Child Functioning, Parent Coping Strategies and Parent Mental Health Outcomes in Families with Children with Developmental Disabilities

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August 2012

A thesis submitted to McGill University in partial fulfillment of the requirements for the degree of Master of Arts in Educational Psychology, School/Applied Child Psychology

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Acknowledgements

I would like to first and foremost thank my supervisor, Dr. Ingrid Sladeczek for her support and guidance throughout this process. This study was part of the National Early Intervention Research Initiative, led by Dr. Sladeczek. The larger project was funded the Max Bell Foundation and the Canadian Institutes of Health Research. Individual funding from the Social Sciences and Humanities Research Council of Canada has also been essential in allowing me to undertake this research.

Many thanks to my friends and family who have always been there and provided the support I have needed throughout this journey. Without the support of my parents throughout the course of my education, this would not have been possible. Thank you to Brandon Johnston, Anne Ritzema, Daniella Goldberg, and Kara Soerono for your words of motivation and for always being there to provide a helping hand and a listening ear. I would also like to thank Katie Barbacki and Bianca Levy for donating their time to help me translate the abstract for this thesis. To Sydney Hopkins, I am grateful that we have gone through this experience together. Thank you for your help and encouragement throughout this journey. To my cohort friends and colleagues, Amber Emms, Daniella Goldberg, Sydney Hopkins, Paraskevi Engarhos, Melissa Stern, and Sarah Yachison, thank you for learning with me and for your support throughout our Master's degree.

Finally, I would like to thank all the families that have participated in this research. Without them, this study would not have been possible.

Abstract

Parenting a child with a developmental disability has its own set of additional challenges or difficulties associated with the child's impairments, which can have a great impact on parents' well-being. The present study sought to assess a range of child functioning domains and parent coping skills in order to understand which child characteristics and parent coping strategies are the most predictive of parent mental health. It was hypothesized that parents of children with more behaviour problems, fewer social skills, and lower adaptive functioning would exhibit more symptoms of depression, anxiety, and hostility (a measure of anger and aggression). Similarly, parents who used more maladaptive coping strategies and fewer adaptive coping strategies were also expected to experience more symptoms of depression, anxiety, and hostility. Using data from the National Early Intervention Research Initiative (NEIRI), this study included 124 parents of children with DD. Multiple regression analyses indicated that child behaviour problems were the strongest child functioning predictor of parent depression, anxiety, and hostility. Children's social skills were a significant predictor of parent anxiety and hostility, but did not significantly predict depression in parents. Social support was a significant predictor of depression, anxiety, and hostility in parents. However, other coping strategies did not significantly predict variance in parent mental health. This study has implications for family-centered intervention services for children with DD and their families.

Résumé

Élever un enfant ayant un trouble du développement comprend des défis supplémentaires par rapport aux faiblesses uniques de l'enfant. Ceux-ci peuvent profondément affecter le bien-être du parent. Cette étude chercha à évaluer une gamme de domaines du fonctionnement de l'enfant, ainsi que les stratégies d'adaptation des parents, pour déterminer quelles caractéristiques influent le plus sur la santé mentale du parent. L'hypothèse émise avança que les parents ayant un enfant avec des troubles de comportement, des faiblesses sociales, et un fonctionnement adaptatif inférieur démontreront plus de dépression, d'anxiété, et d'hostilité (une mesure de la colère et de l'agressivité). De même, il a été prévu que les parents ayant des stratégies mal adaptées par rapport à l'élevage des enfants éprouveront ces mêmes symptômes. En utilisant les donnés du *National Early Intervention Research Initiative* (NEIRI), la présente étude visa 124 parents d'enfants ayant un trouble du développement. Une analyse de régression multiple révéla que l'indice prédisant le mieux la dépression, l'anxiété, et l'hostilité chez les parents fut la présence de troubles de comportement chez l'enfant. Les compétences sociales des enfants prédirent de façon significative les indices de l'anxiété et l'hostilité chez les parents, mais pas la dépression. Le soutien social prédit la dépression, l'anxiété, et l'hostilité parentale. Cependant, les autres stratégies d'adaptation n'eurent pas d'effets significatifs sur la santé mentale des parents dans cet échantillon. Cette étude a de nombreuses implications pour les interventions axées sur des familles comprenant des enfants avec des troubles du développement.

CHAPTER 1

Introduction

Parenting a child with a developmental disability tends to have its own set of additional challenges or difficulties associated with the child's impairments, which can have a great impact on parents' well-being (Dabrowska & Pisula, 2010; Ingersoll & Hambrick, 2011; Olsson & Hwang, 2001; Rao & Beidel, 2009). *Developmental Disabilities* (DD) is a broad term that has been used to refer to individuals with different diagnoses, including a great deal of heterogeneity in terms of levels of functioning and severity of impairments. The Developmental Disabilities Assistance and Bill of Rights Act of 2000 defines developmental disability as a severe and chronic mental or physical impairment that begins before age 22, that is likely to continue indefinitely throughout the lifespan, that requires individually planned services and support that are of lifelong or extended duration, and that leads to substantial functional impairments in at least three of the following areas: self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, and economic self-sufficiency. Some of the disabilities that fall under the umbrella of DD are Autism Disorder, Pervasive Developmental Disorders, Cerebral Palsy, and Down syndrome.

Children with DD frequently exhibit problematic behaviours, high levels of dependency on parents, and difficulties with social skills (Benson, 2006). Dealing with such problems on a daily basis can be a chronic source of stress for many parents that may hinder their ability to successfully adapt to having a child with a DD (Benson, 2006; Lee et al., 2009). Researchers have studied the negative and positive impacts of parenting a child with a DD (Corman, 2009; Neely-Barnes, Hall, Roberts, & Graff, 2011; Taunt & Hastings, 2002). Despite the demands of raising a child with a DD, parents also report positive and experiences as a result of having a

child with a DD, such as not taking for granted developmental milestones (Corman, 2009), changing their perspective on life, having increased opportunities to learn about themselves as well as their child, increased tolerance and awareness of others (Taunt & Hastings, 2002), and becoming more compassionate towards others (Neely-Barnes et al., 2011). In addition, many parents report children's strengths and positive characteristics, such as having a happy disposition, or being affectionate (Neely-Barnes et al., 2011; Taunt & Hastings, 2002). Parenting a child with a DD can be just as rewarding as parenting a typically developing child (Hodapp, Ly, Fidler, & Ricci, 2001) and the rewards that parents experience as a result of raising a child with a DD act as a stress buffer to help parents cope with the demands of their child's disability (Blacher & Baker, 2007; Corman, 2009)

Despite the rewarding experiences reported by parents of children with DD, having a child with a DD has also been associated with higher levels of stress in parents (Dabrowska & Pisula, 2010; Ingersoll & Hambrick, 2011;) and an increased risk for poor mental health outcomes in parents (Herring et al., 2006, Olsson & Hwang, 2001; Singer, 2006) when compared to parents of typically developing children. The experience of parenting a child with a developmental disability may elicit feelings of loss, helplessness, and failure, which puts parents at a much higher risk for developing symptoms of depression (Olsson & Hwang, 2001; Woodgate, Ateah, & Secco, 2008). In order to help parents successfully adapt to the additional challenges associated with parenting a child with a DD, intervention services for children with DD should have additional supports, services, and skill training for parents because improving children's functioning and helping parents cope with the stress of parenting a child with a DD has a strong potential to ameliorate parents' mental health problems and improve parents' well-being (Herring et al., 2006; Singer, Ethridge, & Aldana, 2007). Therefore, it is important for

research to investigate how child functioning impacts parent well-being as well as which coping strategies can help parents adapt in positive ways in order to inform practice to better serve the needs of children with DD and their families.

Conceptual Framework: The Double ABCX Model

McCubbin and Patterson's (1983) Double ABCX model of family stress and adaptation is helpful in understanding parent outcomes within the context of children with DD and their families. This model attempts to explain family adaptation by taking into account life stressors and strains, the range of outcomes of family processes, and factors that shape the course of adaptation. The model postulates four factors: factor A (crisis event or stressor), interacts with factor B (the family's resources), which interacts with factor C (how the family interprets the stressor), to produce X (the family's outcome). Stress is seen as a process that poses strains and demands on the family. Factor A refers to the cumulative effect over time of a stressor on the family. The B factor refers to the adaptive resources of the family, which are resources that reduce the impact of demands or help the family adapt to stressors, such as personal resources, family system resources, and social support. The C factor is the family's perception of the stressor, referring to the meaning that the family gives to the crisis event or stressor. Finally, factor X refers to the outcome of the family in response to the stressor and its demands. According to Lavee, McCubbin and Patterson (1985), within the Double ABCX model, adaptation is thought of as being on a continuum from "maladaptation" to "bonadaptation", with maladaptation meaning a deterioration of family integrity, their sense of well-being, and their physical and psychological health. The other end of the continuum refers to maintenance or strengthening of family integrity and well-being in response to a crisis.

The Double ABCX Model has been widely used in research on families with children with DD (e.g., Baker, Blacher, & Olsson, 2005; Hall, 2012, Miodrag & Sladeczek, 2009), suggesting that it provides an adequate theoretical framework for understanding adaptation and well-being in families of children with DD. Miodrag and Sladeczek (2009) used the Double ABCX model in a research study using the same pool of participants that was used in the present study. They examined depressive symptoms in mothers of children with autism and Down syndrome, using a set of child and parent variables to predict maternal depression. Similarly, the present study examined how child and parent factors predict parent mental health, but the current study focused on three different mental health outcomes (depression, anxiety, and hostility). Whereas the main goal of Miodrag and Sladeczek's study was to examine differences between parents of children with autism and Down syndrome, the present study included parents of children with a wide range of DDs.

The present study investigates how child functioning and parents' coping strategies relate to parents' mental health, which fits well within the Double ABCX model of family stress and adaptation (McCubbin & Patterson, 1983). Within the present study, the A factor, which refers to stressors and family demands, is children's functioning across different domains (behaviour problems, adaptive skills, and social skills). The B factor, which refers to family adaptive resources, is parents' coping strategies, such as personal and family coping, as well as social support and seeking services and help within the community. Although the C factor was not directly studied, the ways in which parents interpret children's functioning is embedded throughout the study as the parents' perceptions of child functioning, coping strategies, and stress were measured. The main focus of this study, parent's mental health outcomes such as depression, anxiety, and hostility, fall within the family adaptation factor (factor X). The aim of

the present study is to examine how parents' mental health is related to children's functioning and parents' adaptive resources (coping strategies) in families of children with DD.

CHAPTER 2

Review of the Literature

This goal of this section is to provide an overview of the literature on the well-being of families of children with DD. First, a review of the literature on the relationship between parent mental health and children's functioning will be laid out. This part of the review will go over the research on parent stress and mental health as well as provide an explanation of the research findings on how parent mental health is related to children's functioning. The literature review will then provide an overview of the research in the field of coping in parents of children with DD. This section will address coping strategies that have been found to be beneficial as well as maladaptive for parents of children with DD. This part of the review will also discuss the relationship between coping strategies and parent mental health. Finally, the purpose of the present study as well the hypotheses investigated in this study will be explained.

