

The role of coping strategies in predicting change in parenting efficacy and depressive symptoms among mothers of adolescents with developmental disabilities

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Abstract

Background Parents of children with developmental disabilities (DD) face greater caregiving demands than parents of children without DD. There is considerable variability in parents' adjustment to raising a child with DD, however. In line with a strengths-based approach, this study explores coping strategies as potential mechanisms of resilience among mothers of adolescents with DD. This study examines the frequency with which mothers use various coping strategies and the extent to which those strategies moderate the relationship between adolescent behaviour problems and aspects of maternal well-being. Both positive and negative dimensions of well-being are explored, with maternal depressive symptoms and perceived parenting efficacy examined as outcomes cross-sectionally and longitudinally.

Methods The present study focuses on 92 mothers and their adolescents with DD. The adolescents had a wide range of diagnoses, all with continuing

special needs. Data were collected from mothers through interviews and self-administered questionnaires when their adolescents were aged 15 and aged 18. A structured assessment of the adolescent was completed during home visits at age 15.

Results Mothers reported frequently using strategies of denial and planning but rarely using strategies of mental and behavioural disengagement to cope with recent stressful situations. Adolescent behaviour problems were found to contribute to greater symptoms of depression and lower feelings of parenting efficacy as well as increases in depressive symptoms over time. Mothers of sons, but not daughters, reported increases in parenting efficacy across their child's adolescent period. Above and beyond adolescent factors, several coping strategies emerged as significant predictors of mothers' symptoms of depression and perceived parenting efficacy. Moreover, use of Active Coping/Planning, Positive Reinterpretation/Growth, and Behavioural/Mental Disengagement as coping strategies moderated the impact of adolescent behaviour problems on maternal depressive symptoms.

Conclusions This study extends previous findings by focusing on both positive and negative dimensions of parent well-being during their child's adolescent period. Adolescence can be a stressful time

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for parents, with typical developmental tasks entailing additional strains for parents of adolescents with DD. The present findings point to several coping strategies that may reduce the impact of challenging behaviours during this period on mothers' symptoms of depression and feelings of parenting efficacy. Certain coping strategies were found to exert a greater impact on maternal well-being for parents of adolescents with higher levels of behaviour problems, suggesting that interventions may benefit from an increased focus on this group of mothers with heightened caregiving demands.

Keywords behaviour problems, coping, depression, developmental disabilities, parenting efficacy

3 Introduction

The demands of raising any child require parents to continuously accommodate and cope with changing caregiving challenges. Parents of children with developmental disabilities (DD) face greater caregiving demands than parents of typically developing children, however (Hauser-Cram *et al.* in press). Some of those demands are related to the cognitive and functional skills of children with DD, which are often delayed or different from those of their chronological age peers, but others are related to levels of behaviour problems, which are often higher among those with DD (Baker *et al.* 2002).

Most of the research on parents' coping strategies as they raise a child with DD focuses on the early childhood years, yet adolescence may represent a uniquely stressful period of time for some families (Lueckling & Fabien 1997). Adolescence is typically characterised as a time of increasing autonomy and decision-making, yet adolescents with DD experience notable constraints on their achievement of personal and economic independence (Hauser-Cram *et al.* 2009). During their child's adolescence, parents may be forced to acknowledge the reality of their child's continued dependence while also facing challenges related to their child's social isolation and peer rejection, puberty, and transition to adult services (Baine *et al.* 1993). Thus typical developmental tasks during adolescence may entail additional strains for parents of adolescents with DD.

The accumulation of stressors beyond those typically experienced in family life may place parents of

adolescents with DD at risk for poor mental health outcomes (Benson & Karlof 2009). Indeed, caring for a child with a disability is typically associated with a heightened level of stress for parents (Orr *et al.* 1993; Baker *et al.* 2002; Yamada *et al.* 2007). Parents of children with DD often report symptoms of depression and anxiety (Dunn *et al.* 2001; Hastings *et al.* 2005; Gallagher *et al.* 2008). Studies comparing parents of children with DD to parents of children without DD have shown small to moderate effect sizes for depressive symptoms (Floyd *et al.* 1996; Singer 2006; Glidden in press).

Although the bulk of research on parenting children with DD has focused on the potential deleterious aspects of caregiving on parental mental health, investigators are increasingly recognising the importance of also studying the positive dimensions of parental well-being (Hastings & Taunt 2002; Dykens 2005). Parenting efficacy serves as one important positive dimension. The expectations that caregivers hold about their ability to parent successfully have implications for their parenting competence and psychological well-being as well as their children's behaviour and socio-emotional adjustment (Jones & Prinz 2005). From a theoretical perspective, a high sense of parenting efficacy is advantageous as individuals are more likely to persist at tasks in which they feel competent (Bandura 1982). Parenting self-efficacy in families of children with DD has received relatively little attention compared with other indicators of parent well-being (Dempsey *et al.* 2008), and no investigation has reported on parenting self-efficacy during the adolescent period. This investigation is partially aimed at redressing this omission.

