54,* 209-217. doi:10.2307/1129878

Cummings, E. M., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family practice.* New York, New York: The Guilford Press.

Cummings, E. M., Iannotti, R. J., & Zahn-Waxler, C. (1985). Influence of conflict between adults on the emotions and aggresson of young children. *Developmental Psychology, 21,* 497-507. doi:10.1037/0012-1649.21.3.495

Cummings, E. M., Iannotti, R. J., & Zahn-Waxler, C. (1989). Aggression between peers in early childhood: Individual continuity and developmental change. *Child Development, 60,* 887-895. doi:10.2307/1131030

Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin, 113,* 487-496. doi:10.1037/0033-2909.113.3.487

Davenport, B. R., Hegland, S., & Melby, J. N. (2008).Parent behaviours in free-play and problem-solving interactions in relation to problem behaviours in preschool boys.*Early Child Development and Care, 178,* 598-607. doi:10.2307/1131030

Davenport, B. R., & Bourgeois, N. M. (2008). Play, aggression, the preschool child, and

the family: A review of literature to guide empirically informed play therapy with aggressive preschool children. *International Journal of Play Therapy, 17,* 2-23. doi: 10.1037/1555-6824.17.1.2

Deater-Deckard, K., Dodge, K. A., Bates, J. E., & Pettit, G. S. (1996). Physical discipline among African American and European American mothers: Links to children's externalizing behaviours. *Developmental Psychology, 32,* 1065-1072. doi:10.1037/0012-1649.32.6.1065

Deater-Deckard, K., & Petrill, S. A. (2004). Parent-child dyadic mutuality and child behavior problems: An investigation if gene-environment processes. *Journal of Child Psychology and Psychiatry, 45,* 1171-1179. doi:10.111/j.1469-7610.2004.00309.x

Dix, T. (1991). The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin, 110,* 3-25. doi: 10.1037/0033-2909.110.1.3

Duncombe, M. E., Havighurst, S. S., Holland, K. A., & Frankling, E. J. (2012). The contribution of parenting practices and parent emotion factors in children at risk for disruptive behaviour disorders. *Child Psychiatry and Human Development, 43,* 715-733. doi:10.1007/s10578-012-0290-5

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry, 47,* 313-337. doi:10.1111/j.1469-7610.2006.01618.x

Eisenberg, N. & Fabes, R. A. (1998). Prosocial development. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.). *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th Ed.; pp. 701-778). New York, New York: Wiley.

Eisenberg, N., Losoya, S., Fabes, R. A., Guthrie, I. K., Reiser, M., Murphy, B., Shepard, S. A., Poulin, R., & Padgett, S. J. (2001). Parental socialization of children's dysregulated expression of emotion and externalizing problems. *Journal of Family Psychology, 15*, 183-205. doi:1O.1O37//O893-32OO.15.2.183

El-Masri, M. M., & Fox-Wasylyshyn, S. M. (2005). Missing data: An introductory conceptual overview for the novice researchers. *Canadian Journal of Nusring Research, 37*, 156-171.

Farmer, A. Y., & Lee, S. K. (2011). The effects of parenting stress, perceived mastery, and maternal depression on parent-child interaction. *Journal of Social Science Research, 37*, 516-525. doi:10.1080/01488376.2011.607367

Field, A. (2009). *Discovering statistics using SPSS (3rd ed.).* Thousand Oaks, California: Sage.

Fonagy, P. & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development and Psychopathology, 9*, 679-700. doi:10.1017/S0954579497001399

Garner, P. W., Dunsmore, J. C., & Southam-Gerrow, M. (2008). Mother-child conversations about emotions: Linkages to child aggression and prosocial

behaviour. *Social Development, 17*, 259-277. doi:10.1111/j.1467-9507.2007.00424.x

Gerard, A. B. (1994). Parent-child relationship inventory (PCRI) manual. Los Angeles, California: Western Psychological Services.

Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology, 10*, 243-268. doi:10.1037/0893-3200.10.3.243

Grice, H.P. (1975). Logic and conversation. In P. Cole & J.L. Morgan (Eds.), *Syntax and semantics III: Speech acts* (41-58). New York, New York: Academic Press.

Grizenko, N., & Pawliuk, N. (1994). Risk and protective factors for disruptive behavior disorders in children. *American Journal of Orthopsychiatry, 64*, 534-544. doi:10.1037/h0079566

Gryczkowski, M. R., Jordan, S. S., & Mercer, S. H. (2010). Differential relations between mothers' and fathers' parenting practices and child externalizing behaviour.*Journal of Child and Family Studies, 19*, 539-546. doi:10.1007/s10826-009-9326-2

Harrist, A. W., & Waugh, R. M. (2002). Dyadic synchrony: Its structure and function in children's development. *Developmental Review, 22*, 555-592. doi:10.1016/S0273-2297(02)00500-2

Havighurst, S. S., Wilson, K. R., Harley, A., Prior, M., & Kehoe, C. (2010). Tuning in to kids: Improving emotion socialization processes in parents of preschool children-

findings from a community trial. *Journal of Child Psychology and Psychiatry, 51,* 1342-1350. doi:10.1111/j.1469-7610.2010.02303.x

Helmsen, J., Koglin, U., & Petermann, F. (2012). Emotion regulation and aggressive behaviour in preschoolers: The mediating role of social information processing. *Child Psychiatry and Human Development, 43,* 87-101. doi:10.1007/s10578-011-0252-3

Houck, G. M., & LeCuyer-Maus, E. A. (2002). Maternal limit-setting patterns and toddler development of self-concept and social competence. *Issues in Comprehensive Pediatric Nursing, 25,* 21-41. doi:10.1080/014608602753504838

Juliano, M., Werner, R. S., & Cassidy, K. W. (2006). Early correlates of aggressive behaviour according to type of aggression and measurement. *Journal of Applied Developmental Psychology, 27,* 395-410. doi:10.1016/j.appdev.2006.06.008

Kawabata, Y., Alink, L. R. A., Tseng, W., van IJzendoorn, M. H., & Crick, N. R. (2011). Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review, 31,* 240-278. doi:10.1016/j.dr.2011.08.001

Keenan, K., & Shaw, D. S. (1994). The development of aggression in toddlers: A study of low-income families. *Journal of Abnormal Child Psychology, 22,* 53-77. doi:10.1007/BF02169256

Keenan, K., Shaw, D. S., Walsh, B., Delliquadri, E., & Giovannelli, J. (1997). DSM-III-R disorders in preschool children from low-income families. *Journal of the American*

Academy of Child and Adolescent Psychiatry, 36, 620-627. doi:10.1097/00004583-199705000-00012

Keenan, K. & Wakschlag, L. S. (2000). More than the terrible twos: The nature and severity of behaviour problems in clinic-referred preschool children. *Journal of Abnormal Child Psychology, 28,* 33-46. doi:10.1023/A:1005118000977

Keren, M., Feldman, R., & Tyano, S. (2001). Diagnoses and interactive patterns of infants referred to a community-based infant mental health clinic. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 27-35. doi:10.1097/00004583-200101000-00013

Kochanska, G. (1993). Toward a synthesis of parental socialization and child temperament in early development of conscience. *Child Development, 64,* 325-347. doi: 10.1111/j.1467-8624.1993.tb02913.x

Kochanska, G. (1995). Children's temperament, mother's discipline, and security of attachment: Multiple pathways to emerging internalization. *Child Development, 66,* 597-615. doi:10.2307/1131937

Kochanska, G. (1997). Mutually responsive orientation between mothers and their young children: Implications for early socialization. *Child Development, 68,* 94-112. doi:10.2307/1131928

