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Investigating the Effects of Parent Dispositional Mindfulness, Parent-Child Conflict and Stress on Children's Self-Regulation

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Abstract

A mixed-methods research design was employed to explore (a) how parent-child conflict, parent dispositional mindfulness and child sex were related to parental stress and children's self-regulation and, (b) how parents at different levels of dispositional mindfulness describe their children's strengths and challenges. Data were gathered from 106 Canadian parents (n = 97 mothers, *Mean* age = 36.24, SD = 3.95) who provided reports of their parent-child conflict, dispositional mindfulness, stress, their child's self-regulation and children's strengths and challenges at home (N = 106 children, boys = 50, *Mean* age = 5.95, SD = 0.48). Path analysis demonstrated that (a) parent-child conflict had a direct and statistically significant positive relationship with parental stress and a direct statistically significant negative relationship with children's self-regulation, (b) parent dispositional mindfulness had a statistically significant direct negative relationship with parental stress and (c) child sex had a direct statistically significant relationship with child self-regulation. Mediation analysis determined dispositional mindfulness partially mediated the relationship between parent-child conflict and children's activation control, and the relationship between parent-child conflict and parental stress, respectively. Finally, parents at higher levels of dispositional mindfulness reported more on children's strengths and challenges for self-regulation specifically, compared to parents at lower levels of dispositional mindfulness. Results are interpreted as providing support towards the benefit of utilizing mindfulness practices to negate some of the negative associations of parenting factors on children's self-regulation.

Keywords

Self-Regulation, Effortful Control, Parent-Child Relationship Quality, Dispositional Mindfulness, Parental Stress

Dedication

For my mom. Thank you. I miss you. I love you. I will see you again someday, somewhere over the rainbow.

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Conceptual Definitions

Concept	Definition
Self-Regulation	Individuals' application of cognitive, emotional and behavioural strategies to achieve goals.
Effortful Control	A dimension of temperament that describes individual differences in children's emotional, motor, and attentional reactivity and their ability to limit a dominate response in favour of a non-dominate response.
Executive Function	A set of cognitive processes including attention focusing, behavioural inhibition and working memory.
Parental Stress	Aversive psychological and physiological reactions arising when the demands of a parenting situation exceed the coping resources a parent needs to be successful in the parenting role
Dispositional Mindfulness	An individuals' baseline awareness of their thoughts and actions in the present moment.

Chapter 1

1 Introduction

This chapter begins by presenting a general definition of self-regulation, Second, literature is reviewed to link the general definition of self-regulation provided in this study to research in developmental and educational psychology which has examined self-regulation as executive functions, effortful control, and higher order processes. Third, this chapter discusses research that links young children's self-regulation to a wide range of developmental and educational advantages. Fourth, research is reviewed that has linked self-regulation to biological and environmental factors. Fifth, this chapter describes a growing area of research that has begun to examine the effects of mindfulness on parenting to suggest that parents' dispositional mindfulness (i.e., one's baseline awareness in the present moment; Brown & Ryan, 2003) may have a direct and/or indirect effect on children's self-regulation. This chapter concludes by stating the purpose of this study and the research questions and hypotheses that were examined.

1.1 Self-Regulation

Self-regulation refers to individuals' application of cognitive, emotional and behavioural strategies to achieve goals (Zimmerman, 2008). Self-regulation has been studied as executive functions (Diamond, Barnett, Thomas & Munro, 2007; Diamond, 2016; Weibe, Sheffield, Nelson, Clark, Chevalier & Espy, 2010)—attention focusing, working memory, and behavioural inhibition, and as effortful control (Eisenberg, 2012; Lengua, Bush, Long, Kovacs & Trancik, 2008; Rothbart, 2007; Rothbart & Bates, 2006), a dimension of temperament which describes individual differences in children's emotional, motor, and attentional reactivity and their ability to limit a dominate response in favour of a non-dominate response (Rothbart, 2007). Additionally, self-regulation has been studied as higher order processes including metacognition, motivation and strategic action (Perry, 1998; Muis, 2007; Perry, Hutchinson, Yee & Määttä, 2018; Perry & VandeKamp, 2000).

In the current study, self-regulation was examined as effortful control, which Rothbart (2007) has linked to the personality trait, conscientiousness. Rothbart has also established that surgency/extraversion (e.g., a tendency towards positive affect) and negative affect (e.g., a tendency towards anger/frustration, fear or anxiety; Gouze, Lavigne, Hopkins, Bryant & Lebailly, 2012) have important relationships with children's effortful control (Rothbart, 2007; Simonds & Rothbart, 2004). Effortful control and executive functions share the common components of behavioural inhibition and executive attention (Rothbart & Bates, 2006; Zhou, Chen & Main, 2012). However, effortful control also involves activation control, which describes a child's ability to engage in an activity they are not interested in, especially when they have a strong tendency to avoid it (e.g., taking off a bandage), low intensity pleasure, which refers to the amount of enjoyment a child gets out of activities that involve low novelty or complexity (e.g., enjoys looking at flowers) and perceptual sensitivity, the amount of low stimulus a child detects from their environment (e.g., smells in a room; Simonds & Rothbart, 2004). Effortful control, attention focusing and inhibitory control, have been shown to be critical to children's behaviour regulation (Rothbart, 2007; Rothbart, Sheese, Rueda & Posner, 2011).

Research has linked the development of executive functions and effortful control during the preschool years to higher order processes involved in self-regulation such as: reasoning, problem solving, and planning (Diamond, 2016; Perry, 1998; Muis, 2007; Perry et al., 2018; Perry & VandeKamp, 2000; Winne, 2011). More than four decades of research have demonstrated that self-regulation is a powerful predictor of children's success at home and in school (Bandura, 2005; Deci, Ryan & Williams, 1996; Gestsdottir & Lerner, 2008; Matthews, Pointz, McClelland, Matthews & Morrison, 2009; Schunk & Zimmerman, 2003). Children engage in self-regulation when they focus their attention to resist distractions, inhibit an unwanted behaviour (e.g., stopping himself/herself when told to stop) or when they engage in a task they are not interested in (e.g., cleaning their room when asked; Simonds & Rothbart, 2004)

Children who engage in higher levels of self-regulation at home are likely to have better relationships with their parents and siblings, report higher levels of responsibility, and display higher levels of emotional regulation (Cappa, Begle, Conger, Dumas & Conger,

2011; Kinniburgh, Blaustein, Spinazzola & van der Kolk, 2005). Similarly, research has indicated that children's early self-regulation is linked to academic advantages in school. These children tend to have better social and interpersonal skills (e.g., listen effectively) and may take advantage of opportunities to develop more high-quality relationships with peers and teachers. Also, they are likely to display higher levels of motivation for learning and persist in challenging work so may be more likely to attain higher levels of academic achievement (e.g., higher math and reading scores; Bandura, 2005; Cadima, Doumen, Verschueren & Buyse, 2015; Day & Connor, 2017; Deci, Ryan, & Williams, 1996; Diamond, 2016; Gestsdottir & Lerner, 2008; Ramdass & Zimmerman, 2011; Schunk & Zimmerman, 2003).

By contrast, children who struggle with self-regulation at home may be likely to experience negative developmental outcomes. They may have trouble inhibiting behaviour (e.g., interrupting parents when they are trying to give instructions), resisting distractions (e.g., changing the topic of conversation in the middle of speaking to a parent) and anticipating when difficulties may arise (Duckworth et al., 2014; Mischel, 2014). Further, children who exhibit lower levels of self-regulation in early childhood may be at a disadvantage in school. For example, they may have trouble paying attention to rules or instructions in class. Additionally, children who exhibit lower levels of self-regulation may also struggle to maintain good relationships with peers and teachers (Cleary & Zimmerman, 2004; Diamond, 2016; Zimmerman, 2002). Moreover, studies have shown that a strong teacher-student relationship is likely to promote children's development of self-regulation, even when the parent-child relationship is less strong (Vandenbroucke, Split, Verschueren & Baeyes, 2017).

The present study examined how parent factors (e.g., perceived parent-child conflict, and dispositional mindfulness) were related to parental stress and young children's development of self-regulation. Below, research is presented which summarizes (a) how self-regulation has been studied in developmental and educational psychology and (b) how parent factors have been linked with children's development of self-regulation.

1.2 Executive Functions and Effortful Control

A review of the literature has indicated that children's early executive functions are reliable predictors of children's psychological well-being and school readiness, and they are longitudinal predictors of successful life outcomes including relationship harmony, employment, and financial stability (Blair, 2016; Diamond, 2016, Diamond et al., 2007; Moffit et al., 2011; Weibe et al., 2010). Children's development of executive functions are dependent upon the maturation of the prefrontal cortical region of the brain which begins as early as the second year of life (Carlson et al., 2004). Studies point to the ages of two to seven as being pivotal for children's development of self-regulation, and that early executive functions predict school adjustment, higher self-worth, and more adaptive coping skills later in life (Kochanska, Coy & Murray, 2001; Mischel et al., 201l; Ribner, Willoughby, & Blair, 2017). Children's development of executive functions signal that children have started to develop the psychological skills needed to learn how to regulate their affect and behaviour adaptively and effectively.

Most often executive functions are measured using behavioural tasks that assess children's inhibitory control and attention focusing (e.g., Head-Toes-Knees-Shoulders Task; HTKS; Ponitz et al., 2009) and through parent or teacher report measures (e.g., Behaviour Rating Inventory of Executive Function; Gioia, Isquith, Guy & Kenworthy, 2000). Finally, children's development of executive functions appear pivotal for the emergence of their self-regulation in school, which is studied in educational psychology as self-regulation of/for learning (SR/L). SR/L is both a short-term and long-term predictor of school achievement (Diamond, 2016; Jacobson, Wiliford & Pianta, 2011; Winne, 1997; Zimmerman, 2008).

Also, self-regulation has been studied as effortful control (Rothbart, 2007). Research has demonstrated children's self-regulation, including their effortful control and executive functions, and SR/L are malleable (Diamond, 2016; Perry et al., 2018). Executive functions and effortful control can be supported through co-regulation, which refers to the interactive modelling and support of self-regulatory abilities from parents and/or teachers, which result in the child's ability to initiate adaptive and effective strategies and function more independently in the future (Murray, Rosanbalm, Christopoulos &

Hamoudi, 2015; Vygotsky, 1978). As a consequence of supported cognitive processes, co-regulation can also aid in children's development of their SR/L including a deeper metacognitive understanding of *how* to apply strategies to learn and achieve goals in classrooms at school (McCaslin, 2009; Perry et al., 2018; Vygotsky, 1978).

In summary, research demonstrates that children's executive functions, and effortful control have been positively linked to more satisfying and harmonious relationships, higher levels of education, professional success, and higher socioeconomic status (Borella, Carretti & Pelegrina, 2010; Diamond, 2016; Drever et al., 2015). Moreover, executive functions and effortful control are strong positive predictors of children's socioemotional skills, including their perspective taking, prosocial behaviour (Eggum et al., 2011), ability to limit impulsive reactions and school readiness (Denham, Bassett, Zinsser & Wyatt, 2014; Herndon, Bailey, Shewark, Denham & Bassett, 2013; Moffit et al., 2011). The literature demonstrates that parental co-regulation plays an important role in the development of childhood executive functions and effortful control. There is a need for research to identify how parenting factors such as perceived parent-child conflict and dispositional mindfulness are related to parental stress and children's development of effortful control. The present study investigated these relationships. The sections below describe what previous research has found regarding both biological and environmental factors associated with children's self-regulation.

1.3 Factors Associated with Children's Self-Regulation

Children's development of self-regulation has been linked to biological factors like genetic heritability and sex (Diamond & Lee, 2011; Hutchinson, 2013; Rothbart & Bates, 2007; Tang & Neber, 2008; Willems et al., 2018), and environmental factors present at home. Below, the role of children's biological sex, the parent-child relationship, parental stress and parental dispositional mindfulness are discussed in relationship to children's self-regulation.

1.3.1 Children's Biological Sex

A review of the literature concerning the existences of sex differences on children's self-regulation is mixed. For example, research conducted by Lonigan et al., (2017) utilized a

longitudinal mixed methods research design to understand sex differences in a sample of preschool students' (*N* = 815, *Mean* age = 58.65 months, *SD* = 6.54) self-regulation, literacy and later externalizing problem behaviours. Teacher reports of students' self-regulation, early literacy, school readiness, and students' performances during the HTKS task (Ponitz et al., 2009) were collected at the end of the students' preschool year. When the children were in grade three, parents' ratings of children's externalizing problem behaviours were collected. Results demonstrated that at the preschool age, males and females did not differ in their performance during the HTKS task, however, teachers rated males as having lower self-regulation compared to females. Additionally, results demonstrated that early self-regulation was predictive of later externalizing problem behaviours for boys, but early literacy was predictive of later externalizing problem behaviours for girls. Meaning, that although the mechanisms that predicted children's later externalizing problem behaviours differed for males and females in this study, specific sex differences in self-regulation did not exist in this sample. In other words, when considering both a behavioural self-regulation task and teacher ratings, mixed findings were observed. Specifically, while teachers rated boys as having lower self-regulation compared to their female counterparts, results of the behavioural self-regulation task did demonstrate statistically significant sex differences (Lonigan et al., 2017).