Parents often report that children's behaviour problems are the most challenging part of raising a child and that feeling efficacious as a parent occurs more readily in the absence of children's maladaptive behaviour (Bogenschneider *et al.* 1997). In studies of families of children with DD, several studies have demonstrated that it is problematic behaviours and not functional limitations *per se*, that predict poor maternal psychological well-being (Abbeduto *et al.* 2004; Herring *et al.* 2006) and high levels of stress (e.g. Hauser-Cram *et al.* 2001; Baker *et al.* 2002). Moreover, behaviour problems have been shown to account for differences in depressive symptoms (Abbeduto *et al.* 2004) and parenting

stress (Blacher & McIntyre 2006) among parents of children with differing disability diagnoses. Although problematic behaviours tend to decrease over time among typically developing children (Spieker *et al.* 1999), they have been found to remain high and stable from early childhood through adolescence (e.g. Tonge & Einfeld 2000; Einfeld *et al.* 2006) or to increase from middle childhood to adolescence among children with DD (Hauser-Cram 2008). These findings point to the importance of considering the levels of adolescent behaviour problems in studying the well-being of parents of children with DD.

Raising a child with a disability can pose a variety of challenges to family functioning, but many families successfully adapt to caregiving demands and view their child as a positive contributor to their family and to their quality of life (Behr & Murphy 1993; King *et al.* 2006). In line with a strengths based approach, recent research has investigated possible resiliency processes that may explain the considerable variability in parents' adjustment to raising a child with a disability (Judge 1998; Glidden *et al.* 2006). Given the salience of adolescents' behaviour problems to parents, research efforts should focus on identifying parent and family resources that moderate the relationship between challenging behaviours and parental well-being. The identification of protective factors has strong implications for intervention efforts.

Use of adaptive coping strategies has been posulated as one mechanism through which parents of children with DD successfully adjust to heightened caregiving challenges. Coping can be defined as 'constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person' (Lazarus & Folkman 1984, p. 141). Research on coping among parents of children with DD has largely focused on the role of problem-focused and emotion-focused strategies in predicting well-being. Problem-focused ways of coping, strategies aimed at managing or altering the cause of the stressor, are generally associated with positive outcomes while emotion-focused ways of coping, strategies directed at regulating emotional responses to the stressor, are generally associated with negative outcomes (Lazarus & Folkman 1984).

Among families of children with DD, greater use of problem-focused strategies has been predictive of higher psychological well-being and lower depressive symptoms, pessimism, and subjective burden (Seltzer *et al.* 1995; Kim *et al.* 2003; Abbeduto *et al.* 2004). Greater use of emotion-focused coping strategies has been associated with lower psychological well-being and higher depressive symptoms, pessimism, and subjective burden (Seltzer *et al.* 1995; Kim *et al.* 2003; Abbeduto *et al.* 2004; Glidden *et al.* 2006; Smith *et al.* 2008). Although these studies highlight the key role of coping strategies, few identify specific cognitive and behavioural strategies that can be targeted in intervention efforts. In line with recent recommendations to move beyond the problem vs. emotion-focused distinction (Skinner *et al.* 2003), this study will use a multidimensional approach to measuring coping in order to further our understanding of the unique relationships between specific coping strategies and aspects of parental well-being.

Only a few studies have focused on parents of adolescents with DD. Glidden & Natcher (2009) explored the impact of individual coping strategies on the subjective well-being of parents of late adolescents with intellectual disabilities (IDs). That study did not examine coping strategies in relation to critical adolescent characteristics, however. The present study addresses this gap by examining coping strategies as a moderator of the relationship between adolescent behaviour problems and aspects of maternal well-being. Smith *et al.* (2008) also explored the well-being of parents of adolescents with DD. Focusing on parents of children with autism, the authors found certain coping strategies to moderate the impact of autism symptoms on mothers' personal growth and anger. For instance, when repetitive behaviours were high among adolescents, mothers who used higher levels of positive reinterpretation and growth had significantly higher levels of personal growth than mothers who used low levels of this coping strategy. Although that study contributes to our understanding of coping as a moderating factor, it's limited by a cross-sectional design and an exclusive focus on parents of children with autism. The current study aims to extend these findings by examining coping as a moderator within a sample of adolescents with diverse DD using a longitudinal design. The present study also contrib-

utes a unique focus on parenting efficacy, which had yet to be examined in relation to coping among parents of adolescents with DD.

The goal of the present study is, therefore, to examine the use and function of coping strategies among mothers of adolescents with diverse DD. Based on previous literature (Judge 1998; Kim *et al.* 2003), it is expected that mothers will report greater use of strategies typically classified as problem-focused coping than strategies that are often classified as emotion-focused coping. A second goal is to assess the extent to which the use of coping strategies predicts aspects of maternal psychological well-being above and beyond family (socio-economic status) and adolescent (behaviour problems, cognitive skills) factors. In line with recent recommendations to examine both positive and negative outcomes among families of children with DD (Hastings *et al.* 2002; Blacher *et al.* 2005), the present study will examine both maternal depressive symptoms and parenting efficacy as outcomes. The role of coping strategies in predicting these outcomes will first be examined cross-sectionally, when the adolescent is aged 15, then longitudinally, predicting change in depressive symptoms and parenting efficacy from when the adolescent is aged 15 to aged 18.

Last, this study aims to examine the extent to which various coping strategies moderate the impact of adolescent behaviour problems on both aspects of maternal well-being, cross-sectionally and prospectively. The buffering model of coping states that coping strategies will have a greater impact on parent well-being under conditions of high stress (Essex *et al.* 1999). Consistent with the buffering hypothesis, we expect coping strategies to exert a greater impact on parenting efficacy and depressive symptoms among mothers of children with higher levels of behaviour problems. In contrast to the buffering hypothesis, the direct effects model predicts that coping will have the same effect on parental well-being regardless of level of behaviour problems (Ensel & Lin 1991). There is empirical support for both the buffering model and the direct effects model of coping. For instance, Essex *et al.* (1999) found that use of emotion-focused coping strategies predicted perceived burden of care among mothers of adults with IDs (direct effect). Among mothers of adults with IDs, Seltzer *et al.* (1995)

found greater use of planning and positive reinterpretation as coping strategies to moderate the impact of caregiving demands on depressive symptoms among mothers of adults with IDs (buffering hypothesis). In addition to main effects, we test hypotheses about the differential impact of coping strategies on mothers' depressive symptoms and parenting efficacy depending on the level of their adolescent's behaviour problems.