Child Functioning and Parent Mental Health

Parent stress. Researchers have consistently established that parents of children with developmental disabilities (DD) experience higher levels of stress than parents of typically developing children and that parental stress is associated with the severity of the child's behaviour problems (Baker, Blacher, Crnic, & Edelbrock, 2002; Beck, Hastings, Daley, & Stevenson, 2004; Dabrowska & Pisula, 2010; Davis & Carter, 2008; Gupta, 2007; Hastings, 2003; Hastings, Daly, Burn & Beck, 2006; Herring et al., 2006; Ingersoll & Hambrick, 2011). Gupta (2007) conducted a study with parents of children with DD, disruptive behaviour disorders, chronic medical conditions, and typically developing children, to investigate stress in parents of children with different diagnoses as well as parents of typically developing children. Gupta used the Parenting Stress Index (PSI; Abidin, 1995) to measure parent stress. Within this

measure, scores of 260 or above are considered to be in the critical range, indicating that the high level of stress may warrant psychological intervention. The mean PSI score for parents of children with DD was 275, indicating that parents of children with DD experience very high levels of stress. In addition, the findings from Gupta's study indicate that parents of children with DD experience more stress than parents of typically developing children and of children with chronic medical conditions and similar levels of stress to parents of children with disruptive behaviour disorders.

Research has consistently found that a significant source of parent stress in families of children with DD are the child's behaviour problems (Baker et al., 2002; Beck et al., 2004; Dabrowska & Pisula, 2010; Davis & Carter, 2008; Gupta, 2007; Hastings, 2003; Hastings, Daly, Burn & Beck, 2006; Herring et al., 2006). Parent stress has been found to be strongly related to child behaviour problems, even more so than to children's level of intellectual functioning (Baker et al., 2002; Davis & Carter, 2008; Rao & Beidel, 2009). Hastings and colleagues (2006) conducted a study with 75 mothers of children with Autism and Down Syndrome to investigate the relationship between the frequency and severity of child behaviour problems and parental well-being over a 2-year time period. Their results indicate that children's behaviour problems at time 1 were related to higher maternal stress two years later at time 2, suggesting that children's behaviour problems lead to higher levels of maternal stress.

Parental stress may significantly affect the parent's ability to adjust to raising a child with a DD (Dabrowska & Pisula, 2010; Lee et al., 2009). In a study of 89 parents of children with high functioning autism and 46 parents of typically developing children, Lee and colleagues (2009) found that parents of children with autism experienced higher levels of stress than the control group and that parent stress was a significant predictor of parents' quality of life in terms

of physical and mental health. Therefore, it is important to determine which factors may facilitate parental adaptation given their elevated levels of stress.

Parent depression and mental health. One area of parent well-being that has an impact on parental adaptation in families of children with DD is parent mental health, especially considering that higher levels of stress may leave parents particularly vulnerable to poor mental health outcomes (Benson, 2006; Dabrowska & Pisula, 2010; Ingersoll & Hambrick, 2011; Lee et al., 2009; Smith, Seltzer, Tager-Flusberg, Greenberg, & Carter, 2008). In a study of parents of children with high functioning autism, Lee and colleagues (2009) found that stress was a significant predictor of parents' mental health. Similarly, a study of depression in 68 parents of children with autism and developmental delays indicated that almost half of the participants had clinically significant symptoms of depression (Benson, 2006). Benson also found that depression in parents was significantly and positively correlated with child symptom severity and parents' stress, suggesting that having a child with a DD may increase parental stress, which puts parents at an increased risk for poor mental health outcomes such as depression.

Studies on parent mental health have indicated that parents of children with DD experience poorer levels of mental health outcomes than parents of typically developing children (Olsson & Hwang, 2001; Singer, 2006; Smith et al., 2008). In a meta-analysis of 18 studies from the United States and Canada conducted by Singer (2006), mothers of children with DD were found to be at an increased risk for depression when compared to parents of typically developing children. According to Singer's meta-analysis, almost one third (29%) of mothers of children with a DD experience clinically elevated levels of depression, a 10% increase from the prevalence of depression in populations of mothers of typically developing children.

Smith and colleagues (2008) found that in a sample of 151 mothers of toddlers with autism and 201 mothers of adolescents with autism, over one third of mothers from both groups were at risk for clinical depression, as indicated by their elevated scores on a measure of depression. Smith et al. also found that mothers of adolescents with autism experienced more anger than mothers of toddlers with autism. The authors suggest that this may be indicative of a developmental trend of parenting a child with autism, or it may reflect the anger and frustration resulting from parenting an adolescent. However, the authors do not explain in detail what the scores on the anger measure implicate for their sample; therefore, it remains unclear whether their sample experienced overall high levels of anger, or whether their anger was comparable to what would be expected of other groups of parents.

In another study, Olsson and Hwang (2001) investigated the prevalence and severity of parental depression in 374 parents of 151 children with an intellectual disability (ID) and 65 children with autism. Parents of children with DD were compared to a control group of 389 parents of typically developing children. Olsson and Hwang found that 16% of mothers of children with autism and 8% of mothers of children with an ID experienced symptoms of clinical depression, whereas 4% of mothers of typically developing children experienced such symptoms. Similarly, upon further examination of mothers' symptoms of depression, 34% of mothers of children with autism and 37% of mothers of children with an ID were found to have symptoms of dysphoria (milder symptoms of depression), compared to 13% of mothers in the control group. Although the majority of parents adapted positively and did not experience symptoms of depression, having a child with an ID or DD increased the parents' risk for developing such symptoms.

Although the specific prevalence rates of depression amongst parents may vary across studies, it is evident that parents of children with DD are at a much higher risk for depression than mothers of typically developing children. Higher levels of depression in parents have been found to be associated with the severity of children's behaviour problems (Hastings, 2003; Hastings et al., 2006; Herring et al., 2006; Khamis, 2007; Rao & Beidel, 2009).

Herring and colleagues (2006) studied behavioural problems in young children, parent mental health, stress, and family functioning in a sample of 151 parents of children with autism and 34 parents of children with a developmental delay that was not a Pervasive Developmental Disorder (PDD). Their results indicate that behaviour problems had a significant impact on a measure of overall mental health in parents, such that parents of children with more behavioural problems reported more symptoms of mental health problems. However, parent mental health and stress were not associated with the child's diagnosis or with the degree of developmental delay. One limitation of this study is that in order to measure parent mental health, the researchers used an overall screening measure of mental health problems, not allowing the researchers to tease out the impact of child behaviour problems on different areas of parents' mental health. Thus, although Herring et al.'s study indicates that children's behaviour problems are associated with parents' mental health, it does not provide a clear understanding of whether depression is specifically influenced by child behaviour problems, or whether there are other areas of parent mental health that are also related to child behaviour problems.

Other studies have found differences in parental adaptation depending on the child's diagnosis. Abbeduto and colleagues (2004) conducted a study comparing well-being in mothers of children with Down syndrome (n = 39), fragile X syndrome (n = 22), and autism (n = 174). Their results indicate that mothers of children with Down syndrome had the lowest levels of

depressive symptoms and pessimism about the child's future based on a self-report measure. Mothers of children with autism had the highest levels of pessimism and depression. The strongest predictor of maternal depression, maternal pessimism, and closeness of mother-child relationship, was the extent and severity of the children's behaviour problems (when compared to parent coping strategies and type of diagnosis as predictor of maternal outcomes).

Child functioning. Abbeduto et al.'s study provides evidence supporting the idea that child characteristics are associated with parental adaptation and mental health in families with children with DD. However, the researchers only included one measure of child characteristics (child behaviour problems); therefore, their findings suggest that child variables are more predictive of maternal outcomes than are parents' coping strategies, but the relationship between parent outcomes and other areas of child functioning remains unclear in this study.

Other studies have supported Abbeduto et al.'s (2004) findings in terms of the relationship between parent mental health and child functioning. Feldman and his colleagues (2007) conducted a study to investigate how Canadian caregivers' depression, coping strategies, social support, and self-efficacy, are related to child factors in 178 caregivers of children with a known DD (e.g., Down syndrome, Autism, brain damage), an unknown DD (mostly caregivers of children diagnosed with a Global Developmental Delay), or who were at risk at birth of developing a DD (such as low birthweight or being born prematurely). Feldman et al. found that 20% of caregivers had symptoms above the clinical cut-off and another 20% had mild depressive symptoms, which is much higher than the prevalence of depression in Canadian mothers (Feldman et al., 2007). Depressive symptoms in this sample were positively related to children's behaviour problems, although they were not correlated with children's adaptive behaviour. Feldman et al. also found that caregivers who knew the child's diagnosis had lower levels of

depression than those who did not know their child's specific diagnosis, as 29% of caregivers of children with unknown DDs were above the clinical cut-off for depression, whereas 13% of caregivers who knew the child's diagnosis experienced levels of depression above the clinical cut-off. Feldman et al.'s study adds to the body of research suggesting that parents of children with DD are at a higher risk for poorer mental health outcomes, and that higher levels of depression are associated with a higher number of behaviour problems in children.

Ingersoll and Hambick (2011) found similar results in a study of 149 parents of children with autism. One of the aims of their study was to investigate whether parent depression and parent stress were related to the child's symptom severity. Their results indicated that the severity of child symptoms had a direct impact on parents' mental health difficulties, although this relationship was partially mediated by social support, suggesting that parents of children with autism with more significant impairments are less likely to receive social support, which puts them at risk for negative mental health outcomes, such as depression. Ingersoll and Hambrick (2011) used an overall measure of autism symptom severity to examine its relationship with parent depression, thus, the authors do not allow for the teasing out of specific child characteristics that might be more predictive of parent well-being. Children with autism experience impairments across various domains, including behaviour problems, adaptive functioning, social skills, and language. By using an overall measure of symptom severity, it is difficult to determine which areas of child functioning are related to parents' mental health the most. Another study by Baker, Blacher, and Olsson (2005) that investigated the relationship between child behaviour problems and parent depression in families with young children with and without developmental delays, found that behaviour problems were a strong predictor of parent depression, such that when children's behaviour problems were in the clinical range,

parents reported more symptoms of depression. Baker et al.'s study attempted to minimize the inclusion of children with identifiable disorders that are often associated with behaviour problems, such as autism and fragile X syndrome. Therefore, their findings provide evidence that a link exists between child behaviour problems and parent depression not only in parents of children with specific disorders, but also in families of children with other developmental delays.