Kochanska, G. (1998). Mother-child relationship, child fearfulness, and emerging attachment: A short term longitudinal study. *Developmental Psychology, 34,* 480-490. doi:10.1037/0012-1649.34.3.480

Kochanska, G., & Aksan, N. (1995). Mother-child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. *Child Development, 66,* 236-254. doi:10.2307/1131203

Kochanska, G., Aksan, N., & Koenig, A. L. (1995). A longitudinal study of the roots of preschoolers' conscience: Committed compliance and emerging internalization. *Child Development, 66,* 1752-1769. doi: 10.2307/1131908

Kochanska, G., & Murray, K. T. (2000). Mother-child mutually responsive orientation and conscience development: From toddler to early school age. *Child Development, 71*, 417-431. doi:10.1111/1467-8624.00154

Koeske, G. F., & Koeske, R. D. (1990). The buffering effect of social support on parental stress. *American Journal of Orthopsychiatry, 60,* 440-451. doi:10.1037/h0079164

Kopala-Sibley, D. C., Zuroff, D. C., & Koestner, R. (2012). The determinants of negative maternal parenting behaviours: Maternal, child, and paternal characteristics and their interactions. *Early Child Development and Care, 182,* 683-700. doi:10.1080/03004430.2011.572165

Laible, D., & Song, J. (2006). Constructing emotional and relational understanding: The role of affect and mother-child discourse. *Merril-Palmer Quarterly, 52*, 44-69. doi:10.1353/mpq.2006.0006

Laible, D. J., & Thompson, R. A. (2000). Mother-child discourse, attachment security, shared positive affect, and early conscience development. *Child Development, 71,* 1424-1440. doi:10.1111/1467-8624.00237

Landry, S. H., Smith, K. E., & Swank, P. R. (2006). Responsive parenting: Establishing early foundations for social, communication, and independent problem-solving skills. *Developmental Psychology, 42,* 627-642. doi:10.1037/0012-1649.42.4.627

Landy, S., & Menna, R. (2001). Play between aggressive young children and their mothers. *Clinical Child Psychology and Psychiatry, 6,* 223-239. doi:10.1177/1359104501006002005

Lindsey, E. W., Cremeens, P. R., Colwell, M. J., & Caldera, Y. M. (2009). The structure of parent-child dyadic synchrony in toddlerhood and children's communication competence and self-control. *Social Development, 18,* 375-396. doi:10.1111/j.1467-9507.2008.00489.x

Lindsey, E. W., Mize, J., & Pettit, G. S. (1997). Mutuality in parent-child play: Consequences for children's peer competence. *Journal of Social and Personal Relationships, 14*, 523-538. doi:10.1177/0265407597144007

Loeber, R., Green, S. M., Keenan, K., & Lahey, B. B. (1995). Which boys will fare worse? Early predictors of the onset of conduct disorder in a six-year longitudinal study. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 499-509. doi:10.1097/00004583-199504000-00017

Luby, J. L. & Morgan, K. (1997). Characteristics of an infant/preschool psychiatric clinic sample: Implications for clinical assessment and nosology. *Infant Mental Health Journal, 18,* 209-220. doi:10.1002/(SICI)1097-0355(199722)18:2

McConnell, D., Breitkreuz, R., & Savage, A. (2010). From financial hardship to child difficulties: main and moderating effects of perceived social support. *Child: Care, health, and development, 37*, 679-691. doi:10.1111/j.1365-2214.2010.01185.x

McEachern, A. D., & Snyder, J. (2012). Gender differences in predicting antisocial behaviours: Developmental consequences of physical and relational aggression. *Journal of Abnormal Child Psychology, 40,* 501-512. doi:10.1007/s10802-011-9589-0

McNamara, K. A., Selig, J. P., & Hawley, P. H. (2010). A typological approach to the study of parenting: Associations between maternal parenting patterns and child behaviour and social reception. *Early Child Development and Care, 180,* 1185-1202. doi:10.1080/03004430902907574

Menna, R., & Landy, S. (2001). Working with parents of aggressive preschoolers: An integrative approach to treatment. *Journal of Clinical Psychology*, *57*, 257-269. doi:10.1002/1097-4679(200102)57:2

Miller, S. M., & Green, M. L. (1985). Coping with stress and frustration. In M. Lewis & C. Saarni (Eds.), *The socialization of emotions* (pp. 263-314). New York: Plenum Press.