This study aims to contribute to limited literature on the use and function of coping strategies among mothers of adolescents with DD by considering both the immediate and long-term influences of coping strategies on maternal well-being. This investigation represents the first effort, to our knowledge, to examine coping as a predictor of parenting efficacy among mothers of adolescents with DD.

The current study focuses on three hypotheses:

1 Mothers of adolescents with DD will report using problem-focused coping strategies (Active Coping, Planning, Suppression of Competing Activities) more often than emotion-focused coping strategies (Focus on and Venting of Emotions, Denial, Positive Reinterpretation and Growth, Behavioural Disengagement, Mental Disengagement).

2 Coping strategies will have main effects on (1) the status of maternal psychological well-being (measured by depressive symptoms and parenting efficacy) when adolescents are aged 15; and (2) changes in maternal psychological well-being between age of 15 and age of 18. It is expected that coping strategies typically classified as problem-focused will predict fewer depressive symptoms and higher feelings of parenting efficacy whereas strategies typically classified as emotion-focused will predict greater depressive symptoms and lower parenting efficacy at age of 15. Problem-focused strategies are expected to predict decreases in depressive symptoms and increases in parenting efficacy while emotion-focused strategies are expected to predict increases in depressive symptoms and decreases in parenting efficacy from age of 15 to age of 18.

3 Coping strategies will moderate the relations between adolescent behaviour problems and maternal psychological well-being (1) at age of 15; and (2) over time from age of 15 to age of 18. The impact of coping strategies is expected to be greater for mothers of adolescents with higher levels of

behaviour problems in predicting maternal psychological well-being.

Method

Participants

Data for the present study were drawn from age of 15 to age of 18 time points of the BLINDED FOR REVIEW, an ongoing longitudinal study on the cognitive and adaptive behaviour development of children with DD and the adaptation of their parents, from infancy through young adulthood (BLINDED FOR REVIEW). The term developmental disabilities (DD) refers a wide range of conditions that involve significant impairments in the domains of physical, cognitive, communication, social and adaptive behaviour development (Bregman 2010). The study was designed as a prospective, non-experimental investigation to generate and test conceptual models of child and family development that included hypothesised predictors of change in children's capacities and parent well-being.

Participants were initially recruited at the time of their children's enrolment in 29 publicly funded early intervention programmes in the Northeast of the USA. Families were invited to participate if their child was less than 24 months old and diagnosed as having Down syndrome ($n = 54$), motor impairment ($n = 77$), or other DD of unknown aetiology ($n = 59$). Participants were recruited to represent the three most common categories of biologically based disability served by early intervention programmes in the states in which they lived.

The present analyses focus on 92 mothers and their adolescents who participated in the age of 15 (T1) and age of 18 (T2) data collection time points of BLINDED FOR REVIEW. Characteristics of the adolescents and their families at T1 are reported in Table 1. The sample was restricted to those adolescents showing continued special needs at age of 15. This selection was based on school designation for special needs services, which was confirmed with a review of school records. The adolescents' average intelligence quotient as measured by the Stanford-Binet Intelligence Scales was 53.61 (SD = 22.54) at T1, with 78% of IQ scores falling below 70. Scores

Table 1 Sample characteristics at T1 ($n = 92$)

	%	Mean (SD)
Adolescent		
Male	49	
Type of disability during early intervention		
Down syndrome	39	
Motor impairment	34	
Other developmental disabilities	27	
Euro-American	92	
Age (years)		15.11 (0.32)
Child Behaviour Checklist		57.42 (10.33)
Stanford-Binet Intelligence Scales		53.61 (22.54)
Mother		
Married	77	
Employed (at least part-time)	74	
Age (years)		43.87 (4.81)
Education (years)		14.22 (2.41)
Family income		
<\$25 000	20	
\$25 000–49 999	29	
\$50 000+	51	

on the Stanford-Binet ranged from 27 to 116. The adolescents' average adaptive skills score as measured by the Vineland Adaptive Behavior Scales was 38.70 (SD = 16.63) at T1, with 99% of scores falling below 70. Scores on the Vineland ranged from 19 to 74. All but one adolescent scored two standard deviations below the mean on cognitive skills, adaptive behaviour, or both. The one exception had an IQ and Vineland score approximately one standard deviation below the mean, but was receiving special education services through the public school system for his disability. Type of disability was based on diagnosis at the time of early intervention because except for those with Down syndrome, the adolescents held a wide variety of diagnoses at the time of this study.

Roughly half of the adolescents were male ($n = 49$). The majority of the adolescents were of Euro-American descent (92%), reflecting the racial and ethnic composition of MA and NH at the time when the participants were initially recruited. Approximately 20% of the families in this study were low income (<\$25 000), 29% of the families were middle income (\$25 000–49 999), and 51% of the families were above middle income (\$50 000+) at T1. The mothers in this sample were on average

43.87 (SD = 4.81) years of age with an average of 14.22 (SD = 2.41) years of education. The majority of mothers were married (77%) and working at least part-time (74%).