The relationship between child functioning and parent mental health. The current literature on parents' mental health outcomes in families of children with DD has many gaps that remain to be filled by further research. The majority of studies have investigated how parental outcomes relate to only one measure of child functioning: child behaviour problems. However, according to the Double ABCX model of family stress and adaptation, a more complex understanding of how various stressors and family demands are related to parent and family outcomes is warranted. Child behaviour problems have been found to be a strong predictor of parent well-being and stress. In fact, child behaviour problems predict parent stress much more strongly than the child's cognitive functioning (Baker, et al., 2002; Davis & Carter, 2008). However, researchers have suggested that despite behaviour problems being a strong predictor, much variability in parent well-being remains unexplained (Baker et al., 2005). Therefore, it is possible that impairment in different domains of functioning, such as language and communication, social skills, and adaptive skills will influence parent well-being differently and may contribute to different parent outcomes.

Parents of children with autism experience more symptoms of depression when compared to parents of children with an intellectual disability (Abbeduto et al., 2004; Olsson & Hwang, 200). A major distinction between autism and intellectual disabilities is the impairment in social skills, which suggests that increases in depression in this population of parents may be at least

partly attributable to deficits in their children's social skills. Davis and Carter (2008) conducted a study with 54 parents of toddlers with autism and found that in addition to behaviour problems, impairments in social skills and social relatedness were predictive of higher levels of stress in parents. Similarly, in a study of 74 mothers of children with intellectual disabilities, Beck, Hastings, Daley, and Stevenson (2004) found that not only behaviour problems were a strong predictor of maternal stress, but lower levels of pro-social behaviour were also predictive of higher levels of maternal stress, although adaptive functioning was not found to be predictive of maternal well-being in measures of depression, anxiety, and stress. Contrary to Beck et al.' s (2004) findings, Pottie and Ingram (2008) found that children's social communication did not predict parents' daily mood (positive or negative) in a sample of parents of children with autism. Although research has supported the idea that impairments in social skills increase the risk for elevated stress levels in parents, the relationship between children's social skills and parent mental health remains unclear as the few studies that have investigated this relationship have provided conflicting results.

Research in this field has focused mostly on the impact of child behaviour problems. In addition, research studies have been inconsistent with regards to whether other aspects of child functioning are predictive of parent mental health. Therefore, research on the relationship between parental adaptation and various aspects of children's development is much needed.

Although depression has been studied extensively, much less is known about the relationship between parenting a child with a developmental disability and other negative mental health outcomes, such as anger or anxiety. More research is needed to further explore family adaptation, or factor X in the Double ABCX model, and its relationship with various stressors and family resources. Olsson and Hwang (2001) suggest that further research should examine

factors that may contribute to the increased risk for depression as well as investigate how parenting a child with a DD or ID relates to other measures of parents' psychological distress. Only a few studies have examined anxiety and other measures of mental health in parents of children with DD (Hastings et al., 2006; Herring et al., 2006; Khamis, 2007). Hastings and colleagues (2006) explored the relationship over time between children's behaviour problems and an overall measure of mothers' mental health (using the Hospital Anxiety and Depression Scale; Zigmond & Snaith, 1983), expanding the measure of parental outcomes to include symptoms of anxiety. Their findings indicate that maternal depression and anxiety were associated with child behaviour problems and internalizing symptoms and that maternal stress was related to children's behaviour problems. In addition, Hastings et al. assessed their sample 2 years later on the same measures in order to determine which variables at time 1 would predict maternal stress at time 2. Their findings indicate that children's behaviour problems predicted their mothers' stress 2 years later. Although Hastings and colleagues included measures of depression and anxiety in their study, parent mental health was not the main focus of their study. Rather, they included measures of maternal mental health in order to control for symptoms of psychological distress in their analyses of the relationship between child factors and maternal stress. Given that other studies have indicated that parents of children with DD are at risk for poor mental health outcomes (Herring et al., 2006, Olsson & Hwang, 2001; Singer, 2006), parent mental health should be the main focus of research studies in this field. In addition, Hastings and colleagues only included mothers of children with autism and Down syndrome in their sample, leaving out fathers and parents of children with other DDs.

Herring and colleagues (2006) conducted a study with 151 parents of children with a PDD and found that children's emotional and behavioural problems were significantly related to

their parents' mental health. However, Herring and colleagues used the General Health Questionnaire (GHQ-28; Goldberg & Williams, 1988), an overall screening measure of mental health which does not specify which particular aspects of mental health are related to child behaviour problems.

Only one study to the author's knowledge has examined the relationship between the severity of children's functioning and various aspects of parent mental health (Khamis, 2007). Khamis conducted a study with 225 parents of children with an ID and found that poor parent mental health outcomes in measures of depression, anxiety, anger, and cognitive disturbance were associated with the severity of the child's symptoms, suggesting that more research needs to be conducted to examine mental health difficulties other than depression. Although Khamis included various domains of parent mental health, the only measure of child functioning included in the study was child symptom severity. Therefore, the study is not helpful in understanding which child functioning domains or areas of impairment are the most salient for each of the parent mental health domains. Moreover, the sample in Khamis's study included only parents of children with ID; therefore, very little is known about various areas of mental health in parents of children with DD, even though other studies suggest that children with DD exhibit more externalizing and internalizing problems (Hastings et al., 2006) and that parents of children with DD report higher levels of depression (Olsson & Hwang, 2001) and stress (Dabrowska & Pisula, 2010; Hastings et al., 2006). These studies indicate that parents of children with DD may react different to the needs of their children when compared to parents of children with other disabilities.

Benson and Karlof (2009) studied the relationship between anger, depression, and stress proliferation in parents of children with autism. Stress proliferation refers to the tendency that a

stressor will trigger a series of other additional stressors (Benson & Karlof, 2009). Their findings indicated that their sample reported significantly higher levels of anger and depression than a large national sample of adults in the United States, and that anger mediated the relationship between child symptom severity and stress proliferation, indicating that parents of children with severe symptoms experienced more anger, which in turn, led to more stress proliferation, that is, a higher tendency for stressful events to lead to other stressful circumstances. To the author's knowledge, no other study has looked at the relationship between child functioning and externalizing symptoms of mental health outcomes, such as anger or aggression, in parents of children with DD. However, Benson and Karlof did not study the relationship between parents' anger and various domains of child functioning. Therefore, the authors cannot speak to which areas of child functioning or which type of symptoms are more closely related to parents' anger.

Contributions of the present study. A review of the literature looking at parent well-being in families of children with DD, suggests that the high levels of stress and mental health symptoms experienced by parents of children with DD are closely associated with the child's functioning. It is important for practitioners working with these families to understand the sources of parent stress that may increase the risk for symptoms of psychological difficulties. Therapy and interventions for parents' mental health issues may be ineffective with this population unless the stressors related to the child's DD are dealt with. Moreover, parents' responses may counteract the effectiveness of interventions for children with DD (Head & Abbeduto, 2007; Osborne, McHugh, Saunders, & Reed, 2008). A study by Osborne et al. (2008) indicated that when parents experience high levels of stress, early intervention led to fewer gains for the child. Therefore, if the parent's functioning is compromised, child outcomes can be adversely affected and the child may not benefit from interventions (Osborne et al., 2008). It is

important to understand the sources of parental distress in order to help children with DD and their families benefit from interventions. By understanding and addressing the areas of child functioning that are the most salient to parent mental health, we can improve the well-being of children with DD and their parents.

The current literature does not provide a clear picture with regards to how domains of child functioning other than behaviour problems relate to mental health outcomes in parents of children with DD. In addition, little is known about parents' mental health symptoms other than depression and whether different areas of child functioning increase the risk for specific psychological symptoms in parents. This study will address these two issues by studying the relationship between various domains of child functioning (behaviour problems, social skills, and adaptive functioning) and three areas of mental health in parents (depression, anxiety, and hostility). In addition, the relationship between parents' mental health and their use of various coping strategies will be investigated.

Parents' Coping Strategies and Mental Health

Positive parent adaptation depends, at least partially, on how parents cope with stress. Researchers have found that parents of children with DD tend to employ different coping strategies than other parents (Luther, Canham, & Cureton, 2005; Paster, Brandwein, & Walsh, 2009; Twoy, Connolly, & Novak, 2007). A study that compared parents of children with developmental delays and emotional/behavioural problems to parents of children with physical conditions such as seizures or diabetes, found that parents of children with emotional/behavioural issues or a developmental delay had poorer coping strategies than parents of children with a physical condition (Churchill, Villareale, Monaghan, Sharp, & Kieckhefer, 2010). Paster and colleagues (2009) conducted a study comparing 112 parents of children with a

DD to 62 parents of typically developing children using the Ways of Coping Questionnaire (WOC). They found that parents of children with DD engage in escape-avoidance coping, positive reappraisal and seeking social support to a greater extent than parents of typically developing children. Escape-avoidance coping strategies involve avoiding the stressor or distancing oneself from problems, whereas positive reappraisal strategies involve rethinking problems to reframe them in order to think of the problem in a more positive way. (Twoy et al., 2007). Twoy and colleagues (2007) found similar results using the Family Crisis Oriented Personal Evaluation Scales (F-COPES) in a study comparing 55 parents of children with autism to the norm group of the F-COPES. Their findings indicate that overall, parents of children with autism scored similar to the norm group; however, there were differences in the specific subscales that represent different coping strategies. Parents of children with autism reported using fewer social support and spiritual support coping strategies, and more passive appraisal and strategies that involved mobilizing the family to acquire help.

Adaptive and maladaptive coping strategies. Passive appraisal strategies are considered to be avoidance responses as they reflect parents' tendency to ignore the problem and minimize their reaction to the problem; watching television or thinking that time will solve the problem are examples of passive appraisal strategies. Twoy and colleagues (2007) suggest that the more frequent of passive coping strategies reported by the parents in their study might be due to their belief that they cannot alter the outcomes of the child's disorder. Similarly, a study by Luther and colleagues (2005) that studied social support and coping strategies in 18 families of children in special education classes found that parents mobilized the family to acquire help and engaged in passive appraisal to a much greater extent than the norm group of the F-COPES. Moreover, Sivberg (2002) also found that parents of children with autism engage in more

escape-avoidance coping strategies than parents of typically developing children. Contrary to these findings, Dabrowska and Pisula (2010) found that in their study comparing 51 parents of children with autism to 57 parents of typically developing children, parents of children with autism tended to use fewer avoidance coping strategies than parents in the control group, and in particular, they engaged in less social diversion. Dabrowska and Pisula suggest that their findings may indicate that parents of children with autism have limited opportunities for social activities, thus their opportunities to avoid problems by engaging in social activities are fewer.

