PARENTING SELF-EFFICACY AND STRESS IN MOTHERS AND FATHERS OF CHILDREN WITH DOWN SYNDROME

by

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ABSTRACT

In this study, the relationship between the parenting self-efficacy and parenting stress of 53 parents (28 mothers, 25 fathers) of children with Down Syndrome (ages 4 months to 10 years) was explored. Levels of parenting stress in this sample were also compared to norms of parents of typically developing children. Results demonstrated a significant negative correlation between parenting stress and self-efficacy among parents of children with Down Syndrome. Mothers and fathers of children with Down Syndrome reported similar levels of stress and efficacy, although differed on parenting satisfaction and parent related stress. Overall parents of children with Down Syndrome reported higher levels of stress than the normative sample but also slightly higher levels of parenting self-efficacy. These findings highlight the importance of exploring the experiences of both mothers and fathers, and also suggest that parenting a child with Down Syndrome can increase parenting self-efficacy.

Keywords: parenting stress; parenting self-efficacy; Children with Down Syndrome; Mothers and Fathers; Typically Developing children

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TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

Down Syndrome (DS) has been identified as the most common organic cause of mental retardation (Iarocci, Virji-Babul, & Reebye, 2006). Although it is difficult to definitively establish the prevalence of DS, in a recent meta-analysis (Sherman, Allen, Bean, & Freeman, 2007) the prevalence rate was estimated to be approximately 1 in 732 births in the United States. The prevalence of DS across different ethnicities or sub-populations appears to vary from this rate. For example, higher rates of DS have been found among those with Hispanic origins compared to an African American population (Canfield et al., 2006).

DS is associated with many medical conditions and birth defects. For example, heart defects occur in approximately 50% and digestive abnormalities in approximately 10% of individuals with DS (Sherman et al., 2007). With respect to birth defects, some researchers have found that infants with DS are significantly more likely than typically developing (TD) infants to be born with 45 out of 61 major birth defects (Sherman et al., 2007). Medical conditions and birth defects may lead to an increase in hospital visits, surgeries, and financial stress, which in turn can adversely affect the psychological well-being of family members, especially the parents. Indeed, parents of children diagnosed with developmental disabilities may feel “stunned, numb, sad, shock, and regret when first learning of their child’s diagnosis” (Teti, O’Connell, & Reiner, 1996, p. 240).

Despite the considerable stress associated with a DS diagnosis and the increased risk for medical problems among these children, there exists very little research looking at the relations between having a child with DS and parental stress and competence (otherwise known as self-efficacy). The present study strives to determine the relations between parenting stress and parenting self-efficacy in mothers and fathers of children with DS and in comparison to parents of TD children. The conceptual framework that guides this study borrows heavily from the work of Albert Bandura, and in particular, his notion of reciprocal determinism. In the model of reciprocal determinism "behaviour, cognitive, and other personal factors and environmental influences all operate as interlocking determinants that affect each other bidirectionally" (Bandura, 2004, p. 25). Following this model the association between parenting stress and parenting self-efficacy in parents of children with DS, is viewed here as reciprocally determined.

Parenting Stress: A General Overview

From infancy onwards, raising a child comes with a series of ongoing stressors as parents are continuously presented with new demands. Researchers have identified many negative implications of parenting stress for both the parent and the child. For example, higher stress has been linked to parental depression (Gelfand, Teti, & Fox, 1992), deterioration in quality of parenting behaviour (Abidin, 1992), drug use (Kelley, 1992), and child neglect and abuse (Mash & Johnston, 1983). A considerable number of studies have

looked at the effect of parenting stress on parenting behaviour. The findings consistently suggest that the more stress a parent is experiencing, the poorer the parenting behaviour (Deater-Deckard, 1998). Poor parenting behaviours are reflected by authoritarianism, harsh and negative parenting styles and less involvement and interest in the child. Parental stress appears to increase the likelihood that children will receive inadequate stimulation in their interactions with their parents (Adamakos, Ryan, Ullman, & Pascoe 1986), and form insecure attachments with their caregivers (Teti, Nakagawa, Das, & Wirth, 1991). Parenting stress has been found to potentially lead to problems for children in all important developmental domains: behavioural, cognitive and physical (Deater-Deckard, 1998). Moreover, a link has been found between parenting stress and child maladjustment, such as aggression (Deater-Deckard, 1998), externalizing behaviours (Morgan, Robinson, & Aldridge, 2002) and psychopathology (Wertlieb, Wergil, & Feldstein, 1988).

Parenting Stress among Parents of Children with Disabilities

The question of whether families of children with disabilities experience different levels of stress than families with TD children has been studied at length and researchers have consistently found that parents who have a child with an intellectual disability, including DS, report higher levels of stress than parents of TD children (e.g., Scott, Atkinson, Minton, & Bowman, 1997; Roach, Orsmond, & Barratt, 1999). Recently, however, researchers have changed how they frame this question. The perspective of families of children with disabilities was

predominantly negative before the early 1980s; children with disabilities were thought to be a cause of stress and unhappiness in their families (Hodapp, 2007). In 1983, Crnic, Friedrich, & Greenberg, initiated a shift from viewing a child's disability as being inherently detrimental to the family unit to a stress and coping perspective. According to this new model, the family's responses to stress are thought to be mediated by both the coping resources that the family members (both individually and as a whole) have available to them, as well as the environment (i.e., ecological domains) in which they interact (Crnic et al., 1983). This framework posits that every individual and every family will respond differently to various life events and stressors, for example having a child with a disability. Although stress research has shown that stressors can seriously disrupt parents' functioning and their interactions with their children, the extent to which disruption occurs depends on the parents' psychological well-being and personal resources (Webster-Stratton, 1990). Indeed, it has been suggested that depending on the circumstances, challenging life events have the potential to either bring a family closer together or contribute to their failure (Hodapp, 2007).

Falik (1995) explored the impact of a child's learning disability on the family system and proposed a mediational perspective. According to Falik's model, the child's learning disability is a "triadic experience, involving interactions among the child who experiences the dysfunction, the family who is affected by the disability and the external environment where the disability is manifested" (p. 336). This family system perspective is similar to a "stress and coping" view of disabilities; the child's learning disability presents a system with a stressor that

will be reacted to either adaptively or resistively, that is, how family members respond to the stressors related to the child's disability will either negatively or positively impact how they interact with the child and the family structure (Falik, 1995). An encouraging finding in this area has been that parenting a child with a disability can lead to positive outcomes, such as increased sensitivity, opportunities to learn, improved family dynamics, and positive changes in life perspectives (Hastings & Taunt, 2002). As noted earlier, findings such as these move us away from the stereotype that having a child with a disability automatically translates into difficulties and suffering for the family. This is not to suggest that the previous research has reported predominantly positive outcomes for parents of children with disabilities, rather it signifies that researchers have begun to re-conceptualize how they approach this research. The relationship between parental stress and having a child with disabilities is no longer the only focus of research; other mitigating factors and their effect on stress are now being considered.

Despite this shift in perspective to a stress and coping model, there has still been a considerable amount of research conducted focusing on how parenting a child with an intellectual disability can negatively affect parental stress. In a meta-analysis looking at the prevalence of depression in mothers, Singer (2006) found that mothers of children with disabilities were at elevated risk of depression compared to the mothers of TD children. Longitudinally, these findings were consistent over a period from 1982-2003. However, a closer analysis of these findings indicates that 70% of the mothers who have a child

with a developmental disability do not have elevated symptoms of depression, indicating that while the incidence of depression among this population is somewhat elevated, it is by no means the case that all, or even most, of mothers of children with disabilities are depressed, which suggests that the incidence of depression among this population is not as severe as initially thought (Singer, Ethridge, & Aldana, 2007). It has also been suggested that parents with children who have intellectual disabilities are at more risk for marital discord and divorce (Singer, 2006). However, a recent meta-analysis (Risdal & Singer, 2004) revealed that the increase in the rate of divorce among parents of children with disabilities over the rate for parents without children with disabilities is actually quite small (6%).