However, other studies have demonstrated that females tend to be rated more positively in regard to their ability to self-regulate compared to their male counterparts (Hutchinson, 2013; Kochanska, Murray & Harlan, 2000; Matthews et al., 2009; Rudasill & Rimm-Kaufman, 2009). For example, research by Hutchinson (2013) utilized a mixed-methods research design to investigate children's self-regulation in early elementary school (*Mean* age = 6.31 years, *SD* = .84 years). Results demonstrated that teachers rated females higher in their self-regulation compared to their male counterparts. In other words, teachers indicated that females in the classroom were more likely to persist on difficult tasks, offer peer support to other students in the classroom and effectively communicate and express emotions (Hutchinson, 2013). These findings highlight some of the differences observed between males and females on behavioural ratings regarding self-

regulation, suggesting a need to further investigate whether males and females differ consistently in certain aspects of executive functions.

Similarly, research by Kochanska et al. (2000) investigated sex differences in children's effortful control when the children (N = 116) were 22 and 33 months old. Results of their study indicated that at both time points, girls performed better on effortful control tasks, including behavioural inhibition and attention focusing, compared to their male counterparts. In addition, parent reports of their child's effortful control at 33 months aligned with observed effortful control abilities. Finally, children's effortful control at this time was also linked to their social competence, a key outcome for child development. These findings point towards the importance of early self-regulation development to support academic achievement and social competence in the later school years and contribute to previous literature that has found sex differences in young children's development of self-regulation.

Collectively, the sex differences observed on behavioural self-regulation tasks and teacher reports corroborate previous research indicating that during the early elementary school years, girls tend to outperform boys in aspects of self-regulation (Matthews et al., 2009; Rudasill & Rimm-Kaufman, 2009). Sex differences that have been observed in the literature have been attributed to various factors including differences in socialization. Typically, girls tend to be subjected to higher parental control and often receive more punishment for deviant behaviour compared to boys (Coyne, Vaske, Boisvert & Wright, 2015). Additionally, previous literature has identified differences in maturation between girls and boys as a potential mechanism for sex differences in self-regulation (Chaplin, Cole & Zahn-Waxler, 2005; de Bellis et al., 2001; Hosseini-Kamkar & Morton, 2014). Early self-regulation is predictive of school readiness as well as academic achievement and positive experiences in school. These findings point towards the importance of supporting the development of self-regulation in both sexes from a young age. However, there is a lack of literature investigating how parent factors (e.g., perceived parent-child conflict, dispositional mindfulness) and parental stress are related to children's early self-regulation at this age. The current study addressed this issue by examining these factors

together to enhance understandings of whether the parent-child relationship and dispositional mindfulness are predictive of children's effortful control skills at this time.

1.3.2 Parenting and Parent-Child Relationships

Research has indicated that one of the most influential factors on a child's early development is the parent-child relationship (Bernier, Beauchamp, Carlson & Lalonde, 2015; Bernier, Carlson & Whipple, 2010; Carlson, 2003; Curby et al., 2011; Schroeder & Kelley, 2010; Stelter & Halberstadt, 2011). Research has suggested that the attachment a child has with their parent acts as a mediator between parenting style and parenting stress and the child's well-being (Bernier et al., 2015; Bowlby, 1988; Carlson, 2003; Santos-Nunes, Narciso, Vieira-Santos & Roberto, 2017; Sosic-Vasic et al., 2017, Blair, Raver & Berry, 2014). A hallmark of a high-quality parent-child relationship is a secure parent-child attachment which is characterized by parental responsiveness (e.g., parents who emphasize the importance of following rules while also considering the child's emotional needs; Baumrind, 1991; Guajardo, Snyder & Peterson, 2009; Nam & Chun, 2014). The other, less adaptive attachment styles are insecure-avoidant, insecure-ambivalent/resistant and disorganized. These attachment styles tend to be aligned with parenting interactions that may involve punishment and control techniques implemented to motivate a child to comply with parents' requests to behave in a desired way or interactions where there is very little structure or consequences for unfavourable behaviour (Ainsworth & Bell 1970; Main & Solomon, 1990; Nam & Chun, 2014). Children who are securely attached to their parents tend to report better emotional well-being, and their parents report lower stress and more responsive parenting styles (Santos-Nunes et al., 2017).

For example, in their longitudinal study, Bernier et al., (2015) examined the relationship between parent-child attachment and children's executive function abilities using executive function focused tasks (e.g., Flanker task; Rueda et al., 2004), and teacher reports of children's executive function at school. Results of the study indicated that children who had higher attachment and more positive relationships with their mothers scored higher on the executive function tasks. Also, teacher reports revealed that these children had lower problems related to their executive functions at school. To add, this

finding was independent of other environmental factors including socio-economic status (SES) and the child's general cognitive abilities (Bernier et al., 2015).

Additionally, research has demonstrated the importance of parent-child attachment on child-peer relationships in school (Coleman, 2003). Secure attachment to the primary caregiver is associated with lower parent reports of child anti-social behaviour and lower instances of internalizing problem behaviours as adolescents progress into adulthood (Goffin, Boldt & Kochanska, 2018; Jakobsen, Horwood & Fergusson, 2012). On the contrary, children who are not securely attached often experience reduced group belongingness (Bohlin, Hagekull & Rydell, 2002). Research by Coleman (2003) investigated how parent-child attachment was associated with child-peer relationships quality, social self-efficacy and peer victimization in a sample of 67 students (31 females) in grade five and six. Results demonstrated that children who were securely attached to their mother showed higher peer attachment and those who were securely attached to their father showed higher social self-efficacy. Although these findings point towards the possibility of different mechanisms in the mother-child and father-child relationships, they underscore that high-quality relationships with parents contribute to positive social outcomes for children. In the present study, perceived parent-child conflict was investigated to understand how this often understudied and important characteristic of the parent-child relationship is related to other important parenting factors including parental stress, as well as children's development of self-regulation. Additionally, research has shown that interventions which focus on promoting healthy relationships in students at risk can lower instances of peer-violence and reduce risk-taking behaviours (Crooks et al., 2015; Wolfe, Crooks, Chiodo, Hughes & Ellis, 2012). Altogether, research demonstrates that having secure, and high-quality relationships with parents, teachers, and peers is linked to favourable outcomes from childhood to adulthood.

Studies have concluded that parenting behaviours and the home environment are important in children's development of self-regulation. In their research, Schroeder and Kelley (2010) examined the relationship between the family environment, parenting practices and executive functions in school-aged children (*Mean age* = 8.54, *SD* = 2.11). Data consisted of parents' reports of the parent-child relationship, features of the home

environment, and their child's executive functions. Results indicated that children who resided in organized home environments received higher ratings of executive functions. To elaborate, children from households that had established routines, and set limits to the child's behaviour, received higher ratings of metacognition, effective and adaptive patterns of cognition, emotion, and behaviour. Additionally, the researchers concluded that parents who felt supported from their spouse were more attentive to their parenting responsibilities, allowing them to attend to their child's emotional and developmental needs (Schroeder & Kelley, 2010).

Further, recent research has investigated the bidirectional relationship between parenting behaviours and child temperament in preschool children. In their study, Klein et al., (2018) examined dimensions of temperament and parenting behaviours in a sample of 306 mother-child dyads (M = 51.89 months old, SD = 1.15 months). Data were collected at four time points, once every nine months. Families completed questionnaires related to the child's temperament (i.e., fear, frustration, positive affect, and effortful control) and parent-child interactions were observed during a 25-minute play period. Finally, teachers provided reports of children's social competence and adjustment. Results demonstrated that both temperament and parenting behaviours were stable over the study period. Additionally, path analysis demonstrated a bidirectional relationship between maternal negativity and child effortful control. In other words, maternal negativity was predictive of lower levels of child effortful control and child effortful control was predictive of lower maternal negativity. However, the remaining study variables indicated a unidirectional relationship, where parenting was predictive of child temperament (Klein et al., 2018).

Altogether, results of these studies demonstrate that the home environment and the parent-child relationship are important for young children's self-regulation (Bernier et al., 2015; Bernier et al., 2010; Klein et al., 2018; Schroeder & Kelley, 2010). A positive parent-child relationship predicts children's self-regulation and is associated with better peer-relationships and social self-efficacy as children develop. However, there is a need for research that focuses on understanding how additional parent factors, like parental stress, relate to children's development of self-regulation. The section below reviews

research concerning the relationship of parental stress with children's self-regulation and the parent-child relationship, respectively.

1.3.3 Parental Stress

In the present study, parental stress is defined as, "a set of processes that lead to aversive psychological and physiological reactions arising from attempts to adapt to the demands of parenthood" (Deater-Deckard, 2004, p. 6). Parental stress arises when the demands of a parenting situation exceed the coping resources a parent needs to be successful in the parenting role and can be influenced by child behaviour and dysfunction in the parent-child relationship (Abidin, 1995; Deater-Deckard, Chen, & El Mallah, 2013). A review of the literature has indicated that parenting behaviours can be influenced by a wide range of environmental factors including SES, employment status, or marital status, but the most influential factor on parenting behaviours is stress (Domian, Baggett, Carta, Mitchell & Larson, 2010; Waylan & Stewart-Brow, 2010).

Research has demonstrated that high levels of parental stress are associated with unfavourable child outcomes including poor behavioural, social-emotional and cognitive development (Cappa et al., 2011; Curby et al., 2011; Stelter & Halberstadt, 2011). For example, Cappa et al., (2011) investigated the bidirectional relationship between parenting stress and child coping style (e.g., children who use prosocial coping styles, compared to antisocial or asocial, tend to be better able to deal with adverse life events), starting in preschool. Results of the study indicated that at the preschool age, children of parents with high levels of stress have increased difficulties in coping with environmental demands, developmental tasks, and life events. Further, parents of children who lacked adequate coping skills tended to report higher levels of stress.

Additionally, research has investigated the association of stress and parent-child attachment on child outcomes. For example, research by Tharner et al., (2012) investigated how parental stress and child maternal attachment were associated with internalizing and externalizing problem behaviours when the children participating in the study were three years old (N = 606, 50% female). Mothers completed self-reports on their stress and their child's emotional and behavioural problems. The Strange Situation

Procedure (Ainsworth, Blehar, Waters & Wall, 1978) was used to assess mother-child attachment. Overall, the study found that parental stress was a statistically significant predictor of children's internalizing and externalizing behaviours. Moreover, children who displayed an insecure-avoidant attachment style tended to have more difficulties focusing attention compared to children in the other three attachment categories. However, the most significant finding from this study was that secure attachment appeared to insulate children from the negative effects of parental stress. Altogether, study findings suggest that secure attachment is linked to a high-quality parent-child relationship and that this may serve to reduce the negative effects of heightened parental stress on their self-regulation (Cappa et al., 2011; Curby et al., 2011; Tharner et al., 2012).

Research has also demonstrated that parental stress has a bidirectional relationship with parent-child relationship quality. In a study conducted by de Cock et al., (2017), parental stress along with parental bonding were assessed in a sample of 596 parents (261 fathers). Parents provided self-reports of their prenatal and postpartum bonding at 24 weeks of pregnancy, six months postpartum and 24 months postpartum. Further, at 24 months postpartum, parents also provided self-reports of their parenting stress and their child's executive functions. Results demonstrated that weak postpartum parental bonding was associated with higher levels of parental stress when children were 24 months old. Additionally, it was determined that parental bonding at 6 months postpartum resulted in lower parental stress at 24 months postpartum, which in turn was associated with lower child executive function problems at this time. This study demonstrates the important, and often understudied, role parental affect and cognitions have on children's development of early self-regulation (de Cock et al., 2017).

Overall, findings from previous research demonstrate the important relationship parental stress has with parenting behaviours and the quality of the relationship between parent and child. Additionally, the literature highlights how child outcomes are associated with parental stress and the parent-child relationship. Therefore, the purpose of the present study was to advance the understanding of how parental stress is associated with parent-child conflict, dispositional mindfulness, and children's self-regulation. Additionally, this

study examined how parents' dispositional mindfulness, known for its association with lower levels of stress, may interact with these variables to influence children's self-regulation.

1.3.4 Parent Dispositional Mindfulness

Considering the amount of literature that has linked stress to adverse child outcomes (Cappa et al., 2011; Collie et al., 2012; Jennings et al., 2017), within the last quarter century, there has also been an increase in research investigating factors associated with lower levels of stress, including dispositional mindfulness. In this study, dispositional mindfulness was defined as an individuals' baseline awareness of their thoughts and actions in the present moment (Brown & Ryan, 2003). Research has illustrated that dispositional mindfulness is associated with lower levels of individual stress, increased well-being, higher resiliency and more effective executive functions (Meiklejohn et al., 2012). To date, studies have not investigated how an individual's dispositional mindfulness, for example a parent's, influences child outcomes. However, recent studies have linked mindful parenting, categorized as focused attention in the parent-child relationship and an awareness of both one's own emotions and the child's, to child outcomes (Coatsworth, Duncan, Greenberg & Nix. 2010).