Some coping strategies have been found to be more beneficial than others for parents of children with DD. Social support (Ingersoll & Hambrick, 2011; Judge, 1998), positive reframing (Pottie & Ingram, 2008; Van der Veek, Kraaji, & Garnefski, 2009) and problem-focused coping strategies (Pottie & Ingram, 2008) have been found to be more beneficial for parents of children with DD than other coping strategies, whereas catastrophizing (Van der Veek et al., 2009), withdrawal, helplessness (Pottie & Ingram, 2008), wishful thinking, and emotion-focused coping styles (Dabrowska & Pisula, 2010; Judge, 1998) are typically more maladaptive. Passive appraisal and escape-avoidance responses have been found to be associated with more symptoms of depression, feelings of isolation and spousal relationship problems (Dunn, Burbine, Bowers, & Tantleff-Dunn, 2001). Twoy et al. (2007) suggest that although passive appraisal can reduce stress in parents in the short run, avoiding the problem can eventually lead to detrimental and maladaptive outcomes for the family. In a study of 58 parents of children with autism, Dunn et al. (2001) also found that failure to use positive reframing or to seek social support was related to poorer family outcomes, such as increased symptoms of depression and spousal difficulties. Similarly, in a study of 260 parents of children with Down Syndrome, Van der Veek and colleagues (2009) found that more frequent use of positive appraisal strategies (also known as

reframing) was related to lower stress levels. Consistent with other studies, Lustig (2002) found that greater use of reframing strategies and less frequent use of passive coping were related to better family adjustment.

Coping and parent mental health. It is worth noting that while coping strategies predict positive and negative aspects of adjustment and well-being, maladjustment tends to receive more attention in the literature than positive adjustment (Taylor & Stanton, 2007). Therefore, it is possible that effective coping processes and their relationship to positive indicators of well-being are underrepresented from the literature, as suggested by Taylor and Stanton (2007). However, studies have suggested that problem-focused coping strategies tend to be more beneficial for parents of children with DD. On the other hand, emotion-focused coping tends to be associated with poorer outcomes (Dabrowska & Pisula, 2010; Dunn et al, 2001; Glidden & Natcher, 2009). Problem-focused coping strategies involve an attempt to actively control or change the situation, whereas emotion-focused coping strategies involve regulating emotions (Glidden & Natcher, 2009). Dabrowska and Pisula (2010) conducted a study with 51 parents of children with autism, 54 parents of children with Down syndrome, and 57 parents of typically developing children to examine the relationship between coping styles and parent stress. Their findings indicate that emotion-oriented coping predicted higher levels of stress in parents of children with autism and Down syndrome, and contrary to findings from other studies, avoidant-oriented coping was not associated with parent stress. Task-oriented coping was predictive of lower levels of stress only in parents of typically developing children, suggesting that this particular style of coping may not be as beneficial for parents of children with DD. Dabrowska and Pisula's study did not take into consideration how children's behaviour problems and symptoms may account for parent stress. Moreover, they measured coping styles rather than specific coping strategies, making it difficult

to determine which specific strategies are more beneficial and which ones are more likely to increase the risk for poor mental health outcomes.

Consistent with Dabrowska and Pisula's findings, Dunn et al. (2001) found that reliance on emotion-focused coping, such as escape-avoidance and distancing, was related to more symptoms of depression in parents of children with autism. In addition, failure to engage in positive reappraisal and problem-focused coping was related to feelings of isolation and relationship problems. Glidden and Natcher (2009) found results consistent with these studies. They conducted a study with 72 married couples with children with DD at two time points, 6 years apart, to examine the effects of using problem- and emotion-focused coping strategies. Their findings indicated that escape-avoidance and positive reappraisal were the most significant predictors of parents' depression and subjective well-being. Dunn et al.' and Glidden and Natcher's studies provides insightful information as to the relationship between coping strategies and depression; however, they fail to acknowledge how coping strategies may relate to other symptoms of mental health.

Maladaptive coping strategies have been found to be related to more symptoms of psychological distress in parents of children with physical conditions (Churchill et al., 2010; Doherty et al., 2009). Doherty and colleagues (2009) suggest that this may be because child factors can have a great impact on the parent-child relationship; for instance, a child's disability or physical condition might limit a parent's emotional and physical availability as they adapt and cope with the child's needs and the physical, emotional, and financial demands of treatment. By the same token, parents of children with DD also face similar challenges and have been found to employ poorer coping strategies than parents of children with physical conditions (Churchill et al., 2010). However, the relationship between parents' coping strategies and psychological well-

being has not been given enough attention. Only a few studies have looked at the relationship between coping strategies and depression, but researchers have yet to study other areas of mental health as they relate to coping strategies in parents of children with DD.

Churchill and colleagues (2010) found that parents of children with a DD and/or a physical condition who had higher scores on a measure of coping strategies (indicating better coping), reported fewer symptoms of depression. Children's disabilities were categorized as mild, moderate, or severe. Although depression was related to the severity of the child's condition, within each of the severity categories, parents with higher coping skills had fewer depressive symptoms, suggesting that adaptive coping strategies might buffer the effects that the severity of the child's disability might have on the parent's mental health. Churchill et al. used an overall measure of adaptive coping from the Family Crisis Oriented Personal Evaluation Scales (F-COPES; McCubbin, Larsen, & Olson, 1981). The total score used in this study only measures how adaptive the parent's coping strategies are. Therefore, by using the total score from the F-COPES, the authors do not further investigate which specific coping strategies are most predictive of depression and parent well-being.

Abbeduto and colleagues (2004) conducted a study of coping strategies in a sample of 235 mothers of children with fragile X Syndrome, Down Syndrome, and autism. Contrary to Churchill et al.'s (2010) findings, Abbeduto et al. found that coping strategies did not buffer the stressful effects of children's behaviour problems. Abbeduto et al. used the Multidimensional Coping Inventory (Carver, Scheier, & Weintraub, 1989) to assess mothers' coping strategies. This measure provides eight subscales representing eight coping strategies, four of which were problem-focused coping strategies (active coping, planning, suppression of competing activities, positive reinterpretation and growth) and four of which were emotion-focused (denial, focusing

on and venting of emotions, behavioural disengagement, and mental disengagement). Their findings indicated that mothers tended to experience more symptoms of depression if they reported lower use of problem-focused coping and greater use of emotion-focused coping strategies. However, Abbeduto et al. only studied mothers' scores on problem- and emotion-focused strategies, rather than the specific coping strategies. Therefore, the relationship between depression and specific coping strategies remains unclear in this study. For example, it is possible that within problem-focused coping strategies, one strategy might be more beneficial than the others; conversely, within the emotion-focused coping strategies, one strategy may increase the risk for depressive symptoms, whereas the other strategies may not be as detrimental. Further study of specific coping strategies and their relationship to parent mental health is warranted.

Consistent with Abbeduto et al.'s study, in a study of caregivers of children with or at risk for DD, Feldman and colleagues (2007) found that caregivers who had scores above the clinical cut-off for depression used more escape-avoidance coping strategies and had lower levels of social support. However, their study provides a unidirectional approach to the study of coping strategies. Rather than investigating which coping strategies are more or less adaptive, Feldman et al. divided up their sample into caregivers whose scores were below the clinical cut-off for depression, and those whose scores were above it. Therefore, further research is needed to examine which coping strategies are the most adaptive for parents of children with DD and which ones might put parents at risk for poor mental health outcomes.

Social support and parent well-being. The importance of social support has been highlighted throughout the literature in this field (Gray, 2006; Hall, 2012; Luther et al., 2005). Studies have consistently brought to light the positive effects of social support and the

detrimental outcomes associated with a lack of social support (Dunn et al., 2001; Luther et al., 2005; Woodgate, et al., 2008). Parents of children with DD often face challenges with regards to acquiring social support and building a strong social network (Ingersoll and Hambrick, 2011; Judge, 1998; Pottie & Ingram, 2008). Parents might lose contact with friends, relatives, and family and might have limited opportunities to attend social events (Heiman, 2002). Gray (2006) conducted interviews with 28 parents of children with autism at two time points 8-10 years apart. The participants in this study highlighted the importance of support from their families at both time points. At time 1, parents reported experiencing social withdrawal, although this decreased over time. Gray suggests that as children improve their behaviours, they allow the family to engage in more social activities. Similarly, in a qualitative study by Woodgate and colleagues (2008), an emerging theme was an overall sense of social isolation that stemmed from social stigma, isolation within the family, and lack of support. However, Gray and Woodgate's studies are qualitative; therefore, although they provide insight into the importance of social support for families of children with DD, they do not provide statistical evidence that social support is an important coping resource for parents.

Feldman and colleagues (2007) conducted a study with 178 caregivers of children with or at risk for a DD to study the relationship between depressive symptoms, children's behaviour problems, and caregivers' coping strategies. Their findings indicated that social support was the strongest predictor of depression and plays an important role as a mediator or moderator between caregiver depression and child behaviour problems. However, Feldman et al. do not establish whether other coping strategies predict mental health beyond what is accounted for by social support. Similarly, Judge (1998) found that seeking social support was a significant predictor of family strengths in families with children with autism and Pottie and Ingram's (2008) findings

indicated that social support was related to higher levels of positive mood in parents of children with Down Syndrome. However, these two studies did not directly measure parent mental health, meaning that although social support was found to be an adaptive resource, its relationship to parent mental health is not studied.

A study by Ingersoll and Hambrick (2011) indicated that higher levels of social support were related to fewer symptoms of depression and lower stress levels in a sample of 149 parents of children with autism. Their findings also indicated that social support partially mediated the relationship between parents' mental health difficulties and their child's degree of impairment. Based on their findings, Ingersoll and colleagues suggest that parents of children with more significant impairments are less likely to receive social support, which puts them at an increased risk for negative mental health outcomes such as depression. Similarly, Benson (2006) and Benson and Karlof (2009) found that greater informal social support was related to lower levels of depressed mood in parents of children with autism. However, these studies do not examine whether social support is a greater predictor of parent mental health when compared to other coping strategies.

Contributions of the present study. Given that the literature on families of children with DD indicates that parents experience high levels of stress and are at risk for poor mental health outcomes, it is important for researchers and practitioners to gain a better understanding of how parents cope with such stress and how their coping skills impact their well-being and mental health. By determining which specific coping strategies and resources are the most and least beneficial to parents, service providers can help them develop better, more adaptive coping skills to help reduce stress and symptoms of depression. This will provide more insight into family resources that can lead to better family adaptation. This relates back to the Double ABCX model,

which suggests that higher family resources, such as coping strategies will lead to better adaptation and family well-being.

Given that studies have established a link between certain coping strategies and levels of stress, researchers have suggested that future studies should examine the relationship between parent mental health and coping in order to determine whether specific coping strategies are associated with higher or lower risks for negative mental health outcomes (Paster et al., 2009; Van der Veek et al., 2009). The present study will investigate how five different coping strategies predict parents' depression, anxiety, and hostility in order to determine which strategies are the most beneficial, as well as the most maladaptive, in families of children with DD.