Parenting Stress and Down Syndrome

The question arises as to what factors can influence the stress level of parents of a child with DS. In a study looking at stress among fathers of children with DS, one particularly interesting finding was that parental stress was positively correlated with the age of the child (Ricci & Hodapp, 2003). In this study it was found that an increase in the child's age corresponded to higher levels of reported stress by the fathers. These findings were consistent with the finding from previous research (Warfield, Krauss, Hauser-Cram, Upshur, & Shonkoff, 1999) that the stress of mothers of children with disabilities showed a dramatic increase over time.

There are a number of possible explanations for why a positive correlation appears to exist between the age of a child with a disability and reported parental stress levels. Children with DS begin to slow in their development rates as they get older, creating a larger gap between them and TD children past the preschool years (Hodapp & Fidler, 1999). Studies have also shown that although the cognitive abilities of infants with DS may initially be high, by age three their scores shift downward (Warfield et al., 1999). Children with DS also display a weakness for language, which may make communication between parents and children more difficult over time (Crombie & Gunn, 1998), which can have an impact on parent child relations and parents experience of stress.

Parenting Stress: Down Syndrome versus Other Developmental Disabilities

Typically, researchers looking at stress in parents with children who have intellectual disabilities have used children with DS as a comparison group for other disabilities, such as autism, Williams Syndrome or Fragile X Syndrome (e.g., Fidler, Hodapp, & Dykens, 2000; Lewis, Abbeduto, Murphy, Richmond, Giles, Bruno et al., 2006). The studies using this mixed group format of comparing DS to other developmental disabilities have reported what has been coined a “Down Syndrome advantage” (Seltzer & Ryff, 1994; Hodapp, 2007). The DS advantage refers to the consistent finding that when compared to families of children with other disabilities, families of children with DS appear to cope better and experience less stress (Hodapp, 2007). For example, in a

comparative study of stress in mothers with children with autism and DS, Pisula (2007) found that mothers of children with autism reported higher levels of stress than mothers of children with DS, particularly in relation to the dependency of care and the unpredictability of child-rearing tasks.

Fidler et al. (2000) looked at stress in families of children with DS, Williams Syndrome and Smith-Magenis Syndrome and found significant differences among the groups. In this study, parents of children with DS reported less pessimism and lower levels of parental and family problems than both the other groups. The researchers also found that age played a factor in the levels of stress reported by parents of children with DS. In contrast to other reports (Ricci & Hodapp, 2003; Warfield et al., 1999) it was found that the younger the child, the higher the reported stress level. The researchers hypothesized that this trend could be a result of later development of positive personality traits such as empathy (Fidler et al., 2000). These researchers also looked at potential predictors of stress in the families of all three groups of children. The authors concluded that children with DS showed less maladaptive behaviour than those with Williams or Smith-Magenis Syndromes, which may have accounted for the lower levels of stress in their parents.

The effect of etiology or disorder specific behaviours on parental stress has also been explored (e.g., Hodapp, Ricci, Ly, & Fidler, 2003; Eisenhower, Baker, & Blacher, 2005). Looking at the relationship between specific behavioural etiologies and different developmental disabilities (which have been called direct

effects) is a relatively new focus in the literature. It is based on the assumption that different developmental disabilities are associated with certain physical and behavioural features that can set the stage for highly specific ways of behaving and interacting (Eisenhower et al., 2005). These specific behaviours and ways of interacting can then influence how parents and families react and experience stress. In their study, Hodapp et al. (2003) compared the stress levels of mothers of DS children to that of mothers of children with “mixed learning difficulties”. The researchers also sought to identify which child-related behaviours in DS might be related to maternal stress. Overall, mothers of children with DS experienced lower levels of child-related stress than mothers of children with mixed learning difficulties. Interestingly, they also found that the more the child’s behaviour conformed to the stereotypical “Down Syndrome-like” personality, the less stress mothers experienced.

In a longitudinal study, Eisenhower et al., (2005) explored the relations between etiology-related behaviours of children with DS and specific stress outcomes in parents. These researchers examined how specific disability-related behaviours were associated with the emergence of behavioural problems in children and the mothers’ psychological well-being. The participants included mothers with children diagnosed with DS, autism, cerebral palsy and children without developmental delays. The results suggested that children with DS were the most similar to age matched (mean age 35.3 months) TD children with respect to exhibiting the least behavioural problems. In this study, the mothers of

children with autism reported the highest level of stress, whereas the mothers of children with DS and TD children reported the lowest.

Children with DS have been found to typically display etiology-related personality characteristics, some of which have been supported by research and others that have been established through anecdotal evidence. In terms of research, the etiological personality traits of DS include few maladaptive behaviours and the positive qualities of being loving, happy, affectionate and friendly (Hodapp et al., 2003). The anecdotal stereotypical descriptions of children with DS include characteristics such as being happy to go lucky, social, affectionate and friendly. Interestingly Wishart and Johnson (1990) found that mothers of children with DS overwhelmingly endorsed the stereotypical personality characteristics associated with this disorder. These etiology-related characteristics, whether anecdotal or supported by the research, may offer an explanation for the DS advantage that has been reported within the literature.

Parenting Stress: Down Syndrome versus Typically Developing Children

In terms of psychological distress, reports of parents of children with DS tend to fall somewhere in between parents of TD children and parents of children with other developmental disabilities. To date, there have only been a few studies that have specifically compared DS and TD populations (e.g., Most, Fidler, Laforce-Booth, & Kelly, 2006; Roach et al., 1999; Scott et al., 1997). In the studies that have been done, there does not appear to be a DS advantage when

compared to TD peers. For example, Roach et al. (1999) reported that parents of children with DS have higher child-related and parent-related stress than parents of TD children at the same mental age. Parents in the DS group also reported higher levels of stress associated with lower feelings of parenting competence, more health problems in the parents, greater feelings of role-restriction and higher levels of depression.

Overall, the negative implications associated with parenting a child with a DS compared to TD children may not be as great as initially thought (Seltzer, Greenberg, Floyd, Pettee, & Hong, 2001). Additional studies have also supported the assertion that differences between parenting a child with DS and a TD child may not be as significant as initially assumed. Scott et al. (1997) explored the psychological distress of the parents of infants with DS versus the parents of typically developing infants. Although the parents of infants with DS reported a higher incidence of depression, the effect size was small. The DS parenting group only had a 5.6 % prevalence rate of clinical depression with approximately 80% of this group showing no or minimal signs of depression. Similarly, Roach et al. (1999) found that while parents of children with DS experience more stress than parents of TD children, only a handful of these parents scored in the high range of parenting stress and depression. The low incidence of high levels of stress and clinical depression among parents of children with DS “supports the assertion that parents can necessarily adapt to the special care demands of their children with disabilities” (Roach at al., 1999, p. 431).

Maternal versus Paternal Parenting Stress

In the exploration of the experiences of parents of children with DS, the question also arises as to whether mothers and fathers experiences are different from one another. The literature on parenting stress and DS predominantly focuses on maternal experiences (e.g., Eisenhower et al., 2005; Hodapp et al., 2003; Lewis et al., 2006; Most et al., 2006; Risdal & Singer, 2004; Singer, 2006; Tanaka & Niwa, 1991; Teti & Gelfand, 1991). Of the studies that have explored the differences between mothers and fathers of children with DS, the findings have been mixed (e.g., Krauss, 1993; Roach et al., 1999; Scott et al., 1997. It has been suggested that for mothers and fathers there are different predictors of parenting difficulties and increased risk of depression (Roach et al., 1999). For example, while the diagnosis of DS alone predicted fathers would report parenting difficulties, higher care-giving demands of the child predicted mothers reporting difficulties (Roach et al., 1999).

Another finding within the literature is that mothers of children with DS experience more psychological distress than fathers (Scott et al., 1997). These authors suggested that this difference between mothers and fathers could be due to the mother's experiencing greater fatigue, more intrusive thoughts and higher rates of depression. Roach et al. (1999) also found that greater responsibility for day-to-day care of a child with DS was significantly linked to the mothers' perceived lack of parental competence and depression. Further, consistent with the DS advantage found in the studies on maternal stress, the fathers of children

with DS have been found to report less stress than the fathers of children with other intellectual disabilities (Ricci & Hodapp, 2003).