Recently, mindfulness research has gravitated towards understanding how mindful parenting may be linked to children's development. Mindful parenting refers to qualities such as focusing one's attention on the present moment, in the context of the parent-child relationship (e.g., having compassion and emotional awareness of the child's needs and the parent's needs; Coatsworth et al., 2010). To be mindful in the parenting role means listening to the child with full attention and practicing nonjudgement towards the child's behaviours and one's own parenting behaviours (Duncan, Coatsworth & Greenberg, 2009). Research has investigated the influence mindful parenting and parenting behaviours have on a child's externalizing and internalizing behaviours. In a study conducted by Parent, McKee, Mahon and Foreh (2016), parent dispositional mindfulness, and children's internalizing and externalizing behaviours were investigated. Findings demonstrated that higher parent dispositional mindfulness was associated with more positive parenting behaviours (i.e., empathy towards a child's needs) and lower reports of

children's internalizing and externalizing problem behaviours. These findings were consistent across the developmental stages of the children studied, suggesting parental dispositional mindfulness and mindful parenting were associated with children's prosocial behaviour at all ages (Parent et al., 2016). A more recent study found similar results with an older population of children, where mindful parenting was associated with a better parent-child relationship, more open communication between parent and child and less risk-taking behaviours by adolescents included in the study (Lippold, Jensen, Duncan, Nix, Coatsworth & Greenberg, 2019)

Additional research by Gouveia et al., (2016) has investigated the relationship between dispositional mindfulness, mindful parenting, parental self-compassion, parenting style and parenting stress. Parents of children between the ages of eight to eighteen were included in the study (N = 333) and were asked to complete self-report measures to understand whether dispositional mindfulness and self-compassion were associated with parenting style and stress through mindful parenting. Results of the study found parents with higher dispositional mindfulness and self-compassion were more likely to utilize mindful parenting practices in their interactions with their child. Consequently, this association may result in lower levels of parenting stress and the utilization of a more productive parenting style. Further, this study found that mothers with fewer children were more likely to utilize mindful parenting practices. This finding could be attributed to the fact that women still tend to take on the primary caregiving role, and secondly, because these mothers are caring for fewer children, they may have more time and resources available to be more focused in their interactions with their child (Gouveia et al., 2016).

Research has demonstrated that mindfulness as an individual trait and cultivated skill is associated with lower levels of perceived parental stress, as well as higher levels of positive parenting behaviours (Gouveia et al., 2016; Parent et al., 2016). However, much of the focus in the mindfulness literature up to this point has investigated the effects of cultivated mindfulness (i.e., interventions specific to increasing focused attention in the present moment; e.g., Mindfulness Based Stress Reduction; MBSR; Kabat-Zinn, 2003), and there have been fewer studies investigating dispositional mindfulness in parents.

Further, although there is some research on the relationship between parent dispositional mindfulness and parental stress, there is a need for research to investigate the direct and indirect relationship of parent dispositional mindfulness to parenting factors like the parent-child relationship and parental stress, and young children's development of self-regulation. The current study aims to address this gap in the literature by examining the relationships between parents' self-reports of dispositional mindfulness and children's self-regulation at home to better understand the role of dispositional mindfulness in child development. This study seeks to understand whether supporting mindful parenting is a worthy goal to pursue to support children's development from a young age. Furthermore, the use of qualitative data within a mixed methods framework illuminates some of the potential mechanisms through which parents with higher or lower dispositional mindfulness might differ in their view of their children and approach to parenting.

1.4 The Current Study

Studies have linked self-regulation skills to children's success in life (Bandura, 2005; Deci, Ryan & Williams, 1996; Diamond, 2016; Gestsdottir & Lerner, 2008; Schunk & Zimmerman, 2003). In addition, studies have demonstrated that a positive parent-child relationship is an important predictor of children's self-regulation (Bernier et al., 2015; Bernier et al., 2010; Schroeder & Kelley, 2010). However, parenting stress is associated with a less positive parent-child relationship and less favourable outcomes for children including maladaptive coping styles and lower levels of self-regulation (Cappa et al., 2011). Research has found that dispositional mindfulness is associated with positive parenting outcomes including more adaptive parenting styles and reduced stress, which may be linked to better developmental outcomes for children, including self-regulation (Gouveia et al., 2016; Parent et al., 2016). However, more research is needed to investigate this possibility. The present study examined how parent-child conflict, and parent dispositional mindfulness were related to parental stress and children's development of self-regulation. Three research questions and hypotheses were investigated.

Research Question 1: How do parent-child conflict, parent dispositional mindfulness and child sex influence parental stress and children's effortful control?

Hypothesis 1: It was expected that a statistically significant positive relationship would exist between parent-child conflict and parental stress. Additionally, it was anticipated that a statistically significant negative relationship would be observed between dispositional mindfulness and parental stress. Further, statistically significant negative relationships were expected between parent-child conflict and (a) dispositional mindfulness and (b) children's effortful control. It was hypothesized that a statistically significant positive relationship would be observed between dispositional mindfulness and children's effortful control. Finally, it was hypothesized that a direct statistically significant relationship would exist between child sex and children's effortful control.

Research Question 2: What is the role of dispositional mindfulness in the relationship between parent-child conflict and children's activation control, and in the relationship between parent-child conflict and parental stress?

Hypothesis 2: First, it was expected that parent-child conflict would have a statistically significant, negative total effect on a component of children's effortful control, specifically, children's activation control. It was also anticipated that parent-child conflict would have a statistically significant, negative direct effect on children's activation control, when controlling for dispositional mindfulness. Finally, it was anticipated that the indirect effect of parent-child conflict on children's activation control would be partially mediated by dispositional mindfulness.

Second, it was anticipated that parent-child conflict would have a statistically significant, positive total effect on parental stress. Further, it was hypothesized that parent-child conflict would have a statistically significant positive direct effect on parental stress. Finally, it was expected that the indirect effect of parent-child conflict on parental stress would be partially mediated by parent dispositional mindfulness.

Research Question 3: How do parents describe children's strengths and challenges at different levels of parental dispositional mindfulness?

This research question was exploratory in nature and therefore did not include specific hypotheses.

Chapter 2

2 Methodology

2.1 Design

A mixed-method research design was utilized to investigate how parent level variables including the parent-child relationship, parent dispositional mindfulness and parental stress were associated with young children's effortful control.

2.2 Participants

Data were collected from 106 Canadian parents (9 fathers; *M* = 36.24 years old, *SD* = 3.95 years), who provided data about themselves and their children (*N* = 106; 50 boys; *M* = 5.95 years old, *SD* = .48 years). Descriptive statistics for the sample are provided in Table 2.1. For this study, participants' ethnicities were grouped by geographic region according to the UN Regions of the World. In the current sample, 86.8% of parents indicated they were from a Western European Background, 6.6% indicated they were from an Asian-Pacific Background, 1.9% indicated they were from a Latin-American Background, and the remaining 4.7% indicated their ethnicity was "Other". In the study, 93 participants were from Ontario, seven were from Alberta, and three were from British Columbia. Manitoba, the Northwest Territories and Nunavut were represented by one participant each.

Table 2.1

Demographic Characteristics of Participating Children

Grade	*N*	Sex		Age	
		Boys	Girls	*M*	*SD*
K	54	23	31	5.19	.40
1	26	15	11	6.56	.41
2	26	12	14	7.63	.86

Note: In the current study, "K" represents children identified as being in Kindergarten, Junior Kindergarten and Senior Kindergarten.

2.3 Measures

2.3.1 Parent Demographic Questionnaire (Appendix A)

The parent demographic form contains 12 items (Appendix A). Items asked the parent to provide demographic information about themselves and their child (e.g., What is your ethnic/cultural background?; What is your child's sex?).

2.3.2 Parent Short Answer Questions (Appendix B)

Along with the demographic form, parents were also asked to answer four short answer questions (Appendix B). Two of the questions asked parents to describe their strengths and challenges as a parent (e.g., Please list your personal strengths as a parent). Parents were also asked two research questions about the child's strengths and challenges at home (e.g., Please list some of your child's strengths; Please list some of your child's challenges).

2.3.3 Child-Parent Relationship Scale- Short Form

The Parent Perceived Conflict subscale (7 items) of the Child-Parent Relationships Scale-Short Form (CPRS; Pianta, 1992), was used to assess parent perceived conflict with their child ("My child easily becomes angry with me", $\alpha = .81$, 95% CI = .75 - .86). The Parent Perceived Closeness subscale was omitted in this study due to low reliability that could not be increased. Parent participants responded to items using a 5-point Likert scale with endpoints ranging from (1) *definitely does not apply* to (5) *definitely applies.* A mean score of parent-child conflict was calculated by averaging the items on the scale.

2.3.4 Mindful Attention Awareness Scale

The Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003) contains 15 items to examine how individuals shift and focus their attention (e.g., "I could be experiencing some emotion and not be conscious of it until sometime later"). Parent participants responded to items using a 6-point Likert scale with endpoints ranging from 1 *almost always* to 6 *almost never*. Cronbach's alpha for the MAAS was computed at .92 (95% CI = .90 - .94), indicating a high level of internal consistency. An average score of

mindfulness was computed by totalling individual item scores and dividing by the number of items.

2.3.5 Parent Stress Scale

Parental stress was measured using the 18-item Parental Stress Scale (PSS; Berry & Jones, 1995). Parents were asked to rate their typical relationship with their child (e.g., “I feel overwhelmed by the responsibility of being a parent”) using a 5-point Likert scale ranging from (1) *disagree* to (5) *strongly agree.* Cronbach’s alpha for the PSS was computed at .83 (95% CI = .78 - .87), indicating a high level of internal consistency. An average score of parental stress was determined by summing item scores and dividing by the total number of items.

2.3.6 Temperament in Middle Childhood Questionnaire

Children's self-regulation was measured using 40 items from the Effortful Control subscale of the Temperament in Middle Childhood Questionnaire (TMCQ; Simonds & Rothbart, 2004). The Effortful Control subscale of the TMCQ assessed four dimensions of Effortful Control including: Activation Control (15 items; e.g., “When a child is left out, can ask the child to play”; α = .76; 95% CI = .62 - .82). Attention Focusing (7 items; e.g., "Is easily distracted when listening to a story."; α = .90; 95% CI = .87 - .93); Inhibitory Control (8 items; e.g., "Has an easy time waiting to open a present." α = .66; 95% CI =.55 - .75); and Perceptual Sensitivity (10 items; e.g., "Notices the colours of people’s eyes"; α = .75; 95% CI =.67 - .81). The Low Intensity Pleasure subscale was omitted in the current study due to low reliability. Parents responded to items using a five-point Likert scale with endpoints ranging from (1) *almost always untrue* to (5) *almost always true*. A mean score for the effortful control subscale of the TMCQ was computed by summing item scores and dividing by the total number of items in the subscale. A mean score was computed for activation control, attention focusing, inhibitory control and perceptual sensitivity by aggregating individual item scores on each subscale and dividing by the number of items in each subscale, respectively.

2.4 Procedures

2.4.1 Ethics Approval, Informed Consent and Survey Distribution

The proposed study is a part of a larger study which was approved by the King's University College Ethics Review Board (see Appendix C). Consent forms were distributed electronically to parents who volunteered to participate in the research study. Following parent's consent to participate in the study, participating parents completed an electronic questionnaire consisting of the Demographic Questionnaire (e.g., child's age), the Parent Short Answer Questions (e.g., child's strengths at home), CPRS (Pianta, 1992), MAAS (Brown & Ryan, 2003), PSS (Berry & Jones, 1995) and the effortful control items from the TMCQ (Simonds & Rothbart, 2004).

2.4.2 Coding of Qualitative Data

To code for themes present in parents' responses of their child's strengths and challenges at home, coding categories were selected based on themes in the data and the literature about self-regulation. Parents' responses regarding their child's strengths at home were categorized as relating to one or more of the following classifications: Activation Control, Activity Level, Affiliation, Attention Focusing, Confidence, Imagination, Impulsivity, Independence, Inhibitory Control, Low Intensity Pleasure and Perceptual Sensitivity. Parents' responses regarding children's challenges at home were coded under the same categories, except Low Intensity Pleasure was replaced by High Intensity Pleasure. Factors that were listed by parents that did not fall under one of the above categories, tended to be related to emotional regulation (e.g., "Can't always regulate intense emotions") and cognitive flexibility (e.g., "Analytical thinker"). Therefore, these two categories were also included in coding. These subscales of the TMCQ were selected as a basis for coding based off of previous research that has demonstrated three aspects of temperament (i.e., Surgency, Negative Affect and Effortful Control), are together associated with children's abilities to control attention and reactive impulses, essential components of self-regulation (Rothbart, 2007). Further, research has shown that these three aspects of temperament are universal across cultures (Ahadi, Rothbart & Ye, 1993; Rothbart, 2007).