The Present Study

A review of the literature on the adaptation of families of children with DD has highlighted many areas of research that need further investigation. Parents of children with DD have to cope with the stress associated with having a child with a DD. However, the impact that parents' coping strategies have on their mental health outcome has yet to be well understood. In addition, more research is needed to study mental health outcomes other than depression in parents of children with developmental disabilities, and in particular, how they relate to different domains of child functioning and different coping strategies in parents. Research within this field has important implications for intervention services available to children with developmental disabilities and their families. With parents being at an increased risk for depression and poorer mental health outcomes, there is a great need for available interventions designed to address the psychological well-being of parents of children with developmental disabilities (Singer, 2006). Although a reduction in child problems has the potential to ameliorate parent stress and mental

health issues (Herring et al., 2006), parents may not benefit from their child's intervention if resources are not provided to help parents deal with their own mental health problems (Hastings et al., 2006). Given that social support has been linked to greater family strengths, less severe child impairments, and lower levels of parental stress (Ingersoll & Hambrick, 2011, Judge, 1998), it has been suggested that professional services should work towards helping families build a strong social support network (Ingersoll & Hambrick, 2011, Judge, 1998). Research on which specific coping strategies and which areas of child functioning may relate to mental health outcomes in parents would inform intervention services with regards to what types of additional support, education, and skills training would be the most beneficial to parents.

The purpose of the present study is to examine the relationship between parents' psychological well-being in families of children with DD and various aspects of child functioning, as well as parents' coping strategies. More specifically, this study investigates how children's functioning within different areas of development (behaviour problems, adaptive functioning, and social skills) relates to parents' mental health. This study also examines the relationship between parents' coping strategies and their mental health outcomes to determine which coping strategies are the most beneficial to parents.

Child functioning and parent mental health. The present study addressed two sets of hypotheses. The first set of hypotheses refers to the relationship between parents' mental health outcomes and various domains of child functioning. The following hypotheses were addressed as part of this study: (1a) it was hypothesized that children's behaviour problems, social skills, and adaptive functioning would predict parents' depression, such that more behaviour problems, fewer social skills, and lower adaptive functioning would be associated with more symptoms of depression in parents; (1b) it was hypothesized that children's behaviour problems, social skills,

and adaptive functioning would predict parents' anxiety, such that more behaviour problems, fewer social skills, and lower adaptive functioning would be associated with more symptoms of anxiety in parents; (1c) it was hypothesized that children's behaviour problems, social skills, and adaptive functioning would predict parents' hostility (anger and aggression), such that more behaviour problems, fewer social skills, and lower adaptive functioning would be associated with more symptoms of hostility in parents.

Parents' coping strategies and mental health. The second set of hypotheses refers to the relationship between parents' mental health and their use of coping strategies. Within the second set of hypotheses, the following three hypotheses were addressed: (2a) it was hypothesized that parents' coping strategies would predict parents' levels of depression, such that greater use of passive appraisal and less use of reframing, acquiring social support, seeking spiritual support, and mobilizing the family to acquire and accept help, would be associated with more symptoms of depression in parents; (2b) it was hypothesized that parents' coping strategies would predict parents' levels of anxiety, such that greater use of passive appraisal and less use of reframing, acquiring social support, seeking spiritual support, and mobilizing the family to acquire and accept help, would be associated with more symptoms of anxiety in parents; (2c) it was hypothesized that parents' coping strategies would predict parents' levels of hostility, such that greater use of passive appraisal and less use of reframing, acquiring social support, seeking spiritual support, and mobilizing the family to acquire and accept help, would be associated with more symptoms of hostility in parents.

The present study will allow for the teasing out of aspects of child development and parent coping strategies that are the most salient for families with children with DD. The results of this study will highlight which aspects of child functioning should be targeted for intervention

in order to improve the well-being of the parents and will have implications for family-centered interventions for children with DD.

CHAPTER 3

Method

Participants

Using data from the National Early Intervention Research Initiative (NEIRI) spearheaded by Dr. Ingrid Sladeczek, this study included 124 parents (109 mothers and 15 fathers) of children with DD attending intervention centers located across Ontario and Quebec. Given the large number of measures in the larger NEIRI project, missing data was expected. From the original pool of 172 participants, 48 had missing data for measures of mental health and coping strategies. For this reason, these 48 participants were excluded from the present study.

Children ranged in age from 8 months to 11.6 years old (M = 5.81, SD = 2.55). Forty-six participants were girls and 78 were boys. All children were diagnosed with a DD; the most common diagnosis in the present sample was a Pervasive Developmental Disorder (Autism, Asperger's Syndrome, Pervasive Developmental Disorder – Not Otherwise Specified; 35.5%), followed by Down Syndrome (30.6%), Global Developmental Delay (12. 9%), and Cerebral Palsy (4.0%). The remaining 16.9% had been diagnosed with other organic or genetic disorders causing developmental delays, such as hydrocephalus, encephalopathy, William's Syndrome, and DiGeorge Syndrome.

Parents' ages ranged from 23 to 53 years old (M = 38.78, SD = 5.62). The majority of parents were married (84.7%) and most parents had relatively high educational backgrounds with 35.5% having completed University and 25.8% having a college, vocational, or professional degree (some or completed). See Table 1 for complete demographic information.

Table 1

Demographic Information

Demographic Categories	
Child age in months *M* (range)	69.82 (8-139)
Child sex *n* (%)	
Male	78 (62.9%)
Female	46 (37.1%)
Child diagnostic group *n* (%)	
Pervasive Developmental Disorder (PDD)	44 (35.5%)
Down Syndrome	38 (30.6%)
Global Developmental Delay	16 (12.9%)
Cerebral Palsy	5 (4.0%)
Other	21 (16.9%)
Parent age in years *M* (range)	38.78 (23-53)
Parent sex *n* (%)	
Fathers	15 (12.1%)
Mothers	109 (87.9%)
Parent highest level of education *n* (%)	
High school	13 (10.5%)
College/vocational/professional degree (some and completed)	32 (25.8%)
Completed University	44 (35.5%)
Graduate degree	20 (16.1%)
Undisclosed	15 (12.1%)

Measures

Parent measures. Parent's mental health and coping strategies were measured using two self-report measures: the Symptom Checklist 90-R and the Family Crisis Oriented Personal Evaluation Scales.

Parent mental health. The Symptom Checklist-90-R (SCL-90-R; Derogatis, 1994) was used to assess parents' psychological symptoms as a measure of mental health, such that lower numbers of psychological symptoms represent better mental health and psychological well-being, whereas high scores represent poor psychological adjustment. The SCL-90-R is a 90-item self-report measure designed to assess individuals' profiles of psychological symptoms. Participants rated how much each item had bothered them during the past seven days on a Likert scale from 0 (*not at all*) to 4 (*extremely*). The SCL-90-R yields scores for nine subscales representing nine primary symptom dimensions. For the purpose of this study, three subscales were of particular interest: the depression subscale, which represents symptoms of clinical depression, as well as dysphoric mood and affect (e.g., *feelings of worthlessness*); the anxiety subscale, which reflects general signs of anxiety such as nervousness, tension, and panic attacks (e.g., *feeling fearful*); and the hostility subscale, which reflects symptoms of anger, aggression, and irritability (e.g., *feeling easily annoyed or irritated*). The internal consistencies for these three subscales have yielded alpha coefficients of .90 for depression, from .85 to .88 for anxiety, and from .84 to .85 for hostility. Test-retest reliabilities have been found to be from .75 to .82 for depression, .80 for anxiety, and from .73 to .78 for hostility (Derogatis, 1994), suggesting that the SCL-90-R subscales have good reliability.

Coping strategies. The Family Crisis Oriented Personal Evaluation Scales (F-COPES; McCubbin, Larsen, & Olson, 1981) was used to measure parents' coping strategies. The F-COPES is a 30-item self-report measure designed to measure families' coping strategies in

response to problems or difficulties. Participants rated items on a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) based on whether the family engages in certain coping behaviours when facing problems or difficulties.

The F-COPES is based on two dimensions: internal coping strategies of the family and external coping strategies using resources from outside the nuclear family system. Five subscale scores are calculated, representing five coping strategies that fall within one of these two dimensions. The internal coping strategies include: (a) reframing, which refers to redefining the problem and its meaning for the family (e.g., *knowing that we have the strength within our own family to solve our problems*); and (b) passive appraisal, which reflects the family's tendency to passively accept the problem (e.g., *accepting stressful events as facts of life*), minimize their reaction, and react passively in response to crisis situations (e.g., *watching television*), which could be thought of as an avoidance response. The external strategies include: (c) acquiring social support, for example from friends, relatives, or neighbours (e.g., *seeking advice from relatives*); (d) seeking spiritual support (e.g., *attending church services*); and (e) mobilizing the family to acquire and accept help, including help from professionals or using community resources (e.g., *seeking professional counseling and help for family difficulties*). Higher scores on an individual subscale represent a greater use of that particular coping strategy.

The internal reliability coefficients for individual subscales range from 0.64 to 0.87 (Greeff & Van Der Merwe, 2004). Overall, the F-COPES has a Cronbach's alpha ranging from 0.77 to 0.86 and a test-retest reliability ranging from 0.71 to 0.81 (Greeff & Van Der Merwe, 2004; Twoy, Connolly, & Novak, 2007). Therefore, the F-COPES is thought of as having adequate reliability.

Child measures. Child functioning was assessed with parent-report measures of behaviour problems, adaptive skills and social skills.

Behaviour problems. Child behaviour problems were measured using the Developmental Behaviour Checklist, 2nd Edition – Primary Carer Version (DBC-P; Einfeld & Tonge, 2002). The DBC-P is comprised of 96 items to be completed by the primary caregiver of the child. The DBC was designed to assess emotional and behavioural problems in children with developmental and intellectual disabilities. Children's behaviour problems were assessed using the Total Behaviour Problem score of the DBC-P. Parents rated how true each item was of their child on a Likert scale from 0 (*not true as far as I know*) to 2 (*very true* or *often true*). Higher scores indicate more frequent or more severe behaviour problems. The authors suggest that the optimal cut-off is 44 (with a specificity of 85% and a sensitivity of 83%), such that children with scores above the cut-off can be considered as having 'major behavioural/emotional problems' (Einfeld & Tonge, 2002). The DBC-P has a high inter-rater reliability of .80 and a test-retest reliability of .83, which is also considered to be high (Einfeld & Tonge, 2002).

Adaptive skills. Children's adaptive skills were measured using the Survey Interview Forms of the Vineland Adaptive Behavior Scales, Second Edition (VABS-II; Sparrow, Cicchetti, & Balla, 2005). The present study assessed children's adaptive skills using the Adaptive Behavior Composite, which is comprised of four domains: communication (e.g., *answers or tries to answer with words when asked a question*), daily living skills (e.g., *feeds self with spoon without spilling*), socialization (e.g., *responds when parent or caregiver is playful*), and motor skills (e.g., *walks to get around and does not need to hold on to anything*).