In summary, it appears that there are likely similarities and differences in how mothers and fathers respond to and cope with having a child with DS. To this end, it has been suggested that the accurate evaluation of such families requires independent assessments of both mothers and fathers (Crowley &Taylor, 1994). However, with so little known about how mothers and fathers differ in terms of their response to having a child with DS, additional research is needed to clarify the nature of these similarities and differences.

Self-Efficacy

The experiences of mothers and fathers of children with DS will also be expanded to look at the relationship between parenting stress and parenting self-efficacy. Albert Bandura first coined the term self-efficacy in the 1970s in reference to a cognitive mechanism that can potentially influence a person's behaviour. At the time, Bandura differentiated between the more popular response-outcome expectancy theories (i.e., contingency learning) and efficacy-expectations (i.e., sense of mastery). A response-outcome expectancy refers to the assumption that a certain behaviour will lead to a certain outcome, whereas an efficacy expectation is "the conviction that one can successfully execute the behaviour required to produce the outcomes" (Bandura, 1977, p. 193). According to Bandura, there are four sources of information that can be highly influential on feelings of self-efficacy. These sources include vicarious experiences, social

persuasion, emotional arousal and performance attainments (Bandura, 1977). Bandura believed that if a person does not believe that he or she can perform the required tasks to produce the desired outcome, then that individual will have difficulty achieving their goal. Therefore, self-efficacy can be thought of as a mediator between knowledge and behaviour, where feelings of self-doubt could impede a person's behaviour (Teti & Gelfand, 1991).

The Relationship between Self-Efficacy and Behaviour

It is theorized that self-efficacy can influence behaviour in a number of ways. Self-efficacy may determine whether a behaviour is initiated and if it is, whether one is able to perform the necessary acts to achieve a goal (Bandura, 1977). Efficacy expectations influence an individual's motivation and effort in the face of obstacles and stressful situations; the stronger the feelings of self-efficacy, the more the person will persist. Self-efficacy can also have a cumulative effect, such that if a person prematurely stops the behaviour necessary to achieve the goal, then the person may develop long-lasting "self-debilitating expectations and fears" (Bandura, 1977, p. 194). While self-efficacy is not the only determinant of behaviour, Bandura believed it is a major determinant of "people's choice of activities, how much effort they will expend, and of how long they will sustain effort in dealing with stressful situations" (Bandura, 1977, p. 194).

Self-efficacy can also be influenced by an individual's perception of whether the desired outcome can be attained through his or her own skills, or

whether external factors are necessary (Coleman & Karraker, 1998). In the case where the individual perceives that external factors outside of one's control are required, then this can have a negative effect on that person's self-efficacy. Whereas if the individual believes that capitalizing on existing strengths or experiences will help master a task, then he or she will likely report greater self-efficacy. Another factor that can influence self-efficacy is the perceived difficulty of the task or goal. Mastery of an easy task will most likely not create an increase in self-efficacy whereas mastery of a difficult task can be indicative of one's ability (Coleman & Karraker, 1997). A task that is simple in nature will not provide an individual with much information about their competency, as it does not require much effort or thought.

Self-Efficacy and Parenting

Parenting self-efficacy refers to the parents' expectations about "the degree to which he or she is able to perform competently and effectively as a parent" (Teti & Gelfand, 1991, p. 919). It is also related to parents' perceptions that they can have a positive influence on their child's development and outcome (Coleman & Karraker, 2007). Given self-efficacy can influence whether an individual persists or gives up when faced with stress or difficult situations, it could conceivably have implications for parenting behaviour which, in turn, could positively or negatively affect how a child is raised and loved.

Indeed, research findings consistently indicate that parental self-efficacy has important consequences for parenting and child development (e.g., Colemen

& Karraker, 2003; Hess, Teti, & Hussey-Gardner, 2004). It has been reported that high maternal self-efficacy beliefs are related to positive parenting practices such as responsiveness, stimulating and non-punitive caretaking, increased sensitivity to the child's needs, active maternal coping orientations, and fewer maternally perceived child behaviour problems (as cited in Coleman & Karraker, 2003). Higher self-efficacious parenting has also been associated with parental efforts to educate themselves about parenting. It is theorized that parents with higher self-efficacy may be freer cognitively and emotionally to attend to their child's growth, development and temperament, leading to parental behaviour that could encourage more adaptive child outcomes (Van Riper, Ryff, & Pridham, 1992). On the other hand, low parental self-efficacy has been correlated with parental depression and stress, as well as both perceived and actual behavioural problems in children. Parents who lack confidence in their parenting abilities tend to be preoccupied with themselves, experience high levels of emotional arousal, lack persistence in parenting and be unable to put parenting knowledge into practice (Grusec, Hastings, & Mammone, 1994).

In an extensive meta-analysis of the parenting self-efficacy literature, Coleman and Karraker (1997) identified numerous ways in which parenting self-efficacy can affect both the parent and the developing child. The effects of low parenting self-efficacy on the parents included: psychological unavailability, defensiveness or controlling behaviour, negative affect, helplessness, depression, stress, a higher likelihood of withdrawing from taxing situations and a sensitivity to difficult child behaviour. It has also been found that parents who feel

less confident in their parenting are more apt to use punitive parenting practices that can escalate into abuse (Mash, Johnson, & Kovitz, 1983). A study by Teti and Gelfand (1991) illustrated the connection between parenting competence and self-efficacy by exploring the experiences of mothers of infants through the use of questionnaires and observing mother-infant interactions. These authors found that maternal self-efficacy correlated with parenting competence, perceptions of infant difficulty and maternal depression. Parenting self-efficacy was found to be the strongest predictor of parenting behaviour regardless of other factors and determined whether parents thought their infant was easy or difficult.

Parenting self-efficacy can also influence the strength of attachment to the parent and the child's behaviour (Coleman & Karraker, 1997). Parents with higher self-efficacy are more likely to have children who exhibit enthusiasm, compliance, acceptance and fewer behavioural problems, and adolescents who are at lower risk for substance use (Coleman & Karraker, 1997). Jones and Prinz (2005) found that parenting self-efficacy can have an effect on a child on other areas as well such as academic success and socio-emotional development. In terms of a child's socio-emotional development, this study found that while higher parenting self-efficacy may facilitate self-regulation and higher feelings of self-worth and self-efficacy, lower parenting self-efficacy may increase a child's anxiety. This study also found that academically, children and adolescents of parents with higher self-efficacy tended to have greater academic success. In

light of all of the research in this area, it is clear that there are many important implications associated with parenting self-efficacy, both for parents and children.

Parental Self-Efficacy and Stress

While there exists a considerable amount of research on parenting self-efficacy, to date there is a paucity of research that explicitly looks at the relationship between stressful circumstances and a parent's sense of competence and mastery. In one of the first studies to explore self-efficacy and feelings of empowerment in parents with psychologically disordered children, Scheel and Rieckmann (1998) found a negative correlation between a parents' perception of stress and their self-efficacy and empowerment. Similarly, in a study looking at the effectiveness of parenting training programs it has been found that as parental stress levels decreased, parenting self-efficacy increased (Gross et al., 2005 as cited in Jones & Prinz, 2005). Additionally, it appears that when parents are under duress or faced with stressful situations, their self-efficacy can play an even larger role than usual in the quality of their parenting, either in a positive or negative way (Coleman & Karraker, 1997).

As noted earlier, parenting self-efficacy can be affected by external factors outside of a parent's control. One such circumstance occurs when a child is diagnosed with a developmental disability such as autism or DS. Looking at self-efficacy in mothers of children with autism, Kuhn and Carter (2006) found that an autism diagnosis frequently led to maternal feelings of guilt and powerlessness, which in turn negatively affected parenting self-efficacy. Mothers who

experienced less guilt and greater agency reported higher levels of self-efficacy, whereas more frequent feelings of guilt were associated with lower self-efficacy (Kuhn & Carter, 2006). Additionally, a negative correlation was found between maternal self-efficacy and parenting stress. Based on these findings, it appears that having a child with a developmental disability could be considered an external stressor that may impact parental competence. However, it would be presumptuous to assume that the impact of having a child with a developmental disability is wholly negative. For example, the stress of having a child with DS may motivate parents to become a more supportive and cohesive unit. From a "stress and coping" perspective, parenting self-efficacy may act as a mediator between the stress associated with having a DS child and the parents' response to this stress. For example, higher stress and lower parental self-efficacy could result in parents feeling helpless when faced with such a stressor, whereas lower stress and higher parenting self-efficacy may help parents to embrace and make the best of a difficult situation. Self-efficacy may influence parents' conceptualization of a child's developmental disability and whether parents utilize all available personal and social resources or tend to give up (Teti & Gelfand, 1991).