Procedure

Six months prior to their child's 15th and 18th birthdays, parents were contacted to request their participation in the age of 15 and age of 18 waves of data collection. Parents were sent letters requesting their continued participation, which were followed up with phone calls from research assistants to schedule home visits. Parents were sent consent forms and then questionnaire packets several weeks prior to the interview, which were collected by staff members during the home visit.

Participating families were visited in their homes by two field staff members trained to be reliable for all measures used in data collection. While one staff member conducted a multidimensional, structured evaluation of the adolescent followed by an interview, the other staff member interviewed the mother. The mother interview included an evaluation of the child's adaptive behaviour, questions about demographic information, questionnaire data, and specific questions about raising a child who had early special needs. The home visits lasted approximately 2–3 h. Participants were compensated for their time.

Measures

Family socio-economic status

Information on years of maternal education and annual family income was collected through demographic questionnaires during the home visits at T1. As maternal education and family income were moderately correlated ($r = 0.56$, $P < 0.01$), scores on these variables were converted to z-scores and averaged to create a composite family socio-economic status variable. The family socio-economic status composite was used as a predictor in the main analyses.

Adolescent characteristics

Child gender and type of disability were recorded when the families entered the study. Type of disability

(Down syndrome, motor impairment, other DD of unknown aetiology) was based on the diagnoses the children received at the time of their enrolment in early intervention. Children with Down syndrome had their diagnosis confirmed with medical record review. Children with motor impairment demonstrated abnormal muscle tone or coordination deficit, with or without other areas of delay, when they entered early intervention programmes. Children with other DD of unknown aetiology demonstrated delays in two or more areas of development with no established diagnosis or cause at the time of their enrolment in early intervention. Adolescents in the present sample had continuing special needs with a wide range of diagnoses. Type of disability at the time of early intervention was used in preliminary analyses. Adolescent gender was a predictor in the main analyses.

Adolescent cognitive skills

Adolescent cognitive skills were assessed by trained research assistants using the Stanford-Binet Intelligence Scale – Fourth Edition (Thorndike *et al.* 1986), a widely used instrument that has demonstrated good internal consistency (Glutting 1989) and good evidence of validity (Thorndike *et al.* 1986). The abbreviated battery, consisting of the fluid reasoning and knowledge sub-scales, was administered during home visits at T1. The standardised score for the abbreviated battery was used as a predictor in the main analyses.

Adolescent behaviour problems

Mothers were asked to complete the Child Behaviour Checklist during the home visits at T1 (CBCL; Achenbach 1991). Mothers were asked if 112 statements regarding child behaviour were not true (0), sometimes/somewhat true (1), or very/often true (2) of their child in the study. The Cronbach's alpha reliability coefficient for the mother report was 0.99, indicating very satisfactory reliability. Raw scores on total behaviour problems were converted to *t*-scores separately by gender in accordance with the manual. The *t*-score for adolescent behaviour problems, with higher scores indicating greater behaviour problems, was used as a predictor in the main analyses.

Maternal coping

Carver *et al.*'s (1989) multidimensional coping inventory (COPE) was used to assess the various ways people respond to stressful events. Mothers were asked to complete this inventory in a self-administered questionnaire packet sent to the home several weeks prior to the TI home visit. For each item, mothers were asked to indicate on a 4-point scale how often they used a particular coping strategy when experiencing a difficult or stressful event (1 = *not at all* to 4 = *a lot*). The inventory consists of 13 four-item scales, each reflecting a conceptually distinct style of coping. Eight of the original 13 scales were used in the present study as predictor variables in the main analyses to be consistent with previous research on the relationship between coping and well-being among parents of children with disabilities (Seltzer *et al.* 1995; Smith *et al.* 2008).

Carver *et al.* (1989) defined each of the coping strategies measured in this study. Active Coping refers to direct action to remove a stressor or lessen its effects (e.g. 'I take additional action to try to get rid of the problem'). Planning refers to thinking about how to cope with a stressor, such as action strategies or the steps to take to best handle a problem (e.g. 'I try to come up with a strategy about what to do'). Suppression of Competing Activities is the attempt to put other problems aside to focus on the challenge at hand (e.g. 'I put aside other activities in order to concentrate on this'). Positive Reinterpretation and Growth involves reframing a problem in a positive light or restructuring a stressful transaction in positive terms (e.g. 'I look for something good in what is happening'). Denial is the refusal to believe the stressor exists or the attempt to act as though the stressor is not real (e.g. 'I refuse to believe that it is happening'). Mental Disengagement refers to efforts to distract oneself from thinking about the problem (e.g. 'I turn to work or other substitute activities to take my mind off things'). Last, Behavioural Disengagement involves reducing one's efforts to deal with a particular stressor (e.g. 'I give up the attempt to get what I want').

As the Active Coping and Planning sub-scales are theoretically and statistically related ($r = 0.76$, $P < 0.01$), these scales were combined for the

regression analyses. Indeed, Carver *et al.* (1989) found that the items in the Active Coping and Planning scales loaded onto a single factor in a factor analysis of the COPE inventory items. In a sample of mothers and fathers of children with autism, Hastings *et al.* (2005) also found that items on the Brief COPE inventory related to active coping (e.g. 'take action to make a situation better') and planning (e.g. 'come up with a strategy about what to do') loaded onto a single factor. The Active Coping and Planning composite scale for this study was created by averaging participants' scores on the Active Coping and Planning sub-scales and will be referred to as Active Coping/Planning.