The VABS-II Survey Interview Form is a semi-structured interview designed to be conducted with the parent of the child or an individual that is familiar with the child. Each

domain begins with easier or simpler skills and items/questions ask about gradually more complex behaviours. For example, in the communication domain, the interview would begin with questions regarding pre-speech expressions and would gradually turn to speech skills and then to expressing complex ideas. The VABS-II Survey Interview Form is comprised of 433 items, with basal and ceiling requirements of four consecutive items. For the purposes of this study, interviewers started with items one year below the child's chronological age and worked backwards or forwards based on the parent's responses. Interviewers gave a score from 0 (*never*) to 2 (*usually*) for each item based on the parent's perception of how often or how well the child performed each behaviour.

Scores on the VABS-II are converted to standard scores with a mean score of 100 and a standard deviation of 15. Therefore, scores between 85 and 115 are considered average, scores between 70 and 85 are considered moderately low, scores below 70 are considered low, scores between 115 and 130 are considered moderately high, and scores above 130 are considered high (Sparrow et al., 2005). Thus, higher scores represent better or more adaptive skills. The Adaptive Behavior Composite of the VABS-II has internal consistency coefficients ranging from .94 to .98 for children and individuals aged 0 to 21 (Sparrow et al., 2005), indicating good internal consistency. Test-retest reliability for the Adaptive Behavior Composite ranged from .83 to .96 for individuals aged 0 to 21.

Social skills. Children's social skills were measured using the parent form of the Social Skills Rating System (SSRS; Gresham & Elliot, 1990). The SSRS provides a social skills score and a problem behaviours score; however, only the social skills score was used in this study. The social skills measurement is based on 38 parent-report items assessing the parent's perception of the child's social behaviours. The social skills score is based on four subscales: cooperation (e.g.,

completes household tasks within a reasonable time), assertion (e.g., *starts conversations rather than waiting for others to talk first*), responsibility (e.g., *asks permission before using another family member's property*), and self-control (e.g., *controls temper when arguing with other children*). Parents rated each item based on how often the behaviour occurs and on how important the behaviour is perceived to be for the child's development. Both ratings are measured via 3-point Likert scales from 0 (*never*) to 2 (*very often*) for measuring frequency, and from 0 (*not important*) to 2 (*critical*) for measuring importance.

Higher scores on the SSRS represent better social skills. SSRS scores are converted to standard scores that are normally distributed, with a mean score of 100 and a standard deviation of 15. Therefore, children with scores below 85 (1 standard deviation below the mean) are categorized as having *fewer* social skills than the average similarly aged child, whereas a child with a score above 115 is categorized as having *more* social skills than the average child of the same age.

The reliability coefficients for the four independent subscales in the parent form range from .65 to .83 and the coefficients for the total scale range from .87 to .90. The test-retest reliability coefficients range from 0.77 to 0.84 for the individual subscales in the parent form and the coefficient for the total social skills scale is 0.87 (Gresham & Elliot, 1990).

Procedure

The present study is part of a larger longitudinal project conducted by the National Early Intervention Research Initiative (NEIRI), spearheaded by Dr. Sladeczek. The main goal of the NEIRI is to investigate the trajectories of families with children who are receiving early intervention services across provinces in Canada in order to inform early intervention policies to improve the services available for children with developmental disabilities and their families.

The data for the present study was taken from the first wave of data collection in this larger project.

After receiving approval from the ethics board at the University level as well as from the various centres from which NEIRI recruited participants, parents of children accessing intervention services were mailed a consent form and letter explaining the purpose of the project. After obtaining consent, parents were mailed a questionnaire package, which included the five measures used in this study (SCL-90-R, F-COPES, DBC-P, and SSRS). Parents were also given a pre-paid envelope which they could use to return their questionnaires. Parents were then interviewed by a trained graduate research assistant using the VABS-II. The interviews were conducted either via telephone, at the parents' homes, or at the centre where the child was receiving services.

CHAPTER 4

Results

Preliminary analyses were conducted on all variables to screen the data prior to conducting statistical analyses. Data screening analyses included examining the accuracy of data entry, the presence of outliers, normality, skewness and kurtosis, and multicolinearity and singularity. No outliers were found. Normality was assessed using histograms as well as measures of skewness and kurtosis. Tabachnick and Fidell (2007) suggest that in order to inspect skewness and kurtosis, these values should be divided by their corresponding error values to obtain a *z*-score; if the *z*-score is greater than 3.3, the assumption of normality is violated. Using this method, only one variable, Passive Appraisal, was found to be skewed. However, this variable was left as is, because the skewness value was still below 1 and the histogram did not indicate any major discrepancies from a normal distribution. Multicolinearity and singularity were not found to be problematic for any of the variables.

Descriptive Statistics

Descriptive statistics for the child measures are presented below in Table 2. The average score for children's behaviour problems was below the clinical cut-off of 44, indicating that the mean behaviour problem score was within the average range of behaviour. On average, children's adaptive skills were low and children had fewer social skills than the average child.

Table 2

Descriptive statistics of child measures

Child Measures	Mean	Standard Deviation	Minimum	Maximum
Behaviour problems (DBC-P)	38.03	23.26	0	101
Adaptive skills (VABS-II)	69.66	12.72	39	110

Social skills (SSRS)	71.13	15.96	44	111

Descriptive statistics for parent measures are displayed in Table 3. With regards to the descriptive statistics for parents' scores on the F-COPES, it should be noted that the subscale scores cannot be compared to one another because each subscale is based on a different range of raw scores and there is no standardization of the scores. Scores on the Reframing subscale can range from 0 to 40, on the Passive Appraisal scale, they can range from 0 to 20, on the Acquiring Social Support scale, from 0 to 45, on the Spiritual Support scale, from 0 to 20, and on the Mobilizing the Family scale, they can range from 0 to 20. Thus, a score of 19 on the Passive Appraisal subscale, for example, would indicate very high usage of this coping strategy, whereas the same score of 19 on the Reframing subscale would indicate moderate use of this strategy.

With regards to parents' psychological well-being, the mean scores for parents' depression, anxiety, and hostility, were within the average range. Scores from the SCL-90-R are reported as *t*-scores, with scores below 60 being considered to be within the average range, whereas scores of 60 and above are typically thought of as being elevated or within the clinical range (Derogatis, 1994), indicating that the individual is at risk for clinical depression.

Table 3

Descriptive statistics of parent measures

Parent Measures	Mean	Standard Deviation	Minimum	Maximum
		Coping Strategies		
Reframing (F-COPES)	30.39	5.12	13	40
Passive appraisal (F-COPES)	15.94	2.77	7	20

Acquiring social support (F-COPES)	24.90	7.32	5	44
Seeking spiritual support (F-COPES)	10.21	5.20	3	20
Mobilizing family to acquire and accept help (F-COPES)	13.93	3.64	4	20
		Mental Health		
Depression (SCL-90-R)	58.35	9.87	34	80
Anxiety (SCL-90-R)	53.48	11.61	37	80
Hostility (SCL-90-R)	57.52	9.77	40	80

In order to further explore parents' scores on measures of mental health, a dichotomous variable was created for each of the three mental health measures to investigate the number of parents whose scores fell within the average range (below 60) and those whose scores were clinically elevated (60 or above). This was done as an exploratory measure in order to get an idea of how severe the symptoms were in this sample. Dichotomizing the mental health variables, allowed us to explore how many parents in our sample experienced clinically significant symptoms. However, the statistical analyses in this study used the original continuous variables as measures of mental health. As displayed in Table 4, a relatively large number of parents had clinically elevated scores on measures of depression, anxiety, and hostility.

Table 4

Number of parents in the average and clinical ranges on measures of mental health

SCL-90-R Subscale	Average Range *n* (%)	Clinical Range *n* (%)
Depression	61 (49.2%)	63 (50.8%)
Anxiety	88 (71.0%)	36 (29.0%)

Hostility	74 (59.7%)	50 (40.3%)

Child Functioning and Parent Mental Health

Multiple regression analyses were conducted to address the first set of questions that refers to the relationship between children's functioning and parent mental health. It was hypothesized that child characteristics (behaviour problems, social skills, and adaptive skills) would predict each parent mental health outcome (depression, anxiety, and hostility). Given that research has consistently found that behaviour problems are a predictor of parent mental health, this study aimed to determine whether children's social skills and adaptive functioning predict additional variance in parent mental health outcomes beyond what is accounted for by behaviour problems. Therefore, hierarchical regression analyses were conducted in which the first model included only behaviour problems as a predictor; the second model included behaviour problems and social skills as predictors; finally, the third model in the analyses included behaviour problems, social skills, and adaptive skills as predictors. The correlations between the three measures of child functioning and the three measures of parent mental health are presented in Table 5.

Table 5

Correlations between child variables and parent mental health

	Anxiety	Hostility	Behaviour Problems	Social Skills	Adaptive Skills
Depression	.77**	.78**	.40**	.01	.02
Anxiety	-	.72**	.36**	.12	.11
Hostility		-	.31**	.20	.08
Behaviour			-	-.39**	-.21

Problems		
Social Skills	-	.53**
Adaptive Skills		-

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

Hypothesis 1a. It was hypothesized that children's behaviour problems, social skills, and adaptive skills would predict depression in parents. Results from the regression analysis indicated that the first model was significant, $R^2 = .127$, $F(1, 61) = 8.87$, $p < .01$, suggesting that behaviour problems were the only child variable that significantly contributed to the prediction of depression, $B = .36$, $t(61) = 2.98$, $p < .01$, such that more severe behaviour problems predicted higher levels of depression in parents. This model indicates that child behaviour problems accounted for 12.7% of the variance in parent depression. Models 2 and 3 were not significant, R^2 change = .037, $F(1, 60) = 2.67$, *ns* and R^2 change = .000, $F(1, 59) = .003$, *ns*, respectively. The results indicate that social skills and adaptive functioning did not predict parents' depression beyond what is predicted by behaviour problems.

Hypothesis 1b. It was hypothesized that children's behaviour problems, social skills, and adaptive functioning would predict parents' anxiety. Results from the regression analysis indicated that the first model was significant, $R^2 = .065$, $F(1, 61) = 4.24$, $p < .05$, suggesting that behaviour problems is a significant predictor of parents' anxiety. The second model including behaviour problems and social skills was also found to be significant, R^2 change = .066, $F(1, 60) = 4.54$, $p < .05$, and indicated that children's social skills predict parent anxiety above and beyond what is predicted by behaviour problems. This model indicates that child behaviour problems and social skills accounted for 13.1% of the variance in parent anxiety. The third model that included adaptive skills was not significant, R^2 change = .007, $F(1, 59) = .46$, *ns*.