To date, only a handful of studies have peripherally explored the link between stress and parenting self-efficacy in parents of children with DS. For example, when exploring coping and psychological distress in Chinese parents of DS infants, Cheng and Tang (1995) found a negative correlation between parents' reported distress level and how optimistic and efficacious the parents felt

about their role. The parents of children with DS so reported significantly lower levels of self-mastery than the parents in the “no disability” comparison group (Cheng & Tang, 1995). In a study looking at parental stress in fathers of DS children, Roach et al. (1999) found a positive correlation between a father’s active involvement in day-to-day care of the child and feelings of parental competence. This outcome supports previous research that has suggested that increased parental involvement can enhance fathers’ attachment to their child and feelings of parental competence (Baruch & Barnett, 1986; Minton & Pasley, 1996; Willoughby & Glidden, 1995).

The Current Study

While there exists many studies exploring parenting self-efficacy or parenting stress in various domains, there is a paucity of research exploring the relationship between the two.

Of the few studies that have been carried out looking at the relationship between stress and parenting self-efficacy, results consistently show a negative correlation between the two variables, demonstrating an important association (e.g., Coleman & Karraker, 1997; Jones & Prinz, 2005; Scheel & Rieckmann, 1998). Some negative implications associated with high parenting stress and low parenting self-efficacy have been identified within the literature, highlighting the importance of further exploration of these two variables.

Research also needs to focus specifically on the relationship between stress and parenting self-efficacy in parents of children with DS to fill in the gap within the literature. Of the two studies that have addressed this issue, both reported a negative correlation between stress and self-efficacy (e.g., Cheng & Tang, 1995; Roach et al., 1999).

This present study fills several gaps within the existing literature, including: a focus solely on the experiences of parents of children with DS, exploring both mothers and fathers, the impact of child's age on parenting stress, and differences in both parenting stress and self-efficacy in parents of children with DS versus parents of TD children. Children with DS already require more resources and care from their parents than TD children, therefore the impacts of parenting stress and self-efficacy could be even more magnified within this population. Therefore it is essential to gain as much information as possible on the experiences of parents of children with DS and the impact that stress may have on their feelings of competence. Such information will help to ensure that proper supports and education can be put into place to help parents and families cope with the challenges associated with DS. This will in turn give us more information on how to maximize the potential of these children, through keeping parents happy and healthy.

Goals and Hypotheses

The present study focuses on the relationship between parenting stress and self-efficacy in parents of children with DS, and whether differences exist

between the experiences of mothers and fathers. These results will be compared to a normative data of parents of TD children to determine whether parents of children with DS significantly differ in ratings of stress and parenting self-efficacy. In addition, the relationship between parental stress and the age of children with DS will be explored and compared to the normative data on typically developing children. The following hypotheses will be investigated:

1. Following consistent findings of a negative relationship between stress and parenting self-efficacy (e.g., Coleman & Karraker, 1997; Gross et al., 2005; Kuhn & Carter, 2006; Scheel & Rieckmann, 1998) across different parenting populations, it is expected that a negative correlation will also exist between stress and parenting self-efficacy in both mothers and fathers of children with DS; the higher the stress, the less self-efficacious individuals will feel in their parenting roles.

2. Despite mixed results in the literature exploring the impact of child's age on parenting stress (e.g., Ricci & Hodapp, 2003; Warfield et al., 1999), the majority of the studies have reported a positive correlation between child's age and parenting stress. Hence, it is hypothesized here that a positive correlation will exist between the child's age and the level of stress reported by both mothers and fathers of children with DS; the older the child, the higher the reported level of stress.

3. Consistent with previous findings that parents of children with DS report higher levels of stress than parents of typically developing children (e.g., Most et al., 2006; Roach et al., 1999; Scott et al., 1997) it is hypothesized that a greater proportion of mothers and fathers of children with DS will report high levels of stress than has been found in the normative sample for a standardized Parenting Stress measure.

4. It is hypothesized that parenting self-efficacy ratings will be higher among parents of children with DS than parents with typically developing children. This hypothesis is based on the assumption that mastery of a more difficult task, such as raising a child with DS, will be more indicative of parenting ability, thus increasing self-efficacy (Coleman & Karraker, 1997). Thus, while a negative correlation between parenting stress and self-efficacy is predicted, it is also hypothesized that parents of children with DS will report higher parenting self-efficacy than parents of typically developing children.

METHODS

Participants

Participants were 53 parents who had a child with DS. This sample included 25 mother/father couples, 2 mothers whose husbands were unable to participate in the study and one mother who was separated from her partner. The mothers ranged in age from 28 to 50 years (*M* = 39.0 years, *SD* = 5.3), and the fathers ranged in age from 32 to 49 years (*M* = 39.4, *SD* = 4.2). In terms of marital status, 98.1% of the participants reported being married/common law and 1.9% reported being separated. All fathers reported being employed full-time, with the exception of one father who identified himself as a homemaker. There was more variability in the mothers' employment status, with 35.7% of mothers identifying themselves as homemakers, 21.4% as employed full-time, 7.2% as employed part-time, 32.1% as a student and 3.6% as retired. The parents' education levels ranged from having completed high school to a graduate degree (see Table 1).

The 28 children with DS included 16 males and 12 females, who ranged in age from 4 months to 10 years (*M* = 4.7 years, *SD* = 2.5). The children predominantly (89.3%) came from homes where English was the primary language spoken, with 7.1% of the families speaking Chinese and 3.6% speaking Spanish. In terms of cultural or ethnic background, 18 of the children with DS

were identified, by their parents, as being English Canadian, followed by Hispanic (n=2), Chinese (n=2), East Indian (n=1), First Nations (n=1), South African (n=1), and English Scottish (n=1).

Table 1.

Mother's and Father's Highest Education Level

	Highest Education Level			
	High School	**Professional Diploma**	**University Degree**	**Graduate Degree**
Mothers	4 (14%)	9 (32%)	11 (39%)	4 (14%)
Fathers	5 (18%)	8 (28.6)	7 (25%)	5 (17.9%)

Participants were recruited through three possible means; the DS Research Foundation (DSRF), Infant Development Program (IDP) workers, or an advertisement in the PREP Program Newsletter. Infant Development Workers are consultants who provide support and service to families of children under three years of age who have or at risk for a developmental delay or disability. Local IDP workers were contacted via email with a brief description of the study and a request for participants. Workers then passed on this information to interested families, who then contacted the researcher via email. The PREP program is a non-profit organization offering services and resources to individuals with DS. The PREP program coordinator was contacted regarding the current study, and an advertisement for participants was printed in their monthly newsletter. The DSRF has a research database of parents of children with DS who are open to participating in research. Letters describing the study and

questionnaire packages were mailed out to 125 of the families on the list. Additionally, parents participating in the Learn at Play Program, an early intervention group at the DSRF, were also asked to participate. The parents provided informed consent via signed informed consent forms and a brief description of the study mailed out with questionnaire packages. Mothers and fathers were asked to fill out the questionnaires separately and without consulting one another. As part of the informed consent process, parents were advised of the confidential nature of the study, that their participation was voluntary and that they could withdraw from the study at any time.

Measures

Parenting Sense of Competence Scale (PSOC)

The Parenting Sense of Competence Scale (PSOC), was first developed by Gibaud-Wallston & Wandersman, in 1978 (as cited in Johnston & Mash, 1989) to measure the extent to which parents of children age three and under perceive themselves as competent parents. The PSOC was later modified by Johnson and Mash (1989) to be used with parents of children between the ages of 0 to 10 years of age, and has become the most frequently used measure of general parenting self-efficacy, also referred to as domain general self-efficacy (Jones & Prinz, 2005). The PSOC is specifically intended to measure two different domains; Parenting Satisfaction and Parenting Efficacy. According to Johnson and Mash, parenting satisfaction is defined as the “quality of affect associated

with parenting" and parenting efficacy as "the degree to which a parent feels competent and confident in handling child problems" (1989, p. 251). Subsequent research looking at the factor structure of the PSOC has supported the presence of the two factors Parenting Satisfaction and Parenting Efficacy (e.g., Ohan, Leung, & Johnston, 2000). Although these two factors are distinct, they have also been found to be strongly correlated (Coleman & Karraker, 1997; Rogers & Matthews, 2004).