In addition, the Mental Disengagement and Behavioural Disengagement sub-scales were combined for the regression analyses based on the claim by Carver *et al.* (1983, 1989) that mental disengagement is a variation on behavioural disengagement. Hastings *et al.* (2005) also found variations of behavioural disengagement (e.g. 'give up trying to deal with it') and mental disengagement (e.g. 'do something to think about it less') to load onto the same factor. In this study, participants' responses on the Behavioural Disengagement and Mental Disengagement scales were significantly correlated ($r = 0.37$, $P < 0.01$). The composite variable was created by averaging participants' scores on these two sub-scales and will be referred to as Behavioural/Mental Disengagement.

Possible values for each coping scale (including the composite scales) ranged from 0 to 12, with a higher score indicating greater use of that coping strategy. Cronbach's alpha reliability coefficients for the coping scales ranged from 0.56 to 0.88, with only one sub-scale (Suppression of Competing Activities) with a reliability coefficient less than 0.60. These reliability coefficients are similar to those reported in Carver *et al.*'s (1989) original study. Coping strategies were entered as predictors in the main analyses.

Maternal depressive symptoms

Mothers' depressive symptoms were measured using the Center for Epidemiological Studies-Depression scale (CES-D; Radloff 1977). Mothers were asked to complete this inventory in a self-

administered questionnaire packet sent to the home several weeks prior to the T1 and T2 home visits. The CES-D is a 20-item measure describing a range of behavioural and emotional responses that are indicators of depression. Mothers were asked to rate on a 4-point Likert scale how often each of the statements (e.g. 'I feel lonely', 'I talked less than usual') was true for them in the past 2 weeks. Higher scores indicate greater depressive symptoms. The Cronbach's alpha reliability coefficient for the CES-D was 0.93, indicating high reliability. The distribution of CES-D scores was approximately normal. Extreme high scores were top-coded and extreme low scores were bottom-coded to preserve the relative ordering of the data but avoid violating the normality assumption of ordinary least squares (OLS) regression. This truncation method is recommended for random outliers as extreme values can have deleterious effects on power, accuracy and error rates in OLS regression (Osborne & Overbay 2004). Maternal depressive symptoms was an outcome variable in the main analyses.

Maternal parenting efficacy

Parenting efficacy was measured using the Parenting Confidence sub-scale of the Family Experiences Questionnaire (FEQ; Frank *et al.* 1986). Mothers were asked to complete this inventory in a self-administered questionnaire packet sent to the home several weeks prior to the T1 and T2 home visits. Mothers were asked to indicate on a 4-point Likert scale the extent to which they agreed with statements regarding perceived competence and attitudes toward parenting (e.g. 'I know that I am doing a good job as a parent', 'Whenever I start feeling comfortable as a parent, something goes wrong and the doubts start all over again'). Higher scores indicate greater parenting confidence. The Cronbach's alpha reliability coefficient for this sample was 0.89, indicating satisfactory reliability. The distribution of FEQ scores was approximately normal. Extreme high scores were top-coded and extreme low scores were bottom-coded to preserve the ordering of the data but avoid violating the normality assumption of OLS regression (Osborne & Overbay 2004). Maternal parenting efficacy was an outcome variable in the main analyses.

Results

Preliminary analyses

Preliminary analyses were conducted to determine if the outcome variables, maternal depressive symptoms and maternal parenting efficacy, significantly differed by adolescent gender and type of disability. Independent means *t*-tests indicated that maternal reports of depressive symptoms did not significantly differ by the adolescent's gender at T1, $t(90) = -0.10$, $P = 0.92$, or T2, $t(79) = -0.22$, $P = 0.83$. Maternal parenting efficacy did not significantly differ by adolescent gender at T1, $t(90) = -0.06$, $P = 0.83$; however, there was a significant difference at T2, $t(78) = -2.11$, $P = 0.04$, with mothers of boys ($M = 48.72$, $SD = 5.84$) reporting significantly higher parenting efficacy than mothers of girls ($M = 45.88$, $SD = 6.18$). Adolescent gender was therefore included as a predictor in the main analyses.

Preliminary analyses were conducted to determine if levels of the outcome variables or coping strategies differed by the three diagnostic categories (Down syndrome, motor impairment, other DD). Mothers' reported use of coping strategies did not differ by adolescent type of disability. An ANOVA by type of disability revealed no significant group differences in maternal parenting efficacy at T1, $F_{2,89} = 0.05$, $P = 0.96$, or T2, $F_{2,77} = 0.30$, $P = 0.74$. Maternal depressive symptoms did not differ by type of disability at T1, $F_{2,89} = 0.28$, $P = 0.76$, or T2, $F_{2,78} = 1.71$, $P = 0.19$. Dummy variables for type of disability were therefore not included in the main analyses.

As seen in Table 2, maternal depressive symptoms at T1 were highly correlated with maternal depressive symptoms at T2, $r = 0.63$, $P < 0.001$. There was no significant mean level change in maternal depressive symptoms from T1 to T2, $t(80) = 0.69$, $P = 0.49$. Twenty-three per cent of mothers at T1 and 25% of mothers at T2 scored at or above the clinical cut-off score of 16 on the CES-D. Maternal parenting efficacy at adolescent T1 was highly correlated with maternal parenting efficacy at T2, $r = 0.63$, $P < 0.001$. There was no significant mean level change in maternal parenting efficacy from T1 to T2, $t(79) = -0.62$, $P = 0.54$.