The significant models were examined further to determine the extent to which each individual predictor accounted for the variation in parent anxiety. As the first model dictates, child behaviour problems significantly contributed to the prediction of parent anxiety, $B = .26$, $t(61) = 2.06$, $p < .05$. In the second model that added social skills, behaviour problems remained the predictor that contributed the most to the prediction of parent anxiety, $B = .37$, $t(60) = 2.79$, $p < .01$, and social skills was found to be another significant predictor, $B = .28$, $t(60) = 2.13$, $p < .05$, such that more severe behaviour problems and fewer social skills predicted higher levels of anxiety.

Hypothesis 1c. It was hypothesized that children's behaviour problems, social skills, and adaptive functioning would predict parents' hostility, which is a measure of anger and aggression. The first model in the regression analysis was not significant, $R^2 = .046$, $F(1, 61) = .2.96$, *ns*. However, the second model that included behaviour problems and social skills was found to be significant, R^2 change = .091, $F(1, 60) = 6.37$, $p < .05$, suggesting that social skills is a significant predictor of parent hostility above and beyond child behaviour problems. This model indicates that child behaviour problems and social skills accounted for 13.8% of the variance in parent hostility. The third model that added adaptive skills was not significant, R^2 change = .006, $F(1, 59) = .42$, *ns*.

The significant model was examined further to determine the extent to which each individual predictor accounted for the variation in parent hostility. Within this model, behaviour problems, $B = .35$, $t(60) = 2.65$, $p < .05$, and social skills, $B = .33$, $t(60) = 2.52$, $p < .05$, were both significant predictors that contributed to the prediction of parent hostility. Results suggest that more severe behaviour problems and fewer social skills predicted higher levels of hostility in parents.

Parents' Coping Strategies and Mental Health

Multiple regression analyses were conducted to address the second set of questions that refers to the relationship between parents' coping strategies and their mental health. It was hypothesized that coping strategies would predict each parent mental health outcome (depression, anxiety, and hostility). Given that research has consistently found that social support is a predictor of parent mental health, this study aimed to determine whether other coping strategies predict additional variance in parent mental health outcomes beyond what is accounted for by acquiring social support. Therefore, hierarchical regression analyses were conducted with the first model including only the subscale of acquiring social support as a predictor and the second model including all five coping strategies subscales (acquiring social support, reframing, passive appraisal, spiritual support, and mobilizing the family). The correlations between coping strategies and the three measures of parent mental health are presented in Table 6.

Table 6

Correlations between parents' coping strategies and mental health

	Reframing	Passive Appraisal	Social Support	Spiritual Support	Mobilizing the Family
Depression	-.14	-.07	-.35**	.00	-.19*
Anxiety	-.01	-.03	-.19*	-.00	-.11
Hostility	-.19*	-.06	-.23*	.11	-.08
Reframing	-	.09	.22*	.08	.07
Passive Appraisal		-	-.00	-.03	.09
Social Support			-	.09	.40**
Spiritual				-	.34**

Support

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

Hypothesis 2a. It was hypothesized that parents' coping strategies would predict parents' levels of depression. Results from the regression analysis indicated that only the first model was significant, $R^2 = .121$, $F(1, 121) = 16.58$, $p < .01$, suggesting that acquiring social support was the only coping strategy that significantly contributed to the prediction of depression, $B = -.35$, $t(121) = -4.07$, $p < .01$, such that higher levels of acquiring social support predicted lower levels of depression in parents. This model indicates that parents' ability to acquire social support accounted for 12.1% of the variance in parent depression. The second model was not significant, R^2 change = .013, $F(4, 117) = .45$, *ns*, indicating that other coping strategies did not predict parents' depression beyond what was predicted by acquiring social support.

Hypothesis 2b. It was hypothesized that parents' coping strategies would predict parents' levels of anxiety. Results from the regression analysis indicated that only the first model was significant, $R^2 = .035$, $F(1, 121) = 4.38$, $p < .05$, suggesting that acquiring social support was the only coping strategy that significantly contributed to the prediction of anxiety, $B = -.19$, $t(121) = -2.09$, $p < .05$, such that higher levels of acquiring social support predicted lower levels of anxiety in parents. This model indicates that parents' ability to acquire social support accounted for 3.5% of the variance in parent anxiety. The second model was not significant, R^2 change = .004, $F(4, 117) = .14$, *ns*, indicating that other coping strategies did not predict parents' anxiety beyond what was predicted by acquiring social support.

Hypothesis 2c. It was hypothesized that parents' coping strategies would predict parents' levels of hostility. Results from the regression analysis indicated that only the first model was significant, $R^2 = .055$, $F(1, 121) = 7.03$, $p < .01$, suggesting that acquiring social support was the only coping strategy that significantly contributed to the prediction of hostility, $B = -.23$, $t(121) =$

-2.65, $p < .01$, such that higher levels of acquiring social support predicted lower levels of hostility in parents. This model indicates that parents' ability to acquire social support accounted for 5.5% of the variance in parent hostility. The second model was not significant, R^2 change = .045, $F(4, 117) = 1.45$, *ns*, indicating that other coping strategies did not predict parents' hostility beyond what was predicted by acquiring social support.

CHAPTER 5

Discussion

The purpose of this study was to investigate predictors of parent mental health in families with children with developmental disabilities. More specifically, this study aimed to determine which areas of child functioning, as well as which parent coping strategies, were the most predictive of parents' depression, anxiety, and hostility. It is worth noting that the term "predict" is used to refer to links between mental health outcomes in parents and child functioning or coping strategies, given that regression analyses do not imply causality. A first set of questions addressed the relationship between parent mental health and child functioning. It was hypothesized that children's behaviour problems, social skills, and adaptive skills would predict parents' mental health outcomes. This hypothesis was partially supported. Child behaviour problems were found to be a significant predictor of parent mental health, such that parents of children with more behaviour problems experienced more symptoms of depression, anxiety, and hostility. Children's social skills were a significant predictor of parent anxiety and hostility, but did not significantly predict depression in parents. These results are in line with previous studies that have found a relationship between children's behaviour problems and mental health (e.g., Baker et al., 2002; Baker et al., 2005; Hastings, 2006; Hastings et al., 2006; Herring et al., 2006; Khamis, 2007). The finding that social skills are predictive of parent anxiety and hostility are consistent with studies that have found that social skills and social relatedness contribute to parent stress (e.g., Beck et al., 2004; Davis & Carter, 2008).

This study examined the relationship between parent mental health and children's adaptive skills because adaptive functioning has been given little attention in the literature on parent mental health. However, adaptive skills were not a significant predictor for any of the

mental health measures in parents; a finding that is consistent with other studies that suggest that adaptive functioning is not predictive of parent stress (Beck et al., 2004) or depression (Feldman et al., 2007). In line with these results, a study by Ritzema and Sladeczek (2011) conducted with a subsample of the same pool of participants used for the present study, found that although adaptive skills were significantly related to parent stress, when child behaviour problems were accounted for, adaptive skills were no longer a significant predictor of parent stress.

It is worth noting that overall, child behaviour problems and social skills only accounted for a small amount of variance in parent mental health. Other child characteristics not included in this study might account for some of the unexplained parent mental health variance in this study. Children's age might have been related to parent well-being. A study by Smith and colleagues (2008) looking at differences in mothers of toddlers and adolescents with autism found that mothers of adolescents reported higher levels of anger than mothers of toddlers and that coping strategies had a much stronger buffering effect in mothers of adolescents when compared to mothers of toddlers with autism. In a qualitative study by Gray (2006), parents of children with autism were interviewed at two time points 8 to 10 years apart. At time 2, parents reported using fewer coping strategies, which might be reflective of better parent adaptation over time and lower levels of stress as their children's behaviours improve over time. Therefore, the age of the child with DD is likely to have an impact on the well-being of their parents.

Given that research has established the importance of social support in terms of the beneficial effects on parent well-being (Ingersoll & Hambrick, 2011; Judge, 1998), this study also investigated the relationship between acquiring social support and depression, anxiety, and hostility in parents. In addition, the contribution to parent mental health from other coping strategies (reframing, passive appraisal, acquiring spiritual support, and mobilizing the family to

acquire help) was also examined. It was hypothesized that social support would predict parent mental health, and that the other four coping strategies would further predict more variance in parent depression, anxiety and hostility beyond what is predicted by social support. This hypothesis was partially supported. Acquiring social support was a significant predictor of depression, anxiety, and hostility in parents, such that more social support was predictive of fewer symptoms of depression, anxiety, and hostility. However, none of the other four coping strategies were significant contributors to any of the parent mental health measures.

The findings that social support was a significant predictor of mental health outcomes is consistent with studies that highlight the relationship between higher levels of social support and better parent well-being (e.g., Benson, 2006; Benson & Karlof, 2009; Feldman et al., 2007; Ingersoll & Hambrick, 2011; Judge, 1998; Pottie & Ingram, 2008). Inconsistent with the results of the present study, researchers have consistently found that other coping strategies, in particular reframing and passive appraisal, are predictive of parent well-being and mental health (e.g., Dunn et al., 2001; Glidden & Natcher, 2009; Lustig, 2002; Pottie & Ingram, 2008; Twoy et al., 2007; Van der Veek et al., 2009). Contrary to most findings, but consistent with the results of the present study, one study by Dabrowska and Pisula (2010) found that avoidant-oriented coping was not predictive of parent stress. In addition, Lee and colleagues' findings indicated that parents' coping did not predict parents' quality of life, as assessed by measures of physical and mental health. It is possible that social support mediates the relationship between parents' mental health and coping skills, explaining why other coping strategies did not account for addition variance in parent mental health beyond social support.

Studies examining parents' social support have studied different types of support, including community support (Hall, 2012; Luther et al., 2005), informal social support (Benson,

2006; Benson & Karlof, 2009), formal support from professionals (Benson, 2006), overall amount of support available (Dunn et al., 2001; Feldman et al., 2007; Ingersoll & Hambrick, 2011), and parents' ability to seek social support (Judge, 1998; Pottie & Ingram, 2008). The measure used in the present study assessed parents' ability to seek social support, rather than the amount of support available. Parents' ability to seek social support might be very closely related to their ability to engage in other adaptive coping strategies, which could explain why other coping strategies did not account for additional variance in parent mental health beyond what was accounted for by parents' ability to seek support. It might be that parents' coping strategies predict mental health beyond available resources and support, but not beyond what is accounted for by their own ability to seek support.