The PSOC consists of 16 items that are responded to on a 6-point Likert scale, ranging from "strongly agree", to "strongly disagree". Satisfaction and efficacy scales are added together to form the total self-efficacy score. Higher total scores on the PSOC represent stronger parenting self-efficacy. For the purposes of this study, the PSOC items were slightly modified by changing the language from "child" to "child with Down Syndrome" to reflect the specific population targeted. Both the Parenting Satisfaction and Parenting Efficacy scales appear to have adequate internal consistency (0.80) (Johnston & Mash, 1989). Further, the PSOC has been found to demonstrate good reliability, as well as convergent and divergent validity (Johnston & Mash, 1989; Ohan et al., 2000).

Maternal/Paternal Self-Efficacy Scale

The Maternal Self-Efficacy Scale (Teti & Gelfand, 1991) is a task-specific parenting self-efficacy measure that has been frequently used in previous research (e.g., Coleman & Karraker, 2003; Raver & Leadbeater, 1999; Teti & Gelfand, 1991). A task-specific approach, also known as domain specific self-

efficacy, “focuses on parents’ perceptions of their own competence related to discrete tasks within the domain of parenting” (Coleman & Karraker, 2003, p. 129). The Maternal Self-Efficacy Scale focuses on specific parenting tasks associated with infant care, such as changing and bathing one’s baby, soothing one’s baby, making one’s baby smile, etc. Originally, this measure was intended to be used with mothers; however in 2005 the measure was modified to be used with fathers, thus creating the Paternal Self Efficacy scale (Teti & Gelfand, 1991). The Maternal/Paternal Self-Efficacy Scale consists of 10 items responded to by parents on a 4-point scale, with higher total scores reflecting higher parenting self-efficacy. For the purposes of this study, the word “baby” was changed to “child” in the items to make the scale appropriate to be used with toddlers and young children with DS. The scale has been adapted to slightly older children in the past, with La Roche, Martin, Turner, and Kalick (1995), changing the wording from “baby” to “toddler”.

Teti and Gelfand (1991) found that the Maternal Self-Efficacy Scale had satisfactory internal consistency in both the pilot sample (Cronbach’s alpha = 0.79) and the follow up study (Cronbach’s alpha = 0.86). With respect to concurrent validity, maternal self-efficacy scores have been found to be highly correlated ($r=-0.75$, $p< .001$) with the Parenting Competence scale from the Parenting Stress Index described in the next section. No psychometric properties have been found for the use of the questionnaire for paternal use. For the purposes of this study, all 10 items within the questionnaire were used with both mothers and fathers.

Parenting Stress Index

The Parenting Stress Index (PSI; Abidin, 1995) measures the level of stress within the parent-child dyad. The PSI consists of 120 items that represent two domains; Parent-related and Child-related stress. High scores in the Parent domain are indicative of stress associated with specific dimensions of parental functioning. The Parent domain is broken down into seven subscales: Parenting Competence; Isolation; Health; Role Restriction; Depression; Attachment to Child; and Relationship with Spouse. High scores in the Child domain suggest parenting stress associated with behaviours or characteristics of the child that make it difficult for parents to fulfil their parenting roles. The Child domain is divided into six subscales; Distractibility/Hyperactivity; Adaptability; Reinforces Parent; Demandingness; Mood; and Acceptability.

The majority of the PSI's 120 questions are answered on a 5-point scale ranging from SA (strongly agree), A (agree), NS (not sure), D (disagree), SD (strongly disagree). The Child and Parent domain scores are added to produce a total stress score. In addition to total scores, the PSI provides percentile scores for the Parent and Child domains that allow for the respondent's scores to be compared to the normative sample used in the development of the PSI (Abidin, 1995). The normal percentile range is between 15 and 85, with a percentile score of 86 or above considered to be a high score. The PSI has been found to have strong psychometric properties (Abidin, 1995) and has been used extensively in

over 250 research studies, many of which included children with disabilities (Hodapp et al., 2003).

Procedure

The questionnaire packages were distributed to parents either by mail or in person. Parents sent questionnaires by mail included those who were contacted through the Down Syndrome Research Foundation (DSRF) or an Infant Development Program worker, or parents who responded to the advertisements in the PREP newsletter. A mailed package contained a cover letter explaining the purpose of the study, a consent form, and a letter of endorsement from the DSRF. The DSRF offers education, intervention, research and resources to families and professionals on DS. The package also contained instructions on how to fill out the questionnaires and a checklist of the items that needed to be completed and mailed back. The enclosed questionnaires included the following: the PSOC, the Maternal/Paternal Self-Efficacy measure, the PSI booklet and answer sheet, and a demographics questionnaire. There were two sets of questionnaires in each package, one set for each parent. The mailed out packages included instructions for the parents to fill out the questionnaires separately and to mail the completed questionnaires to the researcher using the stamped return envelope.

The only parents to receive the questionnaires in person were those who participated in the Learn at Play Program at the DSRF. These parents completed the same set of questionnaires during one of the weekly play sessions and

returned them in person to the researcher during the same session. As a token of appreciation, a $20 gift certificate to Toys 'R Us was offered to each household that completed the questionnaires. For those parents who wished to receive their gift certificate by mail, they were asked to indicate this on the checklist and include their mailing address when they sent the packages back. The gift certificates were mailed out within 60 days of receiving the completed questionnaire packages. Parents' participation in the study was voluntary and they were assured of the confidentiality of the information they provided.

RESULTS

Preliminary Analyses:
Associations and Differences between Mothers' and Fathers' Reported Parenting Stress and Efficacy

Preliminary analyses were conducted to examine differences between mothers' and fathers' scores on both parenting stress and efficacy (see Table 2).

Table 2.

Mean Scores, Standard Deviation Scores and Range Scores for the PSI, PSOC and Maternal/Paternal Self-Efficacy Scale

Measure	Mean	Standard Deviation	Range	
			Min.	Max.
PSI – Parent Domain				
Mothers	131.6	28.3	79.0	196.0
Fathers	115.1	30.5	68.0	188.0
PSI – Child Domain				
Mothers	109.6	19.0	79.5	164.0
Fathers	106.8	23.4	75.0	150.0
PSOC – Satisfaction Domain				
Mothers	38.3	7.2	28.0	54.0
Fathers	42.9	8.7	27.0	68.0
PSOC – Efficacy Domain				
Mothers	31.0	5.5	19.0	42.0
Fathers	30.1	4.0	25.0	39.0
PSOC – Total Score				
Mothers	69.3	11.2	50.0	96.0
Fathers	71.2	10.2	55.0	90.0
Maternal/Paternal Self-Efficacy Scale				
Mothers	33.3	4.0	23.0	40.0
Fathers	32.8	3.3	26.0	40.0

Note. Mothers n=28, Fathers n=25.

Paired sample T tests revealed that mothers' reported stress on the Parent domain subscale of the PSI was significantly higher than that of fathers ($t(24)=-2.47$, $p<.05$). The difference between mothers' and fathers' scores on the PSOC's Satisfaction Domain ($M = 38.3$ versus $M = 42.9$) approached significance ($t(24)=-2.03$, $p=.055$), while mothers and fathers scores on the PSI Child domain scale and parenting efficacy on the PSOC did not differ.

Pearson correlations were computed between mothers and fathers scores for each measure (Table 3). As is evident from Table 3, positive correlations were found between mothers' and fathers' scores on all measures, most of which were statistically significant. The only two scores that were not significantly related were mothers' and fathers' ratings on the PSI's Parenting Domain scale ($r = .39$, $p > .05$) and the PSOC's Satisfaction Domain ($r = .38$, $p > .05$). These findings indicate that within individual couples, mothers and fathers tended to experience similar levels of stress and efficacy.