In relation to behaviour problems, approximately 41% of the adolescents in the sample received scores greater than 60 on the CBCL at T1, indicat-

	Mean (SD)	<i>r</i>	<i>t</i>
Maternal depressive symptoms		0.63***	0.69
T1	9.09 (9.37)		
T2	8.49 (8.23)		
Maternal parenting efficacy		0.63***	-0.62
T1	46.91 (5.56)		
T2	47.26 (6.15)		

Table 2 Change in maternal depressive symptoms and parenting efficacy from T1 to T2

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Coping scale	Classification	M (SD)
1. Denial	Emotion-focused	11.29 (1.21)
2. Planning	Problem-focused	8.65 (2.73)
3. Positive Reinterpretation and Growth	Emotion-focused [†]	8.50 (2.56)
4. Active Coping	Problem-focused	7.84 (2.41)
5. Suppression of Competing Activities	Problem-focused	6.10 (2.11)
6. Focus on and Venting of Emotions	Emotion-focused	6.07 (2.72)
7. Mental Disengagement	Emotion-focused	3.13 (1.96)
8. Behavioural Disengagement	Emotion-focused	1.50 (1.82)

Table 3 Rank order of frequency of reported strategy use

[†] Although Lazarus & Folkman (1984) regard this strategy as emotion-focused, it has been argued that it should be considered problem-focused (e.g. Seltzer *et al.* 1995).

ing a risk for clinically significant behaviour problems. Fourteen per cent of the adolescents received a score greater than 70, suggestive of a great risk of clinically significant behaviour problems.

Plan of analysis

To address the first research question, the frequency of reported strategy use was listed in rank order. To address the second research question, predictors were entered hierarchically into a series of ordinary least squares regression models in the following steps: (1) family socio-economic status (SES); (2) adolescent gender, cognitive skills, behaviour problems; and (3) maternal coping. To address the final research question, a centred interaction term for coping by adolescent behaviour problems was entered in the fourth and final step of each regression model.

Separate regression models were conducted for each of the six coping scales, with parallel sets of models conducted for each of the outcome variables. For the cross-sectional analyses, the outcome

variable at T1 was entered as the criterion variable. For the prospective analyses, the outcome variable at T1 was mean centred and entered as a covariate in the first step of the model with the outcome variable at T2 as the criterion variable. The regression coefficients in the prospective analyses are interpreted as the effect of each predictor on changes in the outcome variable from T1 to T2 (Cain 1975; Kessler & Greenberg 1981).

Frequency of strategy use

Table 3 displays the mean frequency of use for each coping strategy in descending order. Mothers in this sample reported the greatest use of Denial as a coping strategy, followed by Planning, Positive Reinterpretation/Growth, Active Coping, Suppression of Competing Activities, and Focus on and Venting of Emotions. The least commonly used coping strategy in this sample was Behavioural Disengagement, followed by Mental Disengagement.

Table 4 Hierarchical linear regression models predicting maternal depressive symptoms at T1 (final standardised coefficients)

Predictor	Active Coping and Planning	Suppression of Competing Activities	Positive Reinterpretation and Growth	Focus on and Venting of Emotions	Denial	Behavioural and Mental Disengagement
Step 1						
25 Socio-economic status	-0.23 ^t	-0.26**	-0.31***	-0.28**	-0.23**	-0.21*
Step 2						
Adolescent gender [‡]	-0.12	-0.07	-0.10	-0.14	-0.13	-0.09
Adolescent cognitive skills	0.16*	0.19*	0.16 [†]	0.24*	0.18*	0.19*
Adolescent behaviour problems	0.36***	0.41***	0.38***	0.30**	0.33***	0.17*
Step 3						
Maternal coping	-0.33***	-0.27**	-0.27**	0.19 [†]	-0.37***	0.52***
Step 4						
Maternal coping X adolescent behaviour problems	-0.20*	-0.09	-0.22*	0.07	-0.09	0.03
Total r^2	0.48	0.40	0.47	0.36	0.47	0.54

[†] $P < 0.10$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

[‡] 1 = Male, 0 = Female.

Predicting maternal depressive symptoms

Cross-sectional analyses

Table 4 presents the final standardised coefficients for the regression analyses with maternal depressive symptoms at T1 as the criterion variable. Each column presents the final coefficients for one regression model. Lower levels of socio-economic status predicted higher levels of maternal depressive symptoms. Adolescent cognitive skills and behaviour problems, but not gender, were significant predictors of depressive symptoms. Greater use of Suppression of Competing Activities and Denial but lower use of Behavioural/Mental Disengagement predicted fewer maternal depressive symptoms at T1, above and beyond family SES and adolescent characteristics. The impact of Active Coping/Planning and Positive Reinterpretation/Growth on maternal depressive symptoms at T1 both significantly differed by the level of adolescent behaviour problems. As seen in Fig. 1, use of Active Coping/Planning moderated the relationship between adolescent behaviour problems and maternal depressive symptoms. Similarly, use of Positive Reinterpretation/Growth as a coping strategy moderated the impact of adolescent behaviour problems on maternal depressive symptoms (Fig. 2). The impact of Active Coping/Planning and Positive Reinterpretation/Growth was greater for mothers of

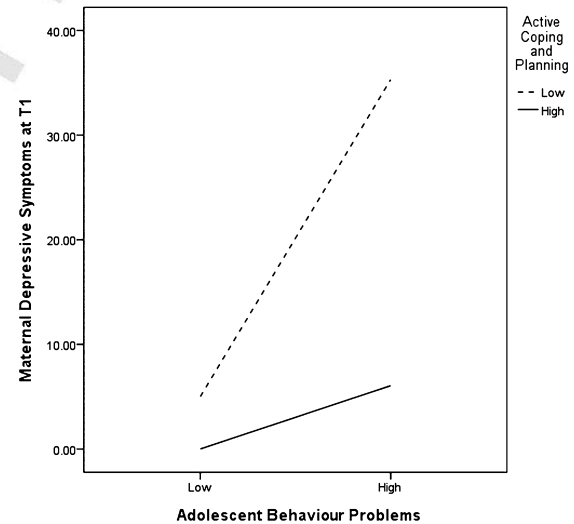


Figure 1 Interaction of Active Coping and Planning by adolescent behaviour problems predicting maternal depressive symptoms at T1.

adolescents with higher behaviour problems than for mothers of adolescents with lower behaviour problems.