2.4.3 Interrater Reliability of Parent Qualitative Data

A research assistant and I reviewed and scored the parents' written responses to the qualitative questions included in this study (e.g., "Please list some of your child's strengths." "Please list some of your child's challenges."). Data were standardized for this analysis so that only parents who were categorized as "high" or "low" in dispositional mindfulness were reviewed. Parents whose dispositional mindfulness scores were at least one standard deviation above the sample mean were designated as "high" in dispositional mindfulness. Further, parents whose dispositional mindfulness scores were at least one standard deviation below the sample mean were labeled as "low" in this variable. In total, 34 parents' responses regarding their child's strengths and challenges at home were analyzed. I reviewed and scored responses from 34 parents (100%), and the research assistant reviewed and scored responses from 15 parents (44% of the total). We reviewed and rated each response using conceptual categories based on the literature to indicate the types of language associated with different types of self-regulation, including surgency, negative affect and effortful control. Cohen's Kappa was computed to calculate the level of agreement between raters' judgements of individual parents' responses. In the current sample, 14 themes were identified. The percentage agreement was 82% and the corresponding Kappa value was calculated at .64, indicating moderate inter-rater reliability for parents' written responses. For statements made by parents that were not rated by both raters individually, we discussed our ratings and consolidated the data to ensure it was consistent (Perry, 1998).

Chapter 3

3 Overview

In this chapter, the results of the study are presented. This research had two aims. First, it examined how parent factors (e.g., parent-child conflict, dispositional mindfulness) and child sex were related to parental stress and young children's self-regulation at home. Second, this study explored whether and how parents at high and low levels of dispositional mindfulness differed in how they described qualities of their child's strengths and challenges at home. Quantitative data consisted of parents' self-reports of their (a) parent-child conflict (CPRS; Pianta, 1992) (b) dispositional mindfulness (MAAS; Brown & Ryan, 2003) (c) parental stress (PSS; Berry & Jones,1995) and (d) child's effortful control (TMCQ; Simonds & Rothbart, 2004). Qualitative data included parents' responses to questions addressing their child's strengths and challenges at home. In the sections below, the procedures for handling missing data are discussed. Next, the preliminary analyses that were conducted are described. Finally, the results of this study are presented.

3.1 Missing Data

Missing data occurs when individuals omit or skip questions contained in a survey, or when data are imputed in error (e.g., a value was missed when data were manually imputed; Field, 2013). Typically, missing data falls into three categories, including data Missing Completely at Random (MCAR), Missing at Random (MAR) and Not Missing at Random (NMAR). MCAR describes the absence of a relationship between any of the data in the data set (i.e., missing or observed), that would make one value more likely to be missing than another. Alternatively, data that are MAR represents a systematic relationship between the missing data and observed data. That is, missing data are unrelated to other missing data but are related to observed data. For example, if a man is more likely to tell you his age than a woman, age is MAR. Finally, NMAR refers to the dependence of missing values on the unobserved data (Graham, 2009). Data that are MCAR or MAR can be replaced using estimation techniques, however, whereas data that

are NMAR, require careful consideration before imputation methods can be implemented (Yuan, 2009).

Often, mean imputation methods (Scheffer, 2002) are employed to handle missing data and maintain the statistical power and accuracy of a measure (Downey & King, 1998). The Person Mean Score (PMS) method of imputation is one where a participant's average score from a set of questionnaire items is used to estimate missing data values on other questionnaire items. PMS is recommended as a viable strategy for replacing missing data if it does not exceed 10% of the total number of items, in each measure, for an individual participant.

In the present study, Little's MCAR test was computed to determine whether missing data could be categorized as MCAR. A nonsignificant *p*-value indicates that data can be interpreted as MCAR. In the present study, results of Little's MCAR indicated that missing could be considered MCAR (p =1.00). In this study, less than 10% of the data for any individual participant on any scale were missing. Consequently, PMS was used to replace missing data in the sample. The results presented in this study include the PMS scores that were imputed to handle missing data.

3.2 Preliminary Analysis

Data were subjected to a series of preliminary analyses to determine whether they met the assumptions of linearity, independence, normality, and homogeneity (equality) of error variance. The assumption of linearity states a linear relationship should exist between each of the outcome variables and predictor variables (Field, 2013). In this study, linearity was examined by constructing a series of scatterplots using the outcome variables (e.g., parental stress and children's effortful control) standardized residuals plotted against their predicted values. A visual inspection of these scatterplots revealed no curves in the relationships between the residuals and predicted values. This finding indicates that the assumption of linearity was satisfied for each outcome variable.

The assumption of normality is used to describe whether data are distributed on a bell-shaped pattern where the mean is zero and the standard deviation is one (Field, 2013).

For this study, normality was examined to determine the distribution of the data by (a) conducting a visual inspection of a normality plot and (b) computing the Shapiro-Wilks test. The Shapiro-Wilks test was chosen for the current data because it has been found to provide more statistical power compared to other tests of normality, particularly in sets of data with fewer than 2000 cases (Steinskog, 2007). For the Shapiro-Wilks test, a *p*-value of 0.05 or higher indicates a normal distribution (Ghasemi & Zahedisal, 2012). However, with a sample size above 50, the Shapiro-Wilks test has been criticized as too sensitive, so skewness and kurtosis were also examined to assess normality.

Visual inspection of the data as well as the Shapiro-Wilks test ($p > .05$) demonstrated that the effortful control, activation control, attention focusing, and inhibitory control variables were approximately normally distributed. However, parental stress and perceptual sensitivity did not meet the assumption of normality. Following this conclusion, box-plots along with skewness and kurtosis were constructed to identify potential outliers. Assessment of the box-plots, and the skewness and kurtosis values, confirmed that there were no influential outliers present in the dataset, so the decision was made to retain all cases for analysis.

The assumption of independent errors stipulates that there is no connection between the data of each participant to each other (Field, 2013). The assumption of independent errors was examined using the variance inflation factor (VIF) values of the independent variables. The VIF tests whether the independent variables are highly correlated with one another (Field, 2013). A VIF outcome value greater than five can indicate a threat to the independence of errors assumption (Myer, 1990). However, other research has suggested any value greater than three is cause for concern over multicollinearity (Thompson, Kim, Aloe & Becker, 2017). In the current study, the VIF values did not exceed the threshold of 5 (i.e., VIF = 1.45) so the assumption of independent errors was met. Finally, homoscedasticity was examined to determine whether the error of the variance of the residual terms was constant at each level of the predictor variables. The scatterplots were examined for homoscedasticity. A visual inspection of standardized residuals against predicted values of the outcome variables displayed no fanning out of values demonstrating no systematic relationship between values. Therefore, the assumption of

homoscedasticity was met. Together, these tests, along with the use of a more conservative estimation approach during path analysis, indicated that linear analysis was appropriate for the current dataset.

3.3 Research Question 1: How do parent-child conflict, parent dispositional mindfulness and child sex influence parent stress and children's effortful control?

Table 3.1 presents the descriptive statistics for the main study variables. To answer the first research questions, a series of Pearson-Product moment correlations were conducted to evaluate the bivariate relationships between the parent-child conflict, dispositional mindfulness, parental stress, and effortful control (Table 3.2). As expected, effortful control was highly correlated with each of its four subscales. Child effortful control had positive and statistically significant associations with activation control (r = .78, p < .001), attention focusing (r = .73, p < .001), inhibitory control (r = .68, p < .001), and perceptual sensitivity (r = .56, p < .001). Parent-child conflict was negatively and statistically significantly related to dispositional mindfulness (r = -.40, p < .001) and positively and statistically significantly associated with parental stress (r = .56, p < .001). Further, parent-child conflict was negatively statistically significantly correlated with children's effortful control (r = -.48, p < .001) and some of its subcomponents, including activation control (r = -.40, p < .001), attention focusing (r = -.39, p < .001) and inhibitory control (r = -.38, p < .001). Parent dispositional mindfulness was statistically significantly and negatively correlated with parental stress (r = -.54, p < .001) and was positively and statistically significantly related to children's effortful control (r = .28, p < .001), including activation control (r = .35, p < .001) and attention focusing (r = .30, p < .001). Parental stress was statistically significantly and negatively correlated with children's effortful control (r = -.31, p < .001) including activation control (r = -.24, p < .001), attention focusing (r = -.27, p < .001) and inhibitory control (r = -.20, p < .05). Perceptual sensitivity had a positive, statistically significant relationship with activation control (r = .21, p < .05) and attention focusing (r = .25, p < .05).

To investigate the relationship between child sex and aspects of children's effortful control, a series of one-way ANOVAs were computed. A Bonferroni correction was

applied to these analyses by dividing the *p* value by the number of ANOVAs computed (.05/3 = .017).

Table 3.1

Descriptive Statistics for Parent-Child Conflict, Parent Mindfulness, Parental Stress and Children's Effortful Control.

Variable	*M* (*SD*)	Min to Max	Skewness *(SE)*	Kurtosis *(SE)*
1. Parent-Child Conflict	2.13 (.77)	1.00-4.38	.72 (.24)	-.04 (.47)
2. Dispositional Mindfulness	3.98 (.92)	1.47- 6.00	-.46 (.24)	.11 (.47)
3. Parental Stress	2.16 (.50)	1.29- 4.00	.88 (.24)	1.16 (.47)
4. Activation Control	3.35 (.50)	2.00- 4.47	-.22 (.24)	-.16 (.47)
5. Attention Focusing	3.47 (.82)	1.29- 5.00	-.46 (.24)	-.03 (.47)
6. Inhibitory Control	3.15 (.55)	1.50-4.13	-.47 (.24)	.47 (.47)
7. Perceptual Sensitivity	3.78 (.52)	1.60-4.90	-.84 (.24)	1.91 (.47)
8. Effortful Control	3.44 (.40)	2.48-4.38	-.28 (.24)	.28 (.47)

The Bonferroni adjustment was used to reduce the probability of Type I error, which occurs when a false positive is obtained. In the current study, statistical significance for the ANOVAs was calculated to be acceptable at the $p < .017$ value. Results demonstrated that there was a statistically significant effect of sex on parents' ratings of children's effortful control variable, F (1, 104) = 6.86, p = .01, η^2 =.06, corresponding to a medium effect size. Specifically, girls were rated by parents as having higher levels of effortful control (M = 3.51, SD = .40) compared to boys (M = 3.32, SD = .35). Based on this finding, the specific subsets of effortful control were investigated for sex differences. Results demonstrated a statistically significant effect of sex on children's attention focusing, F (1, 104) = 6.78, p = .01, η^2 =.06, indicating a medium effect size, where girls were rated as having better attention focusing (M = 3.66, SD = .80) compared to boys (M = 3.25, SD = .80), and a statistically significant sex difference was found in inhibitory control, F (1, 104) = 9.40, p = .003, η^2 =.08, indicating a medium effect size, where girls were rated higher in inhibitory control (M = 3.29, SD = .48) compared to boys (M = 2.98, SD = .57).

Table 3.2

Intercorrelations Among Parent-Child Conflict, Parent Dispositional Mindfulness, Parental Stress and Children's Effortful Control.

Variable	1	2	3	4	5	6	7	8
1. Parent-Child Conflict	-							
2. Dispositional Mindfulness	-.40**	-						
3. Parental Stress	.56**	-.54**	-					
4. Activation Control	-.40**	.35**	-.24**	-				
5. Attention Focusing	-.39**	.30**	-.27**	.37**	-			
6. Inhibitory Control	-.38**	.15	-.20**	.39**	.44**	-		
7. Perceptual Sensitivity	-.15	-.08	-.14	.21*	.25*	.18	-	
8. Effortful Control	-.48**	.28**	-.31**	.78**	.73**	.68**	.56**	-

Note: $*p < .05$, $**p < .001$. Correlations should be interpreted using the following effect size guidelines whereby: 0.1 (small effect), 0.3 (medium effect), 0.5 (large effect).

To further investigate the first research question, a path analysis was conducted using MPlus Version 8 (Muthén & Muthén, 2017) to examine the direct relationships among parent-child conflict, dispositional mindfulness, child sex, parental stress and children's development of effortful control. Path analysis provides an estimate of the magnitude and significance of hypothesized predictive relationships between sets of variables. As such, path analysis allows researchers to examine the direct effects of variables within a dataset (Stage, Carter, & Nora, 2004). The path model computed in this study utilized maximum likelihood estimation with robust standard errors (MLR) which is less sensitive to data that may not conform to the assumptions of normality and linearity (Rosseel, 2010). It

allowed for the examination of the direct effects of parent-child conflict, parent dispositional mindfulness and child sex on the parental stress and children's effortful control variables (see Figure 3.1). The path model constructed employed parent-child conflict, parent dispositional mindfulness and child sex as predictors of parental stress and children's effortful control. The standardized regression coefficients (β) are presented along each path in the model. The model-data fit was examined using the Root Mean Square Error of Approximation (RMSEA) and Comparative Fit Index (CFI) values. The threshold for acceptance of these indices have been determined where, RMSEA values less than .06, and CFI values equal or greater to .95 are considered acceptable (Field, 2013). The current model indicated excellent fit, with a RMSEA= .04 and CFI = 1.00.