Table 3.

Correlations between the Mothers' and Fathers' Scores on the PSI, PSOC and Maternal/Paternal Self-Efficacy Scale

Measure	Correlation (r)
PSI – Parent Domain	.39
PSI – Child Domain	.67***
PSOC – Satisfaction Domain	.38
PSOC – Efficacy Domain	.57**
PSOC – Total Score	.48*
Maternal/Paternal Self-Efficacy Scale	.44*

*p<.05, **p <.01, ***p<.001.

To test whether the parents' scores on the two measures of efficacy – the PSOC and the Maternal/Paternal Self-Efficacy Scale – were related, I performed Pearson correlations. For both mothers (r=0.65, p<0.001) and fathers (r=0.80, p<0.001) the correlations were positive and significant, which indicated that these instruments were likely measuring similar constructs.

Hypothesis 1:
Parenting Stress and Parenting Efficacy Share a Negative Relationship

To test the hypothesis that parenting self-efficacy and stress would be negatively correlated, correlations between the PSI scores (Child and Parent Domain scores) and the PSOC scores (Satisfaction, Efficacy, and Total Domain scores), and Maternal/Paternal Self-Efficacy Scale scores were computed. Results revealed a similar pattern for both mothers and fathers (see Table 4). With respect to Child Domain stress, for mothers there was a significant negative relationship with the PSOC Total score (r=-.59, p<.001), parenting satisfaction (r=-.56, p<.01), general efficacy (r=-.49, p=<.01) and domain-specific efficacy (r=-.49, p<.01). For fathers, there was a significant negative relationship between Child Domain stress and the PSOC Total score (r=-.64, p<.001) and parenting satisfaction (r=-.66, p<.001). Interestingly, for both mothers and fathers, Child Domain stress was more strongly correlated with parenting satisfaction than with efficacy, with this difference being more pronounced for fathers (r=-.66 versus r=-.37) than for mothers (r=-.56 versus r=-.49).

The pattern of relationships between Parent Domain stress and parenting efficacy, was similar to that between Child Domain stress and parenting efficacy. For mothers, there was a significant negative relationship between Parent Domain stress and the PSOC Total score (r=-.64, p<.001), parenting satisfaction (r=-.69, p<.01), and general efficacy (r=-.43, p<.05), but not domain-specific efficacy (r=-.18, p=>.05). For fathers, there was a significant negative relationship between Parent Domain stress and the PSOC Total score (r=-.64, p<.001), parenting satisfaction (r=-.59, p<.001) and domain-specific efficacy (r=-.43, p<.05), but not general efficacy (r=-.39, p>.05). Again, for both mothers and fathers, Parent Domain stress was more strongly correlated with parenting satisfaction than with efficacy, with the difference this time being slightly more pronounced for mothers (r=-.69 versus r=-.43) than fathers (r=-.59 versus r=-.39).

Table 4.

Correlations between Parenting Stress and Parenting Efficacy

Domains	Parenting Efficacy			
	PSOC Total Score	**Parenting Satisfaction** (PSOC Satisfaction Domain score)	**General Efficacy** (PSOC Efficacy Domain score)	**Domain-Specific Efficacy** (Maternal/Paternal Self-Eff Scale score)
PSI Child				
Mother	-0.59***	-0.56**	-0.49**	-0.49**
Father	-0.64***	-0.66***	-0.37	-0.31
PSI Parent				
Mother	-0.64***	-0.69***	-0.43*	-0.18
Father	-0.64***	-0.59***	-0.39	-0.43*

*p<.05, **p <.01, ***p<.001.

Hypothesis 2:
A Positive Correlation Will Exist between Parenting Stress and Child's Age

To examine whether parental stress tended to increase as children with DS aged, I looked at correlations between the children's age and PSI scores in the Parent and Child Domains. Correlations were generally found to be positive and significant (see Table 5). The one correlation that was non-significant was between children's age and the mothers' Parent Domain stress (r=.27, p>.05). These findings suggested that parental stress, especially in the Child Domain, tends to increase as children with DS age. Interestingly though, for mothers, Parent Domain stress was non-significantly related to children's age whereas for fathers', Parent Domain and Child domain stress appeared to be fairly equally related to children's age (r=.46 and r=.50 respectively).

Table 5.

Correlations between Children's Age and Parenting Stress

	Children's Age
PSI Child-Related Stress Domain	
Mothers	0.49***
Fathers	0.50**
PSI Parent-Related Stress Domain	
Mothers	0.27
Fathers	0.46*

*p<.05, **p <.01, ***p<.001.

Hypothesis 3:

Mothers and Fathers of Children with Down Syndrome Will Report Higher Levels of Stress than Normative Samples

To examine whether parents of children with DS tend to experience higher levels of stress than parents of typically developing children, I compared the PSI percentile scores of the parents in this study to the normative data provided in the PSI manual. According to the PSI manual, the normal range for parental stress is quite broad and falls between the 15th and 80th percentile. A score above the 85th percentile is considered to be in the high range. These percentiles translate into 20% of the normative data falling above the norm, with 15% falling into the high range (this 15% is subsumed under the 20%). The normative data provided in the PSI manual are based on the responses from 2,633 mothers of children ranging in age from 1 month to 12 years and 200 fathers of children ranging from 6 months to 6 years (Abidin,1995). From my sample, raw scores were converted into percentiles using conversion tables in the PSI manual.

The percentages of parents of children with DS whose scores fell above the norm or in the high range are listed in Table 6. The results indicate that parents of children with DS tend to report levels of parent related stress similar to the normative sample, however, a greater percentage of parents fell above the norm within the Child Domain than the Parent Domain (mothers – 21% versus 32%, fathers – 0% versus 32%). These findings suggested that there may be a greater difference between parents of children with DS and parents of typically

developing children in terms of how they experience child-related stress as opposed to parent-related stress.

Table 6.

Percentage of Parents of Children with DS Whose PSI Scores Fell above the Norm

	Above the Norm (score > 80 <85th percentile)	**High range** (score > 85% percentile)
PSI Parenting-related Stress		
Mothers	21%	18%
Fathers	0%	20%
PSI Child-related Stress		
Mothers	32%	29%
Fathers	32%	28%

Hypothesis 4:

Self-efficacy Ratings of Parents of Children with Down Syndrome Will Be Higher than Parents of Typically Developing Children

To explore whether parents of children with DS tend to report different levels of parenting efficacy than parents of typically developing children, I did a simple comparison between the PSOC scores of the parents in my study and the results of a study done by Ohan et al. (2000). The reasoning behind this comparison was to present non-statistical exploratory data in this uncharted area. The purpose of the Ohan et al. study was to determine whether there was evidence to support the PSOC in terms of a stable factor structure and validity. The study had 220 subjects (110 mothers and 110 fathers) and mean PSOC Satisfaction and Efficacy Domain scores were provided for this sample. The

parents in the Ohan et al. (2000) study were screened to ensure they were parents sampled from the general population of typically developing children. The ages of participants were similar to the ages of the parents in the present study. Ohan et al. did not provide direct information on participants levels of education, however, their socioeconomic status (SES) data indicated a mean Hollingshead score (1975) of 2.58 on a 5 point scale, where lower scores equal higher SES. These data suggest that the SES of the Ohan et al. (2000) sample is roughly equivalent to that of the present sample. Table 7 provides a comparison of the mean PSOC scores for my study with the Ohan et al. PSOC scores.

Table 7.