Mize, J. & Pettit, G. S. (1997). Mothers' social coaching, mother-child relationship style, and children's peer competence: Is the medium the message? *Child Development, 68*, 312-332. doi:10.2307/1131852

Moffitt, T. E., Caspi, A., Harrington, H., & Milne, B. J. (2002). Males on the life-course-persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years. *Development and Psychopathology, 14,* 179-207. doi:10.1017/S0954579402001104

Moilanen, K. L., Shaw, D. S., & Maxwell, K. L. (2010). Developmental cascades: Externalizing, internalizing, and academic competence from middle childhood to early adolescence. *Development and Psychopathology, 22,* 635-653. doi:10.1017/S0954579410000337

Myers, R. (1990). *Classical and modern regression with applications* (2nd ed.). Boston, Massachusetts: Duxbury.

Nagin, D., & Tremblay, R.E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70,* 1181-1196. doi:10.1111/1467-8624.00086

NICHD Early Child Care Research Network (ECCRN). (2004). Trajectories of physical aggression from toddlerhood to middle childhood: VII. Discussion. *Monographs of the Society for Research in Child Development, 64,* 102-119. doi:10.1111/j.0037-976X.2004.00318.x

Nolan, E. E., Gadow, K. D., & Sprafkin, J. (2001). Teacher reports of DSM-IV ADHD, ODD, and CD symptoms in schoolchildren. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 241-249. doi:10.1097/00004583-200102000-00020

Offord, D. R., Kraemer, H. C., Kazdin, A. E., Jensen, P. S., & Harrington, R. (1998). Lowering the burden of suffering from psychiatric disorder: Trade-offs among clinical, targeted, and universal interventions. *Journal of the American Academy of Child and Adolescent Psychiatry, 37,* 686-694. doi:10.1097/00004583-199807000-00007

Olweus, D. (1979). Stability of aggressive reaction patterns in males: A review. *Psychological Bulletin, 86,* 852-875. doi:10.1037/0033-2909.86.4.852

Olson, S. L., Bates, J. E., Sandy, J. M., & Lanthier, R. (2000). Early developmental precursors of externalizing behaviour in middle childhood and adolescence. *Journal of Abnormal Child Psychology, 28,* 119-133. doi:10.1023/A:1005166629744

O'Neil, S. (2008). *"I would crush his head": Predicting young children's physical and relational aggression from their social-information processing, affective-perspective taking and language skills.* (Unpublished master's thesis). University of Windsor: Windsor, Ontario.

O'Neil Woods, S. E. (2012). *Links among maternal emotion socialization, and children's emotional competence and social behaviour*. (Unpublished dissertation). University of Windsor: Windsor, Ontario.

Oppenheim, D., Nir, A., Warren, S., & Emde, R. N. (1997). Emotion regulation in mother-child narrative co-construction: Associations with children's narratives and adaptation. *Developmental Psychology, 33,* 284-294. doi:10.1037/0012-1649.33.2.284

Ostrov, J. M., Gentile, D. A., & Mullins, A. D. (2013). Evaluating the effect of educational media exposure on aggression in early childhood. *Journal of Applied Developmental Psychology, 34,* 38-44. doi:10.1016/j.appdev.2012.09.005

Pasiak, C. (2011). *The effect of mother-child interactional synchrony: Implications for preschool aggression and social competence.* (Unpublished master's thesis). University of Windsor: Windsor, Ontario.

Patterson, G. R. (1982). *Coercive family process.* Eugene, Oregon: Castilla.