Prospective analyses

Table 5 presents the final standardised coefficients for the lagged regression analyses predicting maternal depressive symptoms at T2 from adolescent and

maternal factors at T1, controlling for levels of maternal depressive symptoms at T1. Socio-economic status and adolescent gender were not significant predictors of change in maternal depressive symptoms from T1 to T2. Adolescent behaviour problems – but not adolescent cognitive skills – were a significant predictor of change in depressive symptoms, with higher behaviour problems predict-

ing increases in depressive symptoms from T1 to T2. Behavioural/Mental Disengagement moderated the relationship between behaviour problems and change in depressive symptoms, such that greater use of Behavioural/Mental Disengagement predicted greater increases in depressive symptoms from T1 to T2 for mothers of adolescents with high levels of behaviour problems than for mothers of adolescents with low levels of behaviour problems.

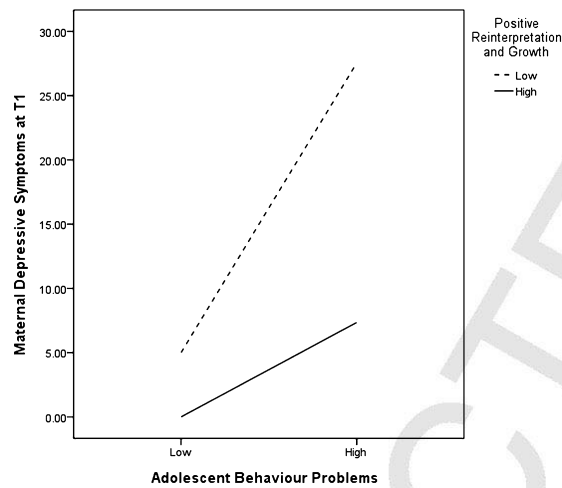


Figure 2 Interaction of Positive Reinterpretation and Growth by adolescent behaviour problems predicting maternal depressive symptoms at T1.

Predicting maternal parenting efficacy

Cross-sectional analyses

Table 6 presents the final standardised coefficients for the regression analyses with maternal parenting efficacy at T1 as the criterion variable. Socio-economic status was not a significant predictor of parenting efficacy. Among adolescent factors, behaviour problems – but not gender or cognitive skills – predicted parenting efficacy, with greater levels of behaviour problems predicting lower levels of parenting efficacy. Greater use of Active Coping/Planning, Positive Reinterpretation/Growth, and Denial but lower use of Focus on and Venting of Emotions and Behavioural/Mental Disengagement as coping strategies was associated with higher parenting efficacy, controlling for family SES and adolescent characteristics.

Table 5 Hierarchical linear regression models predicting maternal depressive symptoms at T2 (final standardised coefficients)

Predictor	Active Coping and Planning	Suppression of Competing Activities	Positive Reinterpretation and Growth	Focus on and Venting of Emotions	Denial	Behavioural and Mental Disengagement
Step 1						
Maternal depressive symptoms at T1	0.52***	0.53***	0.52***	0.52***	0.48***	0.35**
Step 2						
Socio-economic status	-0.02	0.00	-0.01	-0.01	0.00	-0.04
Step 3						
Adolescent gender [‡]	0.02	0.02	0.03	0.00	-0.02	0.00
Adolescent cognitive skills	-0.10	-0.11	-0.12	-0.07	-0.10	-0.05
Adolescent behaviour problems	0.29**	0.28**	0.29***	0.22*	0.30**	0.23*
Step 4						
Maternal coping	0.03	0.01	-0.06	0.13	-0.04	0.19 [†]
Step 5						
Maternal coping X adolescent behaviour problems	-0.08	-0.01	0.02	0.17 [†]	-0.16 [†]	0.25**
Total <i>r</i> ²	0.47	0.46	0.47	0.50	0.49	0.55

[†] $P < 0.10$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

[‡] 1 = Male, 0 = Female.

Table 6 Hierarchical linear regression models predicting maternal parenting efficacy at T1 (final standardised coefficients)

Predictor	Active Coping and Planning	Suppression of Competing Activities	Positive Reinterpretation and Growth	Focus on and Venting of Emotions	Denial	Behavioural and Mental Disengagement
Step 1						
Socio-economic status	-0.10	-0.04	0.01	-0.02	-0.08	-0.11
Step 2						
Adolescent gender [‡]	0.11	0.09	0.10	0.15	0.11	0.08
Adolescent cognitive skills	-0.08	-0.12	-0.07	-0.15	-0.10	-0.10
Adolescent behaviour problems	-0.29**	-0.32**	-0.31**	-0.21 [†]	-0.26*	-0.09
Step 3						
Maternal coping	0.35***	0.15	0.33***	-0.27*	0.37***	-0.53***
Step 4						
Maternal coping X adolescent behaviour problems	0.15	0.15	0.16	0.01	0.02	0.01
Total <i>r</i> ²	0.27	0.16	0.28	0.18	0.25	0.34

[†] $P < 0.10$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

[‡] 1 = Male, 0 = Female.