Results of the study demonstrated that a positive statistically significant and direct effect was observed between parent-child conflict and parental stress (β = .41, $p < .001$). Further, results of the study demonstrated a negative statistically significant and direct effect between parent-child conflict and children's effortful control (β = -.43, $p < .001$). These results indicate that increased parent-child conflict, including instances where the child rejects affection from the parent, positively predicts parental stress, which includes such things as parents feeling as though they are not doing enough for their child. This finding suggests that higher conflict in the parent-child relationship, is linked to increased parental stress. Additionally, these results indicate that parent-child conflict is a negative predictor of children's effortful control, meaning, higher parent-child conflict may result in reduced child effortful control, including trouble inhibiting automatic behaviours.

In addition, a negative direct and statistically significant negative effect was observed between dispositional mindfulness and parental stress (β = -.38, $p < .001$), indicating that dispositional mindfulness is a negative predictor of parental stress. In other words, parents with higher levels of dispositional mindfulness, involving focused attention and emotional awareness, report lower parental stress, including lower reports of feeling like their child has left little flexibly in their life. Finally, a direct and statistically significant positive relationship was observed between child sex and children's effortful control (β = .25, $p = .002$), indicating that child sex is directly predictive of children's effortful control

in this sample. In other words, girls tended to be rated higher on effortful control abilities compared to their male counterparts.

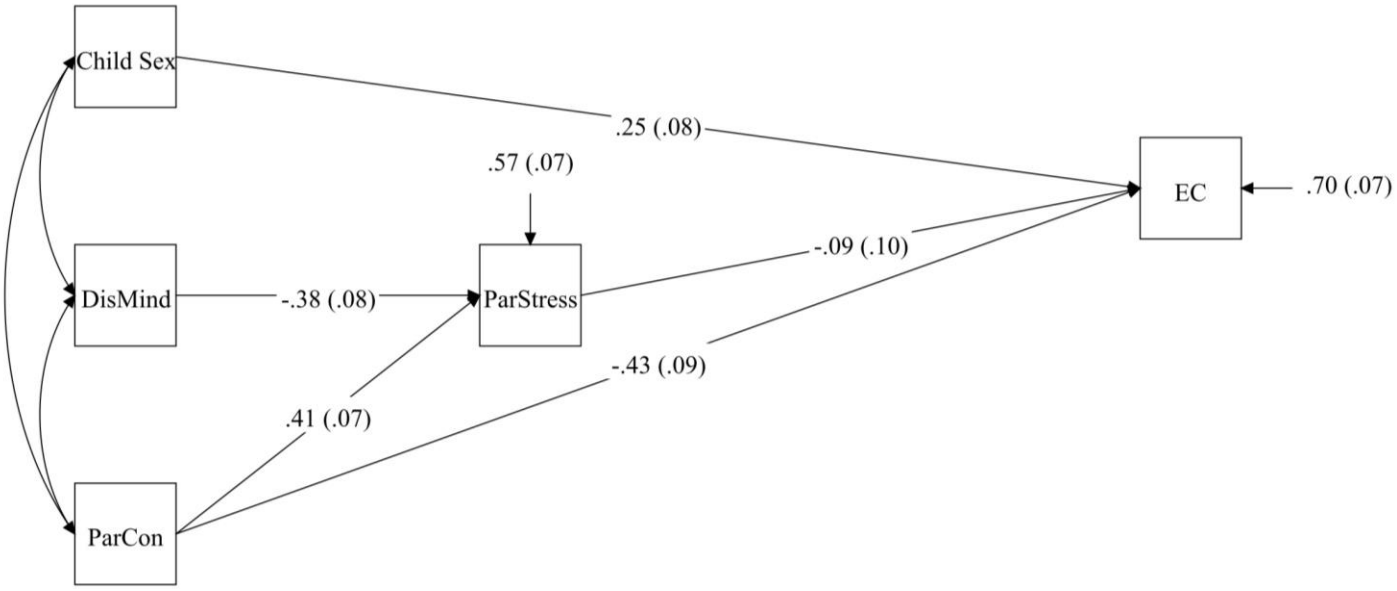

Figure 3.1: Path analysis demonstrating statistically significant relationships between child sex (Child Sex), dispositional mindfulness (DisMind), parent-child conflict (ParCon), parental stress (ParStress) and children's effortful control (EC)

Note. Standardized effects are reported. Standard error is presented in brackets.

3.4 Research Question 2: What is the role of dispositional mindfulness in the relationship between parent-child conflict and children's activation control, and in the relationship between parent-child conflict and parent stress?

To examine this research question, a mediation analysis was constructed to examine the direct and indirect relationships using SPSS Version 25 (IBM Corp., 2017) and the Preacher and Hayes (2008) mediation macro *"Process"* which allows for the simultaneous computation of the statistical paths assigned to the mediation models. Mediation is a statistical analysis technique used to understand the "causal" relationship between a predictor variable X on the criterion variable Y through an intervening variable M. Mediation is a multiple regression approach to test the paths in the model.

Traditional mediation analyses, specifically the causal steps approach (Baron & Kenny, 1986), have focused on establishing a causal pattern in the mediation relationship, where path A predicts the relationship between the predictor variable and the mediating variable, path B predicts the relationship between the mediating variable on the outcome variable, path C predicts the relationship of the predictor variable on the outcome variable and path C' predicts the relationship of the predictor variable on the outcome variable, when controlling for the mediating variable. The causal steps approach is used to understand the mechanism through which the predictor variable impacts the outcome variable, through some mediating variable. As such, establishing this pattern requires statistically significant correlations along each path. These criteria must be met in order to investigate whether a mediation exists. Additionally, to determine that complete mediation exists in the model, path C', should be zero.

However, in contemporary approaches to mediation analyses, the total and direct effects of the relationship between the predictor variable and outcome variable are emphasized and the precondition that the predictor must be correlated with the outcome variable has been deemphasized (Hayes, 2018). To determine these effects, the relationship of X on M and M on Y need to be computed. However, in contemporary approaches to mediation analysis, these path effects are not the primary foci for determining mediation.

Hayes's (2018) approach to mediation analysis was utilized in this study, where the total effect and direct effect of X on Y were examined, along with the 95% confidence interval, to determine whether mediation was present in the model. In the present study, (a) a negative and statistically significant relationship was found between parent-child conflict and children's attention focusing and (b) a positive statistically significant relationship was found between dispositional mindfulness and children's attention focusing. For this analysis, parent-child conflict was the independent/predictor variable, dispositional mindfulness was the mediator variable and attention focusing was the criterion variable. Mediation was examined by determining whether the negative relationship between parent-child conflict and children's attention focusing changed in the presence of dispositional mindfulness (Figure 3.2). Results demonstrated that parents who perceived more parent-child conflict in their relationship with their child reported

lower dispositional mindfulness than parents' who reported lower parent-child conflict (A = -.47). However, parents who reported more dispositional mindfulness, even when reporting the same amount of perceived parent-child conflict, did not report a difference in their child's attention focusing (B = .15). Finally, a bootstrapped confidence interval for the indirect effect (effect = -.07) based on 5,000 bootstrap samples crossed over zero (LLCI = -.18 and ULCI = .01), indicating that mediation did not exist in this model. In this model, there was evidence that parent-child conflict influenced children's attention focusing independently, direct effect (C' = -.34, p = .0014).

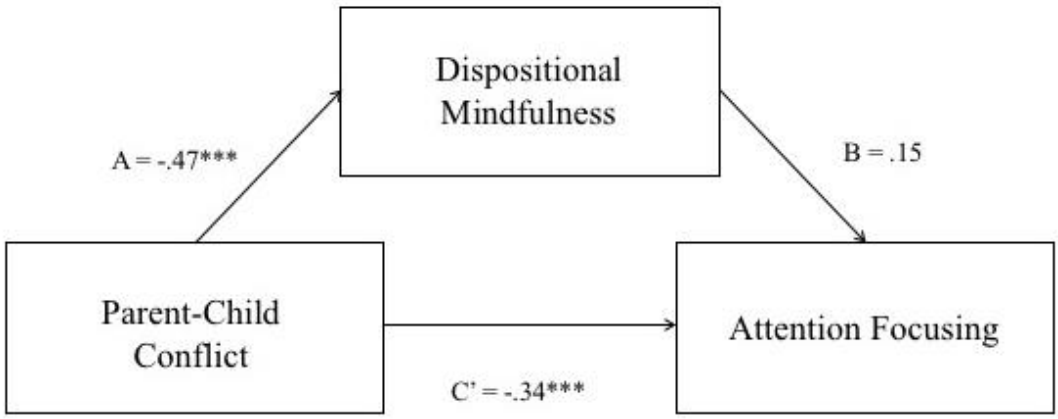

Figure 3.2 Mediation model of parent-child conflict, attention focusing and dispositional mindfulness. *Note:* ***p < .001

Also, this study found, (a) a statistically significant negative relationship between parent-child conflict and children's activation control and (b) a positive relationship between dispositional mindfulness and children's activation control. Mediation analysis was run to determine whether the negative relationship between parent-child conflict and children's activation control would change in the presence of dispositional mindfulness. In this analysis, parent-child conflict was the independent/predictor variable, dispositional mindfulness was the mediator variable and activation control was the criterion variable (Figure 3.3).

Parents who perceived more parent-child conflict in their relationship with their child reported lower dispositional mindfulness than parents' who reported lower parent-child

conflict (A = -.47). Additionally, parents who reported more dispositional mindfulness, even when reporting the same amount of perceived parent-child conflict, reported that their child had higher levels of activation control (B = .12). Finally, a bootstrapped confidence interval for the indirect effect (effect = -.06) based on 5,000 bootstrap samples was entirely below zero (LLCI = -.12 and ULCI = -.002). In the mediation model, there was evidence that parent-child conflict influenced children's activation control, direct effect equals, (C' = -.21, p = .0014). Findings from this study demonstrated that parents' dispositional mindfulness was a statistically significant partial mediator of the relationship between parent-child conflict and children's activation control and parent-child conflict directly influenced children's activation control. Meaning, in the presence of dispositional mindfulness, the negative relationship between parent-child conflict and children's activation control was reduced.

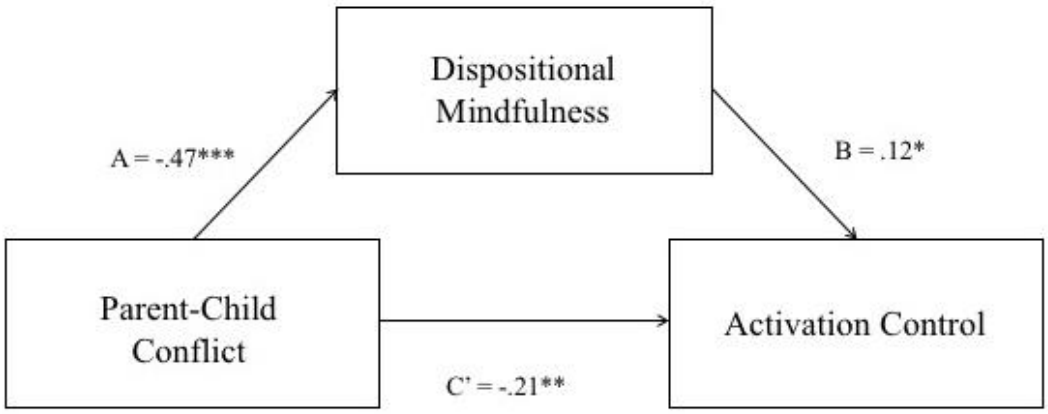

Figure 3.3: Mediation model of parent child-conflict, activation control and dispositional mindfulness. *Note:* *p < .05, **p < .005, ***p < .001

In the present study, a positive and statistically significant relationship was found between parent-child conflict and parental stress. Therefore, dispositional mindfulness was investigated as a potential mediator in the relationship between parent-child conflict and parental stress. A simple mediation analysis was computed using the Preacher and Hayes mediation macro described previously. In this analysis, parent-child conflict was the independent/predictor variable, dispositional mindfulness was the mediator, and parental stress was the criterion (Figure 3.4). Results demonstrated that parents who

perceived more conflict in their relationship with their child reported lower dispositional mindfulness than parents' who reported lower parent-child conflict (A = -.47). Additionally, parents who reported more dispositional mindfulness, even when reporting the same amount of perceived parent-child conflict, reported lower levels of parental stress (B = -.21). Finally, a bootstrapped confidence interval for the indirect effect (effect = .10) based on 5,000 bootstrap samples was entirely above zero (LLCI = .03 and ULCI = .18). There was evidence that parent-child conflict influenced parental stress, direct effect equals (C' = .27, $p < .0001$). Findings from this study demonstrated that parents' dispositional mindfulness was a statistically significant partial mediator of the relationship between parent-child conflict and parental stress and parent-child conflict directly influenced parental stress. Meaning, the degree to which parent-child conflict positively influences parental stress was reduced in the presence of parents' dispositional mindfulness.