Patterson, G. R., Capaldi, D., & Bank, L. (1991). An early starter model for predicting delinquency. In. D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 139-168). New Jersey, New York: Lawrence Erlbaum Associates, Inc.

Patterson, G. R., DeBaryshe B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist, 44*, 329-335. doi:10.1037/0003-066X.44.2.329

Pettit, G. S., Harrist, A. W., Bates, J. E., Dodge, K. A. (1991). Family interaction, social cognition, and children's subsequent relations with peers at kindergarten. *Journal of Social and Personal Relationships, 8,* 383-402. doi:10.1177/0265407591083005

Phares, V., & Renk, K. (1998). Perception of parents: A measure of adolescents' feelings about their parents. *Journal of Marriage and Family, 60,* 646-659. doi:10.2307/353535

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behaviour Research Methods, Instruments, and Computers, 36,* 717-731. doi:10.3758/BF03206553

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behaviour Research Methods, 40,* 879-891. doi:10.3758/BRM.40.3.879

Rae-Grant, N., Thomas, B. H., Offord, D. R., & Boyle, M. H. (1989). Risk, protective factors, and the prevalence of behavioral and emotional disorders in children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 28,* 262-268. doi:10.1097/00004583-198903000-00019

Ramsden, S. R., & Hubbard, J. A. (2002). Family expressiveness and parental emotion coaching: Their role in children's emotion regulation and aggression. *Journal of Abnormal Child Psychology, 30,* 657-667. doi:10.1023/A:1020819915881

Raos, R., & Janus, M. (2011). Examining spatial variations in the prevalence of mental health problems among 5-year-old children in Canada. *Social Science and Medicine, 72,* 383-388. doi:10.1016/j.socscimed.2010.09.025

Renk, K. (2005). Reasons young children are referred for psychological services. *Child and Family Behaviour Therapy, 27,* 61-71. doi:10.1300/J019v27n03_05

Russell, A., Pettit, G. S., & Mize, J. (1998). Horizontal qualities in parent-child relationships: parallels with and possible consequences for children's peer relationships. *Developmental Review, 18,* 313-352. doi:10.1006/drev.1997.0466

Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry, 147,* 598-611. doi:10.1192/bjp.147.6.598

Scaramella, L. V., & Leve, L. D. (2004). Clarifying parent-child reciprocities during early childhood: The early childhood coercion model. *Clinical Child and Family Psychology Review, 7,* 89-107. doi:10.1023/B:CCFP.0000030287.13160.a3

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7,* 147-177. doi: 10.1037//1082-989X.7.2.147

Scott, S., Knapp, M., Henderson, J., & Maughan, B. (2001). Financial cost of social exclusion: Follow up study of antisocial children into adulthood. *British Medical Journal, 323,* 191-194. doi:10.1136/bmj.323.7306.191

Shaffer, A., Suveg, C., Thomassin, K., & Bradbury, L. L. (2012). Emotion socialization in the context of family risks: Links to child emotion regulation. *Journal of Child and Family Studies, 21,* 917-924. doi:10.1007/s10826-011-9551-3

Shaw, D. S., & Bell, R. Q. (1993). Developmental theories of parental contributors to antisocial behaviour. *Journal of Abnormal Child Psychology, 21,* 493-518. doi:10.1007/BF00916316

Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion Q-Sort Scale. *Developmental Psychology, 33,* 906-916. doi:10.1037/0012-1649.33.6.906

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Hillsdale, New Jersey: Erlbaum.

Stormshak, E. A., Bierman, K. L., McMahon, R. J., & Lengua, L. J. (2000). Parenting practices and child disruptive behaviour problems in early elementary school. *Journal of Clinical Child Psychology, 29,* 17-29. doi:10.1207/S15374424jccp2901_3

Szykula, S. A., Mas, C. H., Turner, C. W., Crowley, J., & Sayger, T. V. (1991). Maternal social support and prosocial mother-child interactions. *Journal of Family Psychology, 5,* 82-92. doi:10.1037/0893-3200.5.1.82

Tabachnick, B. G., & Fidell, L. S. (2006). *Using multivariate statistics (5th ed.).* Needham Heights, Massachusetts: Allyn and Bacon.