Children's behaviour problems, social skills and parents' coping strategies put together account for approximately a quarter of the variance in parent depression and just under a fifth of the variance in parent anxiety and hostility. Although children's behaviour problems and social skills, and parents' ability to acquire social support were significant predictors of parent mental health, they do not fully explain mental health outcomes in parents given that much of the variance in depression, anxiety, and hostility remains unexplained. It is likely that there are other variables that are also important contributors to parents' psychological well-being. For example, the presence of other children in the family, and in particular, the presence of other children with special needs in the family, might contribute to the variance in parent well-being. In addition, parents' intrapersonal factors might also influence their mental health outcomes; for instance, parents' self-esteem, optimism and pessimism, and feelings of self-efficacy likely have an impact on parents' well-being. This hypothesis is grounded in some empirical support. For example, Feldman and colleagues (2007) found that self-efficacy was closely related to social support in a

sample of caregivers of children with or at risk for a DD. Baker et al. (2005) found that in mothers of children with an intellectual disability, optimism mediated the relationship between mothers' depression and their children's behaviour problems, such that when children exhibited a lot of behaviour problems, mothers who were less optimistic reported more symptoms of depression. Similarly, Trute, Benzies, Worthington, Reddon, and Moore (2010) found that higher positivity (referring to positive affect and positive emotions) in mothers of children with DD was related to better family adjustment and Trute, Hiebert-Murphy, and Levine (2007) found that parents' positive self-image and self-esteem acted as buffers against the negative effects of stress and promoted better family adjustment.

Other factors related to the child's intervention might also account for the remaining variance in parents' mental health outcomes. For example, the degree of parent involvement in the child's intervention and the type of child intervention (e.g., applied behavioural analysis, eclectic approach) might have an impact on their well-being. (Strauss, Vicari, Valeri, D'Elia, Arima, Fava, 2012). Strauss and colleagues' research indicates that interventions that are low in intensity reduce stress in parents, whereas highly intensive intervention programs for children with DD increase parent stress. In addition, Stress et al. found that less parent involvement in their child's intervention program was associated with lower perceptions of the child's problems as being difficult, which was in turn associated with less parent stress.

The findings from this study are in line with McCubbin and Patterson's (1983) Double ABCX model of family stress and adaptation. This model takes into account life stressors and strains, the range of the family's outcomes, and factors that shape the course of family adaptation. By studying how child-related stressors and parents' adaptive resources and coping strategies shape the family's outcome and adaptation, this study can be interpreted within the

context of the Double ABCX model. Child behaviour problems and impairments in social skills can be thought of as stressors or strains that shape how the family adapts. At the same time, parents' coping skills, such as acquiring social support, are part of the family's adaptive resources, which also help shape the family's adaptation. Ideally, parents would be within the "bonadaptation" end of the continuum, with strong family integrity and well-being in response to crises. However, when parents are continuously faced with stressors and they do not have the adequate resources to adapt to crisis situations, families begin to fall into the "maladaptation" end of the continuum. The findings from this study can be used to help parents deal with child-related stressors and to develop stronger adaptive resources to help them adapt better as a family by increasing our understanding of family factors, such as child functioning and parent coping skills, that have an impact on parent well-being.

Implications for Practice and Policy

The results from this study highlight the importance of family-centered intervention services that address the needs of the parents' as well as the child's. Approximately half of the parents in this study reported experiencing clinically elevated symptoms of depression. Similarly, close to one third of the parents in this study experienced clinically elevated levels of anxiety and over one third of parents experienced elevated levels of hostility. As the results of this study show, parents of children with DD are at an increased risk for developing mental health problems, especially those who have limited access to social support and those whose children display severe behaviour problems and impairments in social skills. The results from this study have important implications for practitioners working with children with developmental disabilities, as well as for those working individually with their parents. Therapy and interventions for mental health issues may be ineffective with this population unless the

stressors related to the child's DD are dealt with. In addition, parents' responses can play an important role in their proper implementation of treatments for the child (Head & Abbeduto, 2007). If the parent's functioning is impaired, the child can be negatively affected and the intervention may not benefit the child. Reducing child behaviour problems can potentially help ameliorate parent stress (Herring et al., 2006), depression, anxiety, and hostility. Therefore, intervention services should offer additional support and skills training for parents (Herring et al., 2006) and should help parents develop more adequate coping strategies to help the family better adapt to their situation. Judge (1998) suggests that professional services should aim to improve the family's social support network and to strengthen family functioning. This can be done by offering parent support groups so that parents of children with DD can build a stronger support network with other parents.

Singer, Ethridge, and Aldana (2007) conducted a meta-analysis with 17 studies to investigate the effects of interventions geared to parents of children with DD. The interventions from these studies fell within one of the three following categories: (a) behavioural parent training (BPT), which tends to focus on parent education and behaviour management; (b) cognitive behavioural training (CBT), which tends to focus on developing adaptive coping skills in order to reduce psychological distress and the impact of daily stressors; or (c) multicomponent interventions, which combine the previous two categories. Their findings indicate that BPT and CBT alone were both consistently effective in reducing parent distress and symptoms of depression. All studies that examined the effectiveness of BPT reported collateral improvements in children's behaviours. Singer and colleagues suggest that this result should be tested in CBT treatments for parents of children with DD, given that reductions in parent distress, would be expected to benefit the child's functioning, although improvements in children's behaviour was

not mentioned in any of the CBT studies. Multicomponent interventions were found to be far more effective than either BPT or CBT alone in improving parent well-being in families with children with DD. The results from this meta-analysis highlight the growing need to address the needs of the families of children with DD and suggest that the high levels of distress commonly experienced by parents can be ameliorated through the implementation of adequate interventions that aim to identify and address the needs of the parents.

A conclusion that may be drawn from the findings of the present study is that, given the important role that social support plays in parents' well-being, parents may benefit from interventions that specifically aim to improve parents' social support networks. Luther and colleagues (2005) suggested that parent support groups should be implemented in order to provide parents of children with DD with much needed social support and Dunn et al. (2001) also highlighted the importance of encouraging parents to seek social support. Parents of children with DD lack support at a systemic or formal level, as well as at an informal, individual level. At an individual level, parents may feel disconnected from their families as they lack an understanding of what it is like to parent a child with a DD or fail to provide practical informal support and assistance (Woodgate, 2008). At a larger, more systemic level, parents may feel a sense of isolation that stems from the social stigma and society's lack of understanding of the needs of children with DD and their families (Woodgate, 2008). In Woodgate's study, parents expressed that society does not value their children as much as others and expressed concern regarding inaccessible and unsupportive health care and educational systems that made them feel like outsiders in their child's life. Parents' social support at the individual level can be improved upon by providing parents with parent support groups and respite services that allow parents the opportunity to engage in social activities without worrying about the child's behaviours. Parent

support groups provide parents of children with DD with an opportunity to build a support network of parents who can offer emotional, and even practical, support. Similarly, there is a great need to improve formal support for families of children with DD at a much larger level by improving the way that our health care and educational systems work with parents to provide them with the best services possible for their families. This would require a change in our policies regarding intervention services for children with disabilities and their families. Policies need to address the growing need of families of children with DD for support and help from professionals.

Given that having a child with a DD is strongly linked to other measures of family well-being, it is important for policies to be informed by studies on family well-being so that programs can better address the needs of the family as opposed to the needs of the individual child. Policies should promote successful implementation and easy access of family-centered programs that foster the overall well-being of the family, which will in turn, lead to better child outcomes. Brown, Anand, Fung, Isaacs, and Baum (2003) found that it is difficult for parents to navigate health care and education systems and that parents of children with DD may not know where to look for services or how to access them, making them less likely to have access to potentially beneficial interventions and support. Therefore, policies should be in place that make it easier for parents and families to access opportunities for good quality, family-centered services.

Limitations and Future Directions

One of the limitations of this study might be the heterogeneity of syndromes and delays that are included in the study and have been grouped as *developmental disabilities*. Parents of children with autism have been found to react differently than parents of children with DD

without autism (e.g., Abbeduto et al., 2004; Hastings et al., 2006; Olsson & Hwang, 2001). Therefore, by grouping all diagnostic groups, we are not able to take into account the particular needs of children and parents that are related to the child's specific diagnosis. Conversely, this can also be a particular strength of the study because the sample represents the group of parents that would typically access intervention services. As indicated by Feldman et al. (2007), intervention programs are typically not offered to just one group of children or families, but the families that are accessing intervention services for DD are a heterogeneous group with a wide range of needs. Thus, having such a heterogeneous sample is beneficial in terms of generalizing the data to the population of parents who are currently obtaining services for their children.

Another limitation to this study was the use of self-report measures and parent-report data to assess children's functioning. This is an issue that has consistently emerged in the field of families with children with developmental disabilities. Most studies in this field tend to rely solely on parent checklists and questionnaires as measures of child behaviour problems and adaptive functioning (e.g., Feldman et al., 2007; Hastings, 2003; Hastings et al., 2006; Herring et al., 2006; Ingersoll & Hambrick, 2011). The reliance on parent-report measures of child functioning may pose a problem for interpreting the results from these studies as they may reflect a reporting bias, rather than a true relationship. For example, parents who experience depressive symptoms may view their child's behaviours more negatively. Therefore, studies that examine the relationship between parent well-being and children's behaviours or severity of impairments, would benefit from the use of more objective measures of child functioning or ratings from a second informant, such as a teacher or spouse. Parent-report measures of children's behaviours are valuable sources of information, especially because parents know their children better than anyone else; but a combination of multiple sources of information, such as parent-report

measures and objective assessments of child functioning, would be the best approach to the study of families with children with DD.

The underrepresentation of fathers in the sample is another limitation of this study, since mothers comprised the majority of the sample. This is an issue within the field that should be addressed. The research on paternal outcomes is far less extensive than that on maternal outcomes because studies on families tend to concentrate on mothers' well-being only (Singer, 2006; Hastings et al., 2006; Olsson & Hwang, 2001) or, when mothers and fathers are included in the sample, fathers tend to be underrepresented. For instance, in a study of 149 parents, only 13 were fathers (Ingersoll & Hambrick, 2011), and in Benson's (2006) study of 68 parents, only 8 were fathers. Therefore, efforts need to be put in place to include fathers. Future research should focus on the mental health outcomes of fathers and on potential gender differences in mental health as they relate to children's functioning and coping strategies.

The present study focused on parent well-being and its relationship with child variables and parents' coping strategies. Future studies should examine the relationship between parent mental health, child functioning, and parents' intrapersonal characteristics, such as self-esteem, self-efficacy, and optimism, as other researchers have suggested that they account for some of the variance in parent well-being (Baker et al., 2005; Feldman et al., 2007; Trute et al., 2010; Trute et al., 2007). Future studies should also investigate the relationship between parent mental health and different types of social support, such as informal and formal support, to determine which type of support is more beneficial to parents. In addition, future studies should also investigate how parents' satisfaction with intervention services and service providers impacts their well-being and coping strategies.

Overall, there is a great need to further study factors that contribute to parents' well-being in families with children with DD. The field has made great advances in the past decades, such as understanding stressors in parents of children with DD, the relationship between parent stress and child characteristics, and how coping strategies impact parent well-being. However, more remains to be understood in order to improve the services provided to the families that we study. A large proportion of parents in this study experienced significant symptoms of mental health problems, which were related to children's behaviour problems and social skills, suggesting that intervention serviced need to address, not only children's needs, but also the well-being of their parents. This study not only helps to further understand factors that contribute to parent adaptation, but can also aid in the planning and implementation of family-centered intervention programs for children with DD.

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