Comparison of the Mean PSOC Domain Scores between Parents of Children with DS and Parents of Typically Developing Children

	Parents of Typical Dev Children (Ohan study) ***M*** **=**	**Parents of Children with DS** ***M*** **=**	**Difference**
PSOC Parenting Satisfaction			
Mothers	38.3	38.3	-
Fathers	41.5	42.9	+.4
PSOC General Efficacy			
Mothers	26.5	31.0	+4.5
Fathers	27.6	30.1	+2.5

In 3 of the 4 comparisons, parents of children with DS scored higher than parents of typically developing children. In the article, Ohan et al. (2000) split their sample into two age groups and separated out gender of the child. For the

purposes of my comparison, I added the two groups together to calculate an overall mean score. Although this comparison does not provide statistical support that parents of children with DS tend to report higher levels of parenting efficacy than parents of typically developing children, it does provide very preliminary data in support of this possibility. Interestingly, it appears that parents of children with DS differ in terms of the domain in which they tend to report higher scores when compared to parents of typically developing children. For mothers of children with DS, there was a positive difference (+4.5) between their mean score for efficacy and the mean score of mothers of typically developing children, whereas the mean scores for these two groups of mothers for parenting satisfaction was equal. There was a similar pattern for fathers of children with DS. For these fathers, there was a greater positive difference (+2.5) between their mean score on satisfaction and the mean score of fathers of TD children than there was for parenting satisfaction (+.4). These comparisons suggested that parents of children with DS tend to report higher levels of general efficacy but very similar levels of parenting satisfaction, when compared to parents of typically developing children.

DISCUSSION

Overview of Research Findings

The purpose of this study was to examine a number of questions with regards to parenting stress and self-efficacy in mothers and fathers of children with DS. Two questions were of central interest to this study. The first main question was whether a relationship existed between parenting stress and parenting self-efficacy. As predicted, an overall negative relationship was found between parenting stress and self-efficacy among parents of children with DS; as parenting stress increased, parenting self-efficacy decreased. The second main question was how does the parenting stress and self-efficacy reported by parents of children with DS compare to normative samples of parents with typically developing children. Overall, the parents of children with DS reported higher levels of stress than the normative sample of parents with typically developing children. Interestingly though, the parents of children with DS actually tended to report slightly higher levels of parenting self-efficacy when compared to the normative sample of parents.

Preliminary Analysis:
Are There Differences between Mothers' and Fathers' Reported Parenting Stress and Efficacy?

In general, the mothers and fathers in my sample reported very similar levels of stress and efficacy, with the exception of parent-related stress and parenting satisfaction. These findings suggest that parents of children with DS experience few differences in raising a DS child with respect to stress and efficacy. In looking more closely at stress, the results suggest that mothers and fathers were in agreement with how stressful they found their child, at least as indicated by the measures used in the present study. These results are consistent with previous findings that mothers and fathers of children with DS generally agree about their children's personalities and maladaptive behaviours (Ricci & Hodapp, 2003). While it appears that parents may experience similar levels of child-related stress, my findings suggest that mothers experience higher levels of parent-related stress than fathers. One possible explanation for this finding is that mothers of children with DS have higher care-giving demands, and therefore experience more parent-related stress than fathers (Roach et al., 1999). This hypothesis is further supported by previous research on parents of typically developing children that suggest that the parent (most often the mother) who takes on the majority of the childcare responsibilities is likely to experience more parent-related stress than the other parent (Wille,1995). Interestingly, it has also been asserted that because mothers typically have greater involvement in childcare than fathers, mothers are more likely to report higher levels of child-

related stress (Abidin, 1995), although this was not true in the present sample. However, the previous research raises an important point of consideration with respect to childcare when assessing parental stress. Within the current study, 11 mothers (39%) reported being full-time homemakers and 9 (32%) mothers reported having part-time employment, which potentially means that up to 71% of the mothers may be engaged in childcare at least half of the time. In comparison, all but one of the fathers reported being employed full time. It would be interesting for future research to more closely examine the relationship between the parental involvement in caring for a child with DS and child and/or parent related stress. Additionally, it would be interesting to explore the demands on the primary care-giving parent so as to inform the development of support programs for these parents or lead to discussions on how to increase the working parent's involvement in childcare.

With respect to parenting self-efficacy, overall mothers and fathers reported very similar levels of efficacy. A positive correlation was found between mothers' and fathers' scores on all 4 measures of self-efficacy, with 3 of the 4 correlations reaching statistical significance. The strongest level of agreement between mothers' and fathers' scores was in the area of general parental efficacy (PSOC – Efficacy Domain). The lowest level of agreement (r = .38. *ns*) was found with parenting satisfaction (PSOC – Satisfaction Domain), with fathers reporting higher satisfaction than mothers. Previous studies using the PSOC to measure parenting efficacy among mothers and fathers have reported conflicting results. Johnston and Mash (1989) found results consistent with the current study, where

fathers reported higher levels of parenting satisfaction than mothers on the PSOC. The authors hypothesized that these findings could be a reflection of the tendency for fathers to focus more on playing with their children and for mothers to assume more instrumental roles. Johnston and Mash suggested that by fathers focusing on playing with their children, as opposed to more child-care related activity, this could lead to an increase in parenting satisfaction. In an attempt to replicate Johnston and Mash's findings, Johnston et al. (2000) compared mothers' and fathers' scores on the PSOC, but did not find any differences. These authors hypothesized that the failure to replicate the findings of the earlier research may have been due to a small sample size (low power) and recommended that further investigation be carried out to look at the PSOC scores of mothers versus fathers.

Question 1:
Do Parenting Stress and Parenting Efficacy Share a Negative Relationship?

Overall, a negative relationship was found between parenting stress and self-efficacy in both mothers and fathers of children with DS; all of the correlations were negative, with 12 of the 16 correlations reaching statistical significance. There appeared to be a stronger negative relationship between parenting stress and parenting satisfaction as opposed to efficacy. This suggests that when stress levels are higher, parents of children with DS are likely to

experience a greater decrease in parenting satisfaction than in parenting efficacy.

When the two different types of stress (child- and parent-related) were examined separately in terms of their relationship with parenting efficacy, the relationships appeared very similar for both mothers and fathers across parenting satisfaction and general efficacy (PSOC Satisfaction and Efficacy Domains). Essentially, it appeared that mothers' and fathers' stress was almost identically related to parenting satisfaction and general parenting efficacy. A different pattern emerged for the mothers and fathers with respect to the relationship between the two types of stress and domain specific efficacy (Maternal/Paternal Self-efficacy Scale). For the mothers, there was a stronger negative relationship between child-related stress and domain specific efficacy than between parent-related stress and domain specific efficacy. The opposite was true for the fathers, where a stronger negative relationship was found between parent-related stress and domain specific efficacy than between child-related stress and domain specific efficacy. These findings suggest that domain specific efficacy (self-efficacy associated with the ability to perform discrete and specific parenting tasks) may be more strongly influenced by different types of stress for mothers and fathers, whereas general parenting efficacy is similarly affected by either child- or parent-related stress.

Based on the findings of the current study, one could tentatively conclude that stress is more strongly related to parenting satisfaction than self-efficacy, in

both general and specific domains. Further exploration of the associations between parenting satisfaction and parenting self-efficacy would be useful in more clearly determining their relationship with stress and could potentially contribute to the development of interventions for families of children with DS that are specifically aimed at decreasing stress. Given the suggestion of a stronger relationship between parent-related stress (versus child-related stress) and parenting satisfaction, it may be helpful for support systems to target the areas that fall under this type of stress, for example, programs or services that foster parent-child attachment, effective spousal communication, feelings of parenting competence and education, and support to alleviate feelings of isolation.

Question 2:
Is There a Relationship between Parenting Stress and a Child's Age?

The findings of the current study suggest that parents of children with DS are likely to experience increasing stress as their child becomes older. Further, it appears that fathers may be more likely than mothers to experience greater stress as their child ages. For fathers, both child- and parent-related stress were significantly correlated with children's age, whereas for mothers only child-related stress was significantly correlated with children's age. Based on these results, it could be hypothesized that mothers are better able to discern between stress that is a result of their child's behaviours versus related to their parenting. As the child ages, and more difficult behaviours and challenges emerge, mothers, like

fathers, become increasingly stressed in response to their child (i.e., their child domain) but this does not spill over into their perceptions of their parenting as it seems to in fathers.