Termine, N. T., & Izard, C. E. (1988). Infants' responses to their mothers' expression of joy and sadness. *Developmental Psychology, 24*, 223-229. doi:10.1037/0012-1649.24.2.223

Timmermans, M., van Lier, P. A. C., & Koot, H. M. (2008). Which forms of child/adolescent externalizing behaviours account for late adolescent risky sexual behaviour and substance use? *The Journal of Child Psychology and Psychiatry, 49*, 386-394. doi:10.1111/j.1469-7610.2007.01842.x

Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development, 59,* 25-52, The

Development of Emotion Regulation: Biological and Behavioural Considerations (1994), pp. 25-52. New Jersey: Wiley. doi:10.2307/1166137

Travillion, K., & Snyder, J. (1993). The role of maternal discipline and involvement in peer rejection and neglect. *Journal of Applied Developmental Psychology, 14,* 37-57. doi:10.1016/0193-3973(93)90022-N

Tremblay, R. E. (2000). The development of aggressive behaviour during childhood: What have we learned in the past century? *International Journal of Behavioral Development, 24,* 129-141. doi:10.1080/016502500383232

Tremblay, R. E. (2004). Decade of behavior distinguished lecture: Development of physical aggression during infancy. *Infant Mental Health Journal, 25,* 399-407. doi: 10.1002/imhj.20015

Tremblay, R. E., Boulerice, B., Harden, P. W., McDuff, P., Perusse, D., Pihl, R. O., & Zoccolillo, M. (1996). Do children in Canada become more aggressive as they approach adolescence? In Human Resources Development Canada & Statistics Canada (Eds.), *Growing up in Canada: National Longitudinal Survey of Children and Youth* (pp. 127-137). Ottawa: Statistics Canada.

Tremblay. R. E., Japel, C., Perusse, D., & McDuff, P. (1999). The search for the age of 'onset' of physical aggression: Rousseau and Bandura revisited. *Criminal Behaviour and Mental Health, 9,* 8-23. doi:10.1002/cbm.288

Tremblay, R. E. (2001). The development of physical aggression during childhood and the prediction of later dangerousness. In. Tremblay, Clinical assessment of

dangerousness: Empirical contributions (pp. 47-65). New York, New York: Cambridge University Press.

van Lier, P. A. C., & Crijnen, A. A. M. (2005). Trajectories of peer-nominated aggression: Risk status, predictors, and outcomes. *Journal of Abnormal Child Psychology, 33*, 99-112. doi:10.1007/s10802-005-0938-8

von Suchodoletz, A., Trommsdorff, G., & Heikamp, T. (2011). Linking maternal warmth and responsiveness to children's self-regulation. *Social Development, 20*, 486-503. doi:10.1111/j.1467-9507.2010.00588.x

Wilson, K. R., Havighurst, S. S., Harley, A. E. (2012). Tuning in to Kids: An effectiveness trial of a parenting program targeting emotion socialization of preschoolers. *Journal of Family Psychology, 26,* 56-65. doi:10.1037/a0026480

Youngblade, L. M., & Dunn, J. (1995). Individual differences in young children's pretend play with mother and sibling: Links to relationships and understanding of other people's feelings and beliefs. *Child Development, 66,* 1472-1492. doi:10.2307/1131658

VITA AUCTORIS

NAME:	Erin Romanchych
PLACE OF BIRTH:	Mississauga, ON
YEAR OF BIRTH:	1990
EDUCATION:	King's University College at the University of Western Ontario, B.A. in Psychology, London, ON, 2012
	University of Windsor, M. A. in Child Clinical Psychology, Windsor, ON, 2014