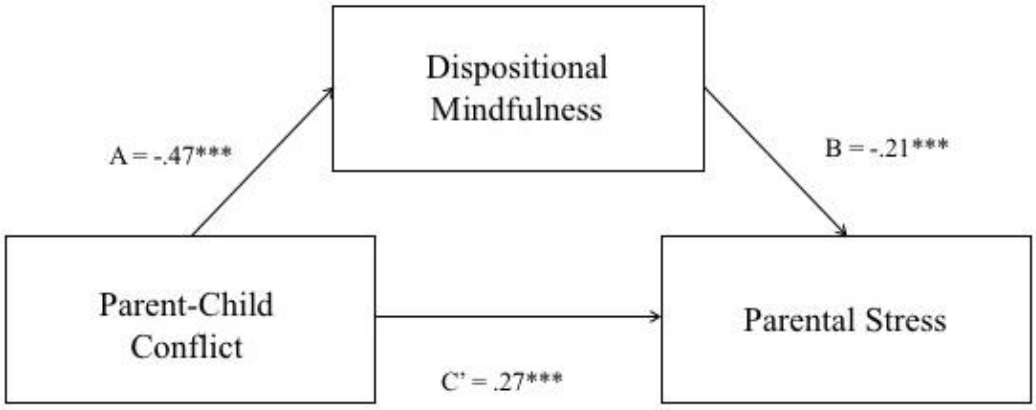

Figure 3.4: Mediation model of parent-child conflict, parent stress and dispositional mindfulness. *Note:* ***$p < .001$

3.5 Research Questions 3: How do parents describe children's strengths and challenges at different levels of parental dispositional mindfulness?

To understand if parents who are categorized as high or low in their dispositional mindfulness differ in how they describe their child's strengths or challenges at home,

parents' scores on the dispositional mindfulness variable, were standardized. Parents whose dispositional mindfulness scores were at least one standard deviation above the sample mean were designated as "high" in this variable. Further, parents whose dispositional mindfulness scores were at least one standard deviation below the sample mean were labeled as "low" in this variable. In total, 19 parents were categorized as high in dispositional mindfulness (1 Father) and 15 parents were categorized as low in dispositional mindfulness (2 Fathers). Parent dispositional mindfulness and written responses regarding children's strengths and challenges at home were uploaded onto Dedoose Version 8.1.8 (SocioCultural Research Consultants, 2019) and coded using the TMCQ (Simonds & Rothbart, 2004) subscales of surgency, negative affect and effortful control, respectively.

An outline of parent responses for both high and low categorization of dispositional mindfulness can be found in Table 3.3. Results of the qualitative analysis indicated that parents who were identified as high in dispositional mindfulness described strengths of their child that were associated with activation control, activity level, affiliation, attention focusing, cognitive flexibility, emotional regulation, imagination, inhibitory control, independence, low intensity pleasure, and perceptual sensitivity. Further, parents categorized as high in dispositional mindfulness listed challenges of their child that were associated with activation control, affiliation, attention focusing, emotional regulation, independence, inhibitory control and perceptual sensitivity.

On the contrary, parents categorized as low in dispositional mindfulness were more likely to list child strengths that were related to activation control, activity level, affiliation, cognitive flexibility, imagination, independence, and perceptual sensitivity. Additionally, parents classified as low in dispositional mindfulness, outlined challenges related to children's activation control, activity level, affiliation, emotional regulation, high intensity pleasure, imagination, impulsivity, and inhibitory control.

Taken together, qualitative findings indicate that parents' dispositional mindfulness may influence parents' recognition of the strengths and challenges in their children's self-regulation at home. For example, parents who were high in dispositional mindfulness

listed both strengths and challenges in their child's self-regulation that are associated with traits of effortful control. More specifically, these parents listed strengths of their child that were associated with attention focusing (e.g., "Listens very well") but also listed challenges in attention focusing (e.g., "Hard to keep focused when doing something not interested in"). In other words, qualitative responses from parents who were categorized as high in dispositional mindfulness would suggest that these parents appear more attuned to traits in their child that are associated with self-regulation, and more specifically, effortful control. Along with attention focusing, these parents listed strengths and challenges in activation control, cognitive flexibility, emotional regulation, inhibitory control, low intensity pleasure and perceptual sensitivity, which are all aspects of effortful control. In this study, it appears that parents who are higher in dispositional mindfulness are more aware of their child's self-regulation.

In contrast, parents who were categorized as low in dispositional mindfulness listed strengths and challenges of their child that were primarily linked to surgency. Surgency is the dimension of temperament associated with personal affect. For example, parents categorized as low in dispositional mindfulness listed strengths of their child related to qualities including independence (e.g., "loves to explore") and listed challenges related to qualities including impulsivity (e.g., "Acts before thinking"). Other surgency traits that low dispositional mindfulness parents listed as challenges for this child included activity level, affiliation, high intensity pleasure and imagination. Further, parents categorized as low in dispositional mindfulness reported more instances of increased challenges in specific traits for their child at home. This finding may indicate that parents who are low in dispositional mindfulness believe that these were traits they had to control as a parent rather than provide co-regulation to support their children in learning how to engage in more adaptive forms of them. This finding may suggest that parents lower in dispositional mindfulness are more receptive to qualities of their child's behaviour that are related to personal affect, like those associated with surgency.

Table 3.3

Excerpts of Children's Strengths and Challenges at Home by Parents Classified as High and Low in Dispositional Mindfulness

Mindfulness Level	Dimension	Coding Category	Excerpt	Strength	Challenge
High Dispositional Mindfulness	Effortful Control	Activation control	"Always willing to help others"	✓	
	Surgency	Affiliation	"Social… enjoys being with others"	✓	
	Effortful Control	Attention focusing	"Listens very well"	✓	
			"Hard to keep focused"		✓
	Effortful Control	Cognitive flexibility	"Picks up skills/concepts quickly"	✓	
			"Difficulties asking for help"		✓
	Effortful Control	Emotional regulation	"Strong emotional regulation skills"	✓	
	Surgency	Imagination	"Creative"	✓	
	Surgency	Independence	"Assertive about own needs and preferences"	✓	
			"Afraid to try new things"		✓
	Effortful Control	Perceptual sensitivity	"Very understanding"	✓	
			"Very sensitive"		✓
Low Dispositional Mindfulness	Effortful Control	Activation control	"Very slow…or very fixated on one thing"		✓
	Surgency	Activity level	"Lively and active"	✓	
	Surgency	Affiliation	"Often bullying other children"		✓
	Surgency	High intensity pleasure	"Not aware of danger"		✓
	Surgency	Imagination	"Makes up stories"		✓
	Surgency	Impulsivity	"Acts before thinking"		✓
	Surgency	Independence	"Loves to explore"	✓	
	Effortful Control	Inhibitory control	"Can't patiently wait for us"		✓

Chapter 4

4 Discussion

Previous literature has demonstrated the importance of early self-regulation skills for later success in life (Bandura, 2005; Deci, Ryan & Williams, 1996; Diamond, 2016; Gestsdottir & Lerner, 2008; Schunk & Zimmerman, 2003), and has linked the parent-child relationship, with the development of self-regulation (Bernier et al., 2015; Bernier et al., 2010; Schroeder & Kelley, 2010). Specifically, co-regulation and effective modeling by parents have been shown to be influential on children's development of self-regulation skills (McCaslin, 2009; Murray et al., 2015; Vygotsky, 1978). In addition, parent factors such as parental stress have been linked to less positive relationships between parents and children (de Cock et al., 2017). Over the last quarter century, there has been an increase in research investigating the influence of mindful parenting on parent-child relationship quality and parental stress, but less research investigating how parent dispositional mindfulness is related to child outcomes, including self-regulation.

The current study utilized a mixed methods research design to investigate how parent-child conflict and dispositional mindfulness were related to parental stress and young children's self-regulation at home. First, this study explored the direct effect of parent-child conflict on parental stress and children's effortful control. Second, the present study investigated the direct effect of parent dispositional mindfulness on parental stress. Third, this study examined the direct effect of child sex on children's effortful control. Fourth, this study examined the mediating role of dispositional mindfulness in the relationships between (a) parent-child conflict and children's activation control and (b) parent-child conflict and parental stress. Finally, this study investigated whether parents who are categorized as high or low in their dispositional mindfulness differ in how they describe their child's strengths and challenges at home. In the section below, the findings from the study are discussed. Next, the study limitations and strengths, implications, and directions for future research are presented.

4.1 Research Question 1: How do parent-child conflict, parent dispositional mindfulness, and child sex influence parental stress and children's effortful control?

This study found that parent-child conflict was a direct negative predictor of children's effortful control. That is, parents who reported more perceived conflict with their child, categorized by perceived negativity in the parent-child relationship, including prolonged child anger after confrontation or discipline, also reported lower levels of child effortful control, including difficulty doing things they are not interested in (e.g., smiling at someone they do not like), focusing attention, inhibiting automatic behaviours, or being aware of changes to their environment (e.g., noticing a change in a parent's clothing). To date, research has demonstrated that relationship quality, specifically more positive relationships between parent and child, including secure attachment and responsive parenting, is predictive of higher executive functions (Bernier et al., 2015), but constructive conflict, which includes negotiation, justification and resolution, is also important for child development and socialization (Driscoll & Pianta, 2011). Findings from this study contribute to the literature by demonstrating that the opposite relationship may also be true, where more negative parent-child interactions, like those associated with destructive parent-child conflict, are negatively associated with children's development of effortful control. Additionally, findings from this study may also demonstrate that less adaptive child effortful control may result in more negative parent-child interactions. However, more research is needed to investigate this possibility.

These results have implications for parents in guiding their interactions with children in ways that are likely to encourage children's participation in self-regulation. In addition, findings from this study invite parents to consider the quality of the relationships they have with their children and the extent to which it involves negative and/or positive interactions. These findings serve to raise the question as to whether specific aspects of parent-child conflict may curtail children's self-regulation. Furthermore, understanding the dimensions of the parent-child relationship, including attachment and *both* parent-child closeness and parent-child conflict, as they are related to children's self-regulation, may give professionals working with families strategies for addressing concerns about children's development of self-regulation as it arises, and whether aspects of the home environment or family functioning could be altered to promote self-regulation.

Second, results of this study demonstrated that parent-child conflict had a positive and direct effect on parental stress. That is, parents who reported perceptions of higher negativity in the parent-child relationship, including drained energy from interacting with their child, also reported such outcomes as feeling overwhelmed in the parenting role. This finding corroborates previous research which has found a bidirectional relationship between parent-child relationship quality and parental stress, where lower parent-child relationship quality was predictive of parental stress and parental stress was predictive of lower parent-child relationship quality (de Cock et al., 2017). This evidence contributes to the literature by demonstrating that a direct relationship also exists, in that parents who report higher levels of parent-child conflict, report higher parental stress. Additionally, research by Cappa et al., (2011) determined that parenting stress was associated with deficits in children's development of and engagement in self-regulation and the literature has demonstrated that parent stress may be a precursor to unrealistic expectations of appropriate child behaviour, such that parents attribute normal variations in their child's behaviours and emotions to negative behaviour (Deater-Deckard, 1998). To elaborate, children are still developing self-regulation skills between the ages of three to seven, including emotional regulation, so it is typical for a child to experience struggles learning how to regulate strong emotions (Kochanska et al., 2001; Siegler, Eisenberg, DeLoache, Saffran & Graham, 2014). However, if the parent finds unpredictability in their child's emotional regulation troubling, it could potentially lead to reduced parent-child relationship quality and increased parental stress.

The current study supports previous research that has determined that lower parent-child relationship quality (i.e., parent-child conflict) resulted in higher self-reports of parental stress. The findings presented in this study affirm the conclusion that establishing a positive parent-child relationship and developing strategies to deal with parent-child conflict when it arises, appears to benefit children and parents (i.e., reduced stress). Parents who have higher quality relationships with their child, along with a secure attachment, report lower stress, and their child demonstrates better emotional well-being (Santos-Nunes et al., 2017). The literature has revealed that chronically high levels of stress results in the overproduction of the stress hormone cortisol, which has been linked to the deterioration of physical health (e.g., heart disease, diabetes) and negative psychological outcomes (e.g., higher anxiety, impaired memory; Kadzikowska-Wrzosek, 2012). However, an area for future research to investigate would be whether parental

stress may be reduced through the development of effective approaches to deal with parent-child conflict as it arises as well as the cultivation and maintenance of a positive parent-child relationship.

Third, consistent with previous research, results of this study found that dispositional mindfulness was a direct negative predictor of parental stress (Gouveia et al., 2016). This aligns with previous research that has determined that high dispositional mindfulness is associated with lower levels of parenting stress, more confidence in parenting abilities and higher instances of positive parenting behaviours (Gouveia et al., 2016; Lippold et al., 2019; Meiklejohn et al., 2012). This contributes an important finding to previous literature that has investigated the impact of cultivated mindfulness, through mindfulness training (e.g., Chaplin et al., 2018), by demonstrating that dispositional mindfulness (i.e., baseline levels of mindfulness) is also associated with lower levels of perceived parenting stress.