The finding of an overall positive relationship between parenting stress and children's age is consistent with previous research (e.g., Ricci & Hodapp, 2003; Warfield et al., 1999). As children with DS become older, the disability becomes more apparent and developmental gaps between children with DS and the typically developing children widen (Crombie & Gunn, 1996; Hodapp & Fidler, 1999, Warfield et al., 1999). Theoretically, an increase in developmental delays could present new challenges for the parents, which in turn could contribute to parents reporting higher levels of child-related stress. In light of this possibility, it may be helpful for parents of children with DS to be offered ongoing support as their child ages through preschool and into elementary school. It may also be advantageous for early interventions to focus on preparing parents for the anticipated developmental gaps that will likely occur as the child ages. Unfortunately, in British Columbia, Infant Development Workers only offer support to families of children with DS up to the age of three. In light of the positive relationship that appears to exist between parental stress and children's age, the current services being offered within our province may be insufficient and in need of being extended beyond age three.

Question 3:

Do Parents of Children with Down Syndrome Report Higher Levels of Stress than the Normative Sample for the PSI?

Overall, parents of children with DS appear to experience higher levels of stress than parents in the normative sample. This is consistent with previous studies (e.g., Roach et al., 1999) that have found that parents of children with DS are more likely to report higher stress than parents of TD children. It is important to note that within the parent-related stress domain, there was only a marginal increase in stress reported for the parents of children with DS compared to the normative sample. These results suggest that parents of children with DS are similarly motivated to be a parent and that parent characteristics such as attachment, sense of competence, and parental health, are similar whether parenting a child with DS or a TD child.

However, with respect to child-related stress, a much greater proportion (almost double) of parents of children with DS reported stress levels above the norm relative to the normative sample. This finding is consistent with research done by Abidin (1995) that used the PSI to look at the stress of parents of children with disabilities; these parents reported higher levels of child-related stress than parent-related stress. In the PSI, child-related stress is associated with a child's temperament and looks at characteristics such as adaptability, demandingness, mood, acceptability, etc. (Abidin, 1995). With respect to why parents of children with DS would report higher levels of child-related stress, previous studies have indicated that higher scores were associated with the child

exhibiting greater distractibility, demandingness and not measuring up to their parents expectations (Roach et al.,1999; Ricci & Hodapp, 2003).

Based on my findings and the previous research, it appears that the various aspects of a child's temperament likely evoke more stress for parents of children with DS than for parents of typically developing children. Further, parents raising a child with DS face unique and specific child-related challenges that parents of typically developing children do not have to deal with. For example, children with DS may present more difficult care-giving demands than typically developing children, thus taxing the care-giving parent of the child with DS to a greater extent than the care-giving parent of the typically developing child.

The findings of the current study that suggest that parents of children with DS are more likely to experience stress have a number of potential research and clinically related implications. It is important that in future research that includes the PSI report, the two sub-domains of stress for mothers and fathers are reported, as opposed to only the total PSI score. By examining these two distinct domains of stress, it is possible to develop a more accurate picture of which type of stress parents of children with DS are more vulnerable to in comparison to parents of typically developing children. The findings of the current study suggest that parents of children with DS tend to experience unusually high levels of child-related stress. Given this, it may be worthwhile to develop interventions that educate parents on the chid-related behaviours in DS that influence the dynamic,

such as challenges associated with distractibility, adaptability, or higher demands of the child.

Question 4:
Are the Self-efficacy Ratings of Parents of Children with Down Syndrome Similar to Parents of Typically Developing Children?

As predicted, parents of children with DS were found to perceive themselves as having similar levels of overall parenting self-efficacy (satisfaction and efficacy) as parents of children within the general population. Interestingly, it appears that parents of children with DS may tend to experience slightly higher levels of general efficacy ratings than parents in the general population, but similar levels of parenting satisfaction. As previously discussed, according to the PSOC measure, parenting satisfaction relates to the quality of affect associated with parenting, whereas general efficacy is the degree to which a parent feels competent in handling child problems. Consistent with both the stress and coping model (e.g., Falik, 1995; Crnic et al., 1983); Webster-Stratton, 1990) and Bandura's (1977) theory of self-efficacy, it appears that parents of children with DS are generally able to develop effective parenting skills that enhance their sense of competence. Indeed, the specific challenges associated with raising a child with DS versus a typically developing child may be directly related to increased parental competence. This theory is supported by previous findings suggesting that parenting a child with a disability can lead to positive outcomes (e.g., Hastings & Taunt, 2006).

Hopefully, the type of exploratory comparisons undertaken in this study will encourage further research looking at self-efficacy in parents of children with DS versus parents of typically developing children. Ideally, future research will extend the stress and coping perspective and highlight the factors that can contribute to higher parenting self-efficacy among parents of children with disabilities. Such studies should incorporate matched samples if possible. The knowledge that parents of children with DS tend to experience higher levels of parental competence would be beneficial to the development of support groups, psycho-educational groups and early intervention programs. This type of information would allow treatment providers to emphasize and capitalize on parental strengths in an effort to mitigate child-related stress. In addition, this information could also help combat the stereotype that parents of children with DS are generally at a disadvantage when compared to parents of typically developing children. While parents of children with DS may experience more stress, it is very positive to note that despite this, these parents tend to have higher levels of parenting efficacy. This may be a protective factor for children, as low parenting self-efficacy has been associated with risk factors for children (e.g., Coleman & Karraker, 2003; Coleman & Karraker, 1997; Grusec et al., 1994; Jones & Prinz, 2005; Mash et al., 1983; Pridham & Change, 1992; Teti & Gelfand, 1991).

Additional Findings of Interest

There were two additional peripheral findings in this study that are important to highlight. First, only one couple in my sample reported being separated or divorced. This finding contradicts previous research findings that parents of children who have disabilities are at more risk for marital discord and divorce and support (Schell, 1981) However, consistent with my study, Risdal and Singer's (2004) meta-analysis found that the rate of divorce in these populations is actually quite small. In light of the increased stress associated with parenting children with DS, it may be reasonable to assume that these couples would be more likely to experience marital breakdown than parents of typically developing children. Yet, given this does not appear to be necessarily the case, it would be interesting in future research to examine how parents of children with DS are able to maintain a marriage despite higher levels of stress.

The second finding of interest was that even though the parents in my sample reported elevated levels of parenting stress, the majority of the families indicated that they had not yet attended family counselling and had no plans to do so in the future. With regards to the current study, it is not known why these families do not appear interested in accessing family counselling. Given that parents of children with DS may experience higher than average levels of child-related stress and lower parenting satisfaction, additional support, such as family counselling, could be useful for these parents. There is a paucity of research on the strengths or costs of personal counselling for family members of children with

DS. In fact, much of the research on counselling pertains to genetic counselling and pre-screening for DS in pregnant women (e.g., Pilnick, 2008). However, a better understanding is needed of how parents of children with DS perceive family counselling so as to determine whether there are barriers that are preventing these families from accessing this type of support system.

There are several limitations of this study that deserve mention. The first concerns the measurement of child related stress. Although the PSI purports to be a measure of stress experienced by parents, an examination of the Child Domain items reveals that in fact, it is a measure of child behaviour problems. There appears to be an assumption contained in this measure that greater child behaviour problems necessarily corresponds to greater parenting stress. Because the PSI is one of the most widely used measures in the literature on parenting stress, it was deemed most suitable for the purposes of this study. However, the literature would benefit from studies that directly tap parents' subjective experiences of stress. This remains for future research.

An important limitation of the present study is that the children with DS were not matched in mental age to the children in the normative comparison sample. Matching on mental age is standard practice within research comparing developmentally disabled populations with TD populations. This practice avoids the problem of comparing a mentally younger group with a more developmentally advanced group and then concluding that the former is deficient in some way unrelated to being mentally younger. The comparison group used in this study

was the sample on which the PSI normative data were obtained and the PSI manual contains no information regarding their mental age. Consequently, in this study I was limited to matching on the basis of chronological age, a practice that has been utilized in other published studies (e.g., Roach et al., 1999). A replication of the present study in which groups are matched on mental age rather than chronological age remains for future research.

The findings of the current study raise several other important questions that could be addressed in the future. First, the question arises as to whether family makeup, including the absence or presence of other children, could have an impact on parents' stress and self-efficacy. Additionally, further exploration of the impact of existing support systems, including support groups, friends, family etc. on parenting stress and self-efficacy could be carried out.

In general, the current study was exploratory, addressing a relationship (parenting stress and parenting self-efficacy) that has been given very limited attention within existing literature, with the hope of opening the door for further study and discussion.

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