Conclusions drawn from this study have implications for parents in selecting approaches to reduce stress levels at home. For example, with a sample of older children, Chaplin et al., (2018) utilized randomized control trials, and found that in a sample of adolescents, mindfulness parenting training, versus parenting education, was more effective at reducing aspects of parent stress and improved the relationship between parents and their child from pre to post test. This conclusion, combined with results from the current study, may indicate that utilizing an intervention which promotes mindful parenting practices, for example increasing emotional awareness and listening with full attention, not only provides the parent with tools to support a better relationship with their child, it also has the added benefit of providing the parent with a mechanism through which they can reduce their own perceived stress (Chaplin et al., 2018). However, research is needed to investigate if the same patterns present with parents of older children are present for parents of younger children as well. Additionally, these findings raise questions as to whether specific aspects of parent mindfulness may decrease parental stress. Specifically, future research could benefit from investigating what dimensions of mindful parenting are most closely related to parental stress and the quality of the parent-child relationship. Investigating these specific factors may give families ideas of ways in which to better manage stress at home, including the stress that may arise from difficult interactions between parent and child. Learning to manage parental stress is critical for parents because as

children develop, and transition from childhood to adolescence, stress levels often increase for parents (Chaplin et al., 2018). This increased stress may result from the child's increased need for autonomy and reduced parental control (Branje, 2018).

Results of this study also found that dispositional mindfulness had a positive relationship with aspects of children's effortful control including activation control and attention focusing. This result supports previous research that has linked dispositional mindfulness to individual outcomes and extends the literature by indicating that parent dispositional mindfulness is also related to child outcomes, specifically children's activation control, which is an aspect of their self-regulation. Activation control and attention focusing are key components of effortful control, and effective effortful control has been linked to fewer internalizing and externalizing problems in children (Rothbart, 2007). This finding supports previous research that has demonstrated that parental dispositional mindfulness is associated with positive child outcomes, including lower internalizing and externalizing problem behaviours, and better emotional regulation (Parent et al., 2016; Zhang, Wang & Ying, 2019). This study demonstrates the positive association parental dispositional mindfulness has with children's development of key factors associated with self-regulation. Findings suggest that parents may benefit from learning mindful parenting practices to help encourage children's development of self-regulation at home, but additional research is needed to affirm this.

In addition, results of this study found that child sex was a direct predictor of children's effortful control. The current study indicated that when compared to their male counterparts, parents scored girls higher on attention focusing and inhibitory control specifically. This finding aligns with previous research which has found that during the early elementary school years, girls tend to outperform boys on executive function tasks (e.g., HTKS task) and teachers tend to report better self-regulation skills in girls at this age, specifically in attention focusing and inhibitory control (Hutchinson, 2013; Kochanska et al., 2000; Matthews et al., 2009). Attention focusing and inhibitory control have been shown to predict school readiness, academic achievement and positive school experiences (Bandura, 2005; Cadima, Doumen, Verschueren & Buyse, 2015; Deci, Ryan, & Williams, 1996; Diamond, 2016; Gestsdottir & Lerner, 2008; Ramdass & Zimmerman, 2011; Schunk & Zimmerman, 2003). Additionally, results of the current study did not demonstrate any statistically significant sex differences in parents' reports of their child's

activation control or perceptual sensitivity, which are other important dimensions of effortful control. Findings from the current study point towards the importance of supporting self-regulation development in all children from a young age in order to equip them with the necessary self-regulation skills needed to excel in life.

Finally, results of the current study demonstrated that parental stress had a negative relationship with children's effortful control. Specifically, parental stress was negatively associated with children's activation control, attention focusing and inhibitory control. Evidence from this study adds support to previous research that has demonstrated that increased levels of parental stress are associated with adverse child outcomes, including poor behavioural, social-emotional and cognitive development (Cappa et al., 2011; Curby et al., 2011; Stelter & Halberstadt, 2011). This study further supports the need to establish ways in which parents can reduce their stress levels, which may provide more opportunities and support for children's self-regulation.

Together, findings from this study confirm that the parent-child relationship, specifically, parent-child conflict, is linked to parents' dispositional mindfulness, parental stress and children's self-regulation. They demonstrate the importance of facilitating positive interactions between parent and child when conflict arises. Engaging in constructive parent-child conflict is important for children's development, therefore it is important to ensure that when conflict does arise, parents are providing appropriate co-regulation so that children have opportunities to develop their socialization skills through navigating that conflict with their parent in an effective manner (Driscoll & Pianta, 2011). Therefore, teaching parents about effective ways to navigate the inevitable conflict in their relationship with their child may not only reduce parental stress but also support positive development of children's self-regulation from as young as four years old. Finally, these findings point towards important areas for future research to investigate in order to develop a better understanding of whether the use of mindfulness to establish positive parenting behaviours and higher relationship quality when children are young, in turn leads to greater support of children's development of and engagement in self-regulation at home.

4.2 Research Question 2: What is the role of dispositional mindfulness in the relationship between parent-child conflict and children's activation control, and in the relationship between parent-child conflict and parental stress?

The results of this study demonstrated that dispositional mindfulness was a mediator in the relationship between parent-child conflict and children's activation control. This finding points to an area for future research to further investigate how the direct negative association between parent-child conflict on children's activation control may be reduced by the presence of parent dispositional mindfulness. Nevertheless, results from the current study add support to previous research which has demonstrated that mindful parenting is associated with more adaptive and effective parenting behaviours and styles, including better comfort and communication between parent and child. Also, parents with higher dispositional mindfulness may have an advantage in responding to children's behaviours as they may be more sensitive and responsive to their child's needs, so they are less likely to engage in automatic or maladaptive responses (Lippold et al., 2019; Parent et al., 2016). Further, previous literature has outlined the importance of co-regulation and positive modeling from parents in children's development of self-regulation (Hadwin, Järvelä & Miller, 2011; McCaslin, 2009). Mindfulness in the parenting relationship may provide opportunities for other critical self-regulatory processes to emerge within the relationship including, co-regulation, and shared regulation both of which include the social and personal interactions between child and parent that help to shape children's cognitive processes (Vygotsky, 1978). Further, effective modelling of appropriate behaviour by parents can also aid in children's development of self-regulation, as it involves characteristics such as emotional awareness of one's own needs and listening with full attention (Duncan et al., 2009).

It is possible that as parents adopt more mindfulness in their parenting practices, they may be better able to attend to children's body language, tone of voice and speech (Duncan et al., 2009). This awareness of physical features aligns with the concept of perceptual sensitivity, where children are aware of such things as a change in their parent's appearance or scents in a room (Simonds & Rothbart, 2004). These features link parental mindfulness with the co-regulation behaviours identified as important for child's development of self-regulation (Coatsworth et al., 2010; McCaslin, 2009; Perry et al., 2018; Vygotsky, 1978). To add, the positive parenting behaviours that are associated with parental mindfulness, including higher emotional awareness

and the inhibition of automatic responding, can provide opportunities to model the skills children need to develop for the future. This result raises the questions as to whether teaching mindful parenting practices to new or expecting parents, would be an effective way to begin to set the necessary foundation for children's later development of self-regulation. In addition, higher parent-child relationship quality has not only been associated with better individual outcomes for children but has also been linked to better social outcomes as children progress through school, including better peer relationships and social competence (Coleman, 2003). Finally, parental mindfulness appears to be critical as children mature, as adolescents tend to share less information with parents verbally. Meaning, parents' abilities to listen with full attention becomes even more vital, and it becomes necessary for parents to pick up cues from their child's body language in order to obtain as much information as possible (Duncan et al., 2009)

Results of the second mediation analysis demonstrated that dispositional mindfulness served to mediate the relationship between parent-child conflict and parental stress. Specifically, the negative relationship of increased parent-child conflict with parents' stress was reduced in parents who reported higher levels of dispositional mindfulness. This result aligns with previous literature which has demonstrated that parents with higher dispositional mindfulness tend to utilize mindful parenting practices, which are characterized as being compassionate and emotionally understanding in the parent-child relationship, which may result in lower levels of parenting stress (Chaplin et al., 2018; Gouveia et al., 2016). Additionally, increased parental mindfulness has been linked to better relationships between parents and children, and more positive parent-child relationships have been shown to result in lower instances of parenting stress (de Cock et al., 2017; Chaplin et al., 2018). These conclusions, along with the findings from the current study, point to the idea that parents may benefit from learning mindful parenting techniques to enhance their parenting and support more effective relationships with their children. Compared to previous research, the current study's results also demonstrated the importance of establishing more mindful parenting practices when children are as young as four years old to work to reduce parental stress, and in turn, establish more positive parenting behaviours.

Overall, outcomes from both mediation analyses suggested that dispositional mindfulness (a) reduces the magnitude of the negative relationship between parent-child conflict and children's

activation control and (b) reduces the magnitude of the positive relationship between parent-child conflict and parental stress. These are interpreted to mean that parents who are consciously aware of their actions in the present moment, those who listen to their child with focused attention and are actively aware of their own emotions along with their child's emotions, may help to negate some of the negative consequences parent-child conflict has on both child and parent outcomes. Additionally, taken with other previous research which has investigated the relationship of mindfulness on the parent-child relationship, children's development and parenting stress (Duncan et al., 2009; Gouveia et al., 2016; Lippold et al., 2019; Parent et al., 2016), results from the current study have implications for future work, suggesting that mindfulness training and mindfulness parenting may be beneficial for reducing levels of parent stress from childhood to adolescence. In addition, mindful parenting may be supportive of navigating instances of parent-child conflict more effectively. Finally, these findings raise the question, "How sustainable are mindful parenting practices when utilized and supported starting when the child is still as young as four years old?". In other words, does the influence of mindful parenting practices, that begin when the child is as young as four years old, carry forward as the child develops?

4.3 Research Question 3: How do parents describe children's strengths and challenges at different levels of parental dispositional mindfulness?

To answer this research question, qualitative data gathered from parents' written responses regarding their child's strengths and challenges at home were employed to explore if differences were observed in the ways that parents who were high in dispositional mindfulness described these strengths and challenges compared to parents categorized as low in dispositional mindfulness.

Results from this study demonstrated that parents who were high in dispositional mindfulness identified a broader range of strengths in their child and reported more instances of strengths and challenges of their child's behaviour that are related to effortful control specifically. Effortful control includes the self-regulatory processes of behavioural inhibition and executive attention, along with activation control, low intensity pleasure and perceptual sensitivity (Rothbart & Bates, 2006). More specifically, parents categorized as high in dispositional mindfulness

appeared to be more aware of their child's behaviours and actions that are related to self-regulation. This finding suggests that higher dispositional mindfulness, categorized by more awareness in the present moment, self-regulation in parent-child interactions and nonjudgmental acceptance of self and child, may result in an increased awareness of features of children's behaviour that are necessary for successful self-regulation (Coatsworth et al., 2010). These parents appear to provide the freedom and support their children need to learn and develop these self-regulatory skills. Based on previous research that has demonstrated the importance of co-regulation and scaffolding from parents to aid in children's development of self-regulation, the focused awareness and self-regulation that are associated with increased dispositional mindfulness may be features of parent behaviour that provide this necessary modelling (Coatsworth et al., 2010; McCaslin, 2009; Perry et al., 2018; Vygotsky, 1978). Furthermore, child effortful control has been related to better attentional flexibility and perspective taking that are necessary to appropriately react to others' negative feelings without taking them on and to avoid situations where conflict may arise (Rothbart, 2007). This is similar to research in mindfulness which has found that individuals who have higher levels of mindfulness tend to exercise better focus on experiences in the present moment, leading to less negative feelings towards difficult circumstances and improved tolerance of affect (Bishop et al., 2004).

Additionally, some parents categorized as high in dispositional mindfulness had more flexible beliefs that their child was capable of changing over their development. For example, one parent indicated that their child is often impatient but also said, "…we remind her, and she is learning to cope with it." Responses like these appear to indicate that these parents are understanding of their child's developmental progress and adopt beliefs that with time and support, their child can overcome their current behavioural challenges. Recent research has demonstrated that children who interact with adults, including parents and teachers, who approach children's development and learning with a growth mindset (e.g., a belief that their skills can improve with hard work and persistence) show better academic outcomes including reading and expressive language skills (Andersen & Nielsen, 2016). Overall, the link between parents' dispositional mindfulness and their awareness of their child's self-regulation, and effortful control specifically, is supportive of previous research which has separately linked effortful control and mindfulness to empathy and attention focusing. In addition, these qualitative findings suggest that dispositional

mindfulness in parents may lead to better awareness of and empathy towards the child's development of these important skills.

Conversely, qualitative results also indicated that parents categorized as having lower levels of dispositional mindfulness are more aware of their child's behaviours that are associated with surgency. Surgency is the dimension of temperament that describes personal affect. Behaviours associated with surgency included high intensity pleasure (e.g., enjoying dangerous rides at the fair) and impulsivity. Surgency has been linked to greater instances of externalizing problem behaviours but lower levels of internalizing problem behaviours (Rothbart, 2007). Qualitative responses from these parents featured reports of their child's behaviour that were more outwardly present, including imagination (e.g., creativity) or a love for exploration. More advanced creativity, for example, coming up with alternative ways to complete a task, has been identified as an important component of executive functions. Further, cognitive flexibility, which creativity is linked to, is critical for higher order processes such as reasoning, problem solving and planning (Diamond, 2014; Diamond, 2016; Perry et al., 2018). Outcomes regarding low dispositional mindfulness parents' awareness of their child's surgency may demonstrate that parents who are lower in dispositional mindfulness focus on the outward manifestations of their child's behaviour rather than internal strengths or challenges of their child.

While both effortful control and surgency are key components of temperament, features of effortful control like empathy and conscientiousness, have been identified as dimensions of temperament most closely related to self-regulation, especially in social contexts (Rothbart, 2007). The conclusion that parents who have higher levels of dispositional mindfulness appear to be more cognizant of features of their child's behaviour related to effortful control, highlights that parents' mindful and focused attention may portend better outcomes for children's self-regulation. The results of this study extend previous research by demonstrating that parents at high and low levels of dispositional mindfulness appear to consider child's strengths and challenges at home differently. Specifically, parents who report higher levels of dispositional mindfulness appear to be more aware of their child's strengths and challenges that are associated with self-regulation, suggesting that the co-regulation and scaffolding provided by these parents may offer the autonomy and support needed to support their child's development of self-regulation.

4.4 General Discussion

Below, the limitations, and directions for future research and general conclusions are discussed.

4.4.1 Limitations

At least three limitations should be considered when interpreting these results. The first limitation was the sample composition, which did not include an equal sample of mothers and fathers. In the current study respondents were predominantly mothers. This creates a limitation to the generalizability of the study, making it more generalizable to mothers, and not parents overall. This limitation is common across research in this field, as very little research includes fathers (Chaplin et al., 2018; Klein et al., 2018; Santos-Nunes et al., 2017; Sosic-Vasic et al., 2017). It is possible that different interactions may exist for fathers and these differences may impact the associations found between the parenting factors analyzed in this study and children's development of self-regulation. For example, research by Slagt, Deković, de Haan, van den Akker, & Prinzie (2012), demonstrated differences in mothers' and fathers' feelings of parenting competence when assessing it along with children's externalizing problem behaviours. It was concluded in their study that mothers reported less parenting competence and more feelings of inadequate disciple towards their child when children had higher instances of externalizing behaviours. It is also possible that with a larger sample of fathers, the interactions between parent-child conflict and children's activation control and parenting stress, with dispositional mindfulness, may have been different. Further, fathers may perceive their child's strengths and challenges for self-regulation at home, differently.

A second limitation of this study is the selection method of participants. Participants were self-selected Canadian parents of children in Kindergarten to Grade two, the majority of whom were residents of Ontario. The majority of participants in this study resided in two parent households, therefore, the results may not be generalizable to families with different compositions. A final limitation of this study is the research design employed. Data were cross-sectional and single-source reports of parents' own behaviour and their child's behaviour were provided. Limitations associated with method variance, included single-source bias, have been detailed in other writings (e.g., McCrae, 2018). Further, the qualitative responses occurred at one time point, making it difficult to draw definitive conclusions concerning the mediation analyses conduced in this study. Results of the mediation analysis should be interpreted carefully noting the limitations

of the method reported above. The results obtained from parents' responses at that time may not be representative of their complete feelings towards their child's strengths and challenges for self-regulation at home, or their overall dispositional mindfulness, parent-child relationship quality and perceived stress.

4.4.2 Future Directions for Research

Findings from this study point to four main areas for future research. To begin with, results from this study demonstrate the positive implications of dispositional mindfulness on both parent outcomes, like stress, and children's development of self-regulation. Research in the future should extend these findings by conducting a study utilizing an experimental design to fully understand the impact of mindfulness on the parent-child relationship, parent stress and self-regulation in children as young as four years old. A second direction for prospective studies would be to investigate the longitudinal outcomes of dispositional mindfulness on children's self-regulation outcomes in order to gather a deeper understanding of the durability of parent dispositional mindfulness on children's self-regulation, over time. Research has outlined the influence of parenting stress on children as they transition to adolescence (Chaplin et al., 2018), but there is a need for studies to investigate the role of mindfulness on parent stress during this developmental period, starting in childhood and moving toward adolescence, in order to determine the resiliency of mindful parenting on children's outcomes over time.

Third, future research could extend these findings by investigating whether there are specific aspects of the parent-child relationship that are most influential on children's development. In the current study, parent-child conflict included such things as a child rejecting physical affection from their parent or the child easily becoming angry with their parent. It is possible that one of these features is more influential on the relationship between parent-child relationship and children's development of self-regulation. Results from the mediation analysis in this study demonstrated that in the presence of dispositional mindfulness, the negative relationship of parent-child conflict on parental stress was reduced, but analysis investigating the relationship in the opposite direction (i.e., parental stress on parent-child conflict) did not find a mediating effect of dispositional mindfulness. This finding raises questions about the strength and directionality of the relationship between parent-child relationship quality and parental stress, as past literature has mostly investigated the influence of parental stress on parent-child relationship

quality (Domian et al., 2010; Waylan & Stewart-Brow, 2010) and less has investigated parent-child relationship quality on parental stress. Additionally, future research is needed to investigate whether there are specific aspects of mindful parenting practices that are most important for child development.

Finally, future research would benefit from investigating whether the dispositional mindfulness of other significant adult figures in a child's life, namely their teacher, also protects children against a negative relationship and stress. Understanding if the teacher-student relationship, teacher stress and children's self-regulation at school are associated with teacher dispositional mindfulness could provide an understanding of what areas of a child's life are impacted by these factors. For example, research by Vandenbroucke et al. (2017), found that children who had a negative relationship with their parent (e.g., low warmth and high conflict) performed better on a working memory task after receiving verbal support from their teacher, but not from their parent. This finding indicates that a high-quality teacher-student relationship may provide some of the necessary scaffolding and co-regulation needed to develop self-regulation. Future research could extend this finding by investigating whether teacher factors like dispositional mindfulness and teacher stress have a role in this relationship. Research should compare the two contexts of home and school to develop an understanding of whether factors like relationship quality, mindfulness and stress in one context, are impactful on children's self-regulation in the other context.

4.4.3 Implications

The four core recommendations for future research provide theoretical and practical implications. Theoretically, results point towards the need to gain a further understanding of the mechanisms of mindfulness and the parent-child relationship that lend themselves to reducing the influence of a negative parent-child relationship on both children's development of self-regulation and parental stress, respectively. Specifically, if there are certain features of mindfulness that are more impactful on children's development of self-regulation, parents with limited resources, including time or finances, could focus on cultivating these behaviours. Research has outlined various features of parental mindfulness that are supportive of children's self-regulation, but a single key feature has not yet been identified as most important. Also, practically, mindful parenting practices should be further promoted and taught to parents to help promote personal well-being and children's development of self-regulation. Promoting mindful

parenting in new parents may help them develop the practices and habits necessary to engage in interactions with their child that provide appropriate scaffolding for the child's own development of both mindful awareness and self-regulation.

4.5 Final Conclusions

Previous studies in developmental psychology have demonstrated the importance of early self-regulation skills for child outcomes at home and school (Blair, 2016; Diamond, 2016). Further, previous research has shown the implications of parent-child relationship quality and parental stress on children's self-regulation (Cappa et al., 2011; Curby et al., 2011; Stelter & Halberstadt, 2011). Past literature has also outlined the positive impact interventions associated with increasing parental mindfulness have on reducing the negative influence of parenting factors like stress (Chaplin et al., 2018; Duncan et al., 2009; Gouveia et al., 2016; Lippold et al., 2019; Parent et al., 2016). Results of this study demonstrated that parent dispositional mindfulness was associated with positive outcomes for both parents and children including greater activation control in children and lower parenting stress. Conversely, parents' ratings of perceived parent-child conflict were direct and negative predictors of parental stress, dispositional mindfulness and aspects of children's self-regulation. However, results of this study indicated that dispositional mindfulness acts as a mediator in these relationships, reducing the negative influence parent-child conflict has with children's activation control and parental stress, specifically. Outcomes of this study are important as they demonstrated that dispositional mindfulness alters the negative effect of parent-child conflict on children's development of self-regulation and on parenting stress, respectively. Further, qualitative results from the present study demonstrated parents with higher dispositional mindfulness may be cognizant of strengths and challenges of their child's behaviour that is associated with effortful control, a key aspect of self-regulation.

Future research would benefit from investigating how parent dispositional mindfulness may reduce the direct and negative associations between parent-child conflict and children's self-regulation, as well as the longitudinal relationship of parent dispositional mindfulness on the parent-child relationship, parental stress and subsequently, children's self-regulation. Future research could also investigate the specific mechanisms of the parent-child relationship and parenting mindfulness to gain a deeper understanding of what specific features of these factors

influence children's development of self-regulation. Finally, future research would benefit from investigating the association of dispositional mindfulness with relationship quality, stress and children's development in various contexts, including in schools. Overall, providing positive supports, including co-regulation and a compassionate, emotional understanding of children's needs from a young age, are necessary to support children's development of self-regulation. Mindfulness has been identified as a factor associated with the focused attention and scaffolding needed to aid children in their development of self-regulation from an early age suggesting that educating parents about mindful parenting practices may be a worthy pursuit in supporting children's development of self-regulation.

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Appendices

Appendix A: Demographic Questionnaire

What is your relationship with the child you are rating?

- Biological mother
- Biological father
- Stepmother
- Stepfather
- Other

Please provide your date of birth (MM/DD/YYYY)

Please describe the family composition of your household

- Single parent/Guardian household
- Two parent/Guardian household
- Other (e.g., Blended Family) (Please describe) _____

What is your ethnic background (Indicate all that apply)?

- White
- Aboriginal/Metis/First Nations
- Chinese
- South Asian
- Black
- Filipino
- Latin American
- Southeast Asian
- Arab
- West Asian
- Japanese
- Korean
- Pacific Islander
- Other (Please Specify) _____

Please indicate the highest level of education you have completed.

- Less than high school
- High school
- Some college
- College diploma
- 3-year degree
- 4-year degree
- Master's degree
- Doctorate

Please indicate the area of study/specialization for your highest level of education completed

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What sources of information inform your approaches to parenting? (Select all that apply)

- Instagram
- Facebook
- Twitter
- Snapchat
- News Media (e.g. CNN, Fox News)
- Your family upbringing
- Development research
- Your friends' or family's parenting approaches (Please indicate sources) _____
- Internet pages or blogs (e.g. Yummy Mummy) (please describe) _____
- Other (please describe) _____

Please indicate the sex of the child you are currently rating.

- Male
- Female

Please indicate the date of birth of the child you are currently rating (MM/DD/YYYY)

How many siblings does your child have?

- Zero
- One

- Two
- Three
- Four
- Five or more

What is your child's ethnic background (Indicate all that apply)?

- White
- Aboriginal/Metis/First Nations
- Chinese
- South Asian
- Black
- Filipino
- Latin American
- Southeast Asian
- Arab
- West Asian
- Japanese
- Korean
- Pacific Islander
- Other (Please Specify) _____

Has your child attended preschool?

- Yes
- No

Appendix B: Parent Short Answer Questions

Please list your personal strengths as a parent.

Please list what aspects of parenting you struggle with.

Please list some of your child's strengths

Please list some your child's challenges

Appendix C: Ethics Approval Form

KING'S
Western University · Canada

Research Ethics Review Committee

March 27, 2018

Dr. Lynda Hutchinson
Department of Psychology
King's University College

Dear Dr. Hutchinson:

Please accept this letter of confirmation that the Research Ethics Review Committee (RERC) has considered your revised application of the research project entitled,

Investigating Teacher and Parent Factors Associated with Children's Development of Self-Regulated Learning

and concluded that it meets the ethical standards outlined in the TCPS2 - Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2014).

Curriculum Vitae

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Post-secondary Education and Degrees:

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Related Work Experience

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Workshop Presentations

Hutchinson, L.R., **Trevisani, C. E.,** Trower, D, M. (2018). Honing Protocols and Practices for Studying Self-Regulation in Classrooms. Perry, N. & Hopfenbeck, T. N., (Organizers). Workshop facilitators at *European Association for Research on Learning and Instruction*, Zurich, Switzerland.

Paper Presentations

Hutchinson, L. R., **Trevisani, C. E.,** Trower, D. M., Perry, N. & Hall, M (2019). The effects of parent stress and child-parent relationships quality on children's self-regulation. *European Association for Research on Learning and Instruction*, Aachen, Germany.

Trevisani, C. E., Hutchinson, L. R. (2015) A correlational study of self-regulated learning, stress, and mindfulness in undergraduate students. *Child Health Symposium,* London, Canada

Poster Presentations

Hutchinson, L. R., Trower, D. M., **Trevisani, C. T.,** & Hall, M. (2019). Preparing children for self-regulated learning. *American Psychological Association Convention,* Chicago, Illinois.

Hutchinson, L.R., Moodie, S., DiBacco, K., Trower D. M., **Trevisani C. E.,** (2018). Classroom contexts and self-regulated learning in children with hearing loss. *American Psychological Association Convention,* San Fransisco, California.

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