Table 7 Hierarchical linear regression models predicting maternal parenting efficacy at T2 (final standardised coefficients)

Predictor	Active Coping and Planning	Suppression of Competing Activities	Positive Reinterpretation and Growth	Focus on and Venting of Emotions	Denial	Behavioural and Mental Disengagement
Step 1						
Maternal parenting efficacy at T1	0.46***	0.52***	0.55***	0.57***	0.56***	0.44***
Step 2						
Socio-economic status	-0.11	-0.07	-0.04	-0.03	-0.03	-0.09
Step 3						
Adolescent gender [‡]	0.20*	0.17*	0.22*	0.22*	0.22*	0.24*
Adolescent cognitive skills	-0.04	-0.05	-0.08	-0.09	-0.08	-0.08
Adolescent behaviour problems	-0.12	-0.11	-0.10	-0.08	-0.09	-0.02
Step 4						
Maternal coping	0.26**	0.27**	-0.03	0.02	-0.03	-0.26*
Step 5						
Maternal coping X adolescent behaviour problems	-0.10	-0.17 [†]	0.07	-0.10	-0.01	0.05
Total <i>r</i> ²	0.50	0.54	0.43	0.44	0.43	0.46

[†] $P < 0.10$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

[‡] 1 = Male, 0 = Female.

Prospective analyses

Table 7 presents the final standardised coefficients for the lagged regression analyses predicting maternal parenting efficacy at T2, controlling for maternal parenting efficacy at T1. Socio-economic status was not a significant predictor of change in parenting efficacy. Adolescent gender was a significant predictor, with mothers of boys

reporting increases in parenting efficacy over time. Adolescent cognitive skills and behaviour problems did not predict changes in parenting efficacy. Greater use of Active Coping/Planning and Suppression of Competing Activities predicted increases in parenting efficacy, whereas greater use of Behavioural/Mental Disengagement predicted decreases in parenting efficacy from T1 to T2.

Discussion

The goal of the present study was to examine the use and function of various coping strategies among mothers of adolescents with DD. Based on previous research (Essex *et al.* 1999; Abbeduto *et al.* 2004; Smith *et al.* 2008), it was expected that mothers would report greater use of strategies typically classified as problem-focused coping (Active Coping, Planning, Suppression of Competing Activities) than strategies typically classified as emotion-focused coping (Positive Reinterpretation and Growth, Denial, Focus on and Venting of Emotions, Behavioural Disengagement, Mental Disengagement). This hypothesis was partially supported. Although mothers reported frequent use of Planning, Active Coping, and Suppression of Competing Activities, they also reported frequent use of Denial and Positive Reinterpretation and Growth. Denial was the most frequently used strategy and Behavioural Disengagement was the least frequently used strategy. Frequent use of planning and active coping but infrequent use of mental and behavioural disengagement is consistent with other samples of mothers of children with IDs (Seltzer *et al.* 1995) and Down syndrome (Sullivan 2002). The preference for denial found within this sample is inconsistent with prior research on coping among mothers of children with disabilities (Seltzer *et al.* 1995; Sullivan 2002). The second and third hypotheses related to the function of individual coping strategies, as either a main effect or moderating effect. Each coping strategy will be discussed in turn, in order of their classification as problem-focused coping or emotion-focused coping (Carver *et al.* 1983; Folkman & Lazarus 1984). It was expected that greater use of problem-focused strategies but lower use of emotion-focused strategies would predict lower depressive symptoms and higher parenting efficacy.

Problem-focused coping strategies

Mothers' use of active and planful efforts to alter the source of their stress was found to moderate the relationship between their child's level of behaviour problems and their depressive symptoms. This finding is consistent with Seltzer *et al.* (1995), who found planning to moderate the impact of caregiv-

ing demands on depressive symptoms among mothers of adults with IDs. This study extends our understanding of the benefits of active coping by revealing a strong contemporaneous and longitudinal relationship with mothers' feelings of parenting efficacy. As expected, Suppression of Competing Activities predicted lower depressive symptoms. Use of this strategy also predicted increases in parenting efficacy over time. These findings suggest that putting aside other activities to focus on the problem may have an immediate beneficial effect on depression symptoms, but a lagged beneficial effect on parenting confidence.

Emotion-focused coping strategies

Although mothers reported rarely using Behavioural/Mental Disengagement as a coping strategy, its use had strong cross-sectional associations with depressive symptoms and parenting efficacy and related to detrimental changes in parenting efficacy over the 3-year period studied. Behavioural/Mental Disengagement was found to moderate the impact of child behaviour problems on changes in maternal depressive symptoms, with greater use of this strategy being associated with increases in depressive symptoms for mothers of adolescents with higher levels of behaviour problems. This finding is consistent with Essex *et al.* (1999), who found that use of emotion-focused strategies, including Behavioural/Emotional Disengagement, predicted increases in caregiving burden over time among mothers of children with greater functional limitations. Use of Focus on and Venting of Emotions was also expected to predict poor outcomes, but it was not a strong predictor of maternal well-being. Greater focus on emotions was associated with lower feelings of parenting efficacy at T1 but was unrelated to depressive symptoms. These findings are surprising given the strong link between rumination and depression found in the general literature (e.g. Thompson *et al.* 2010) as well as the literature on parents of children with disabilities (e.g. Van der Veek *et al.* 2009). The focus on emotions may be taking a greater toll on confidence as a parent than on mental health.

Positive Reinterpretation and Growth, also referred to as positive reappraisal, is often defined as an emotion-focused coping strategy as it involves

cognitive efforts to reframe a situation in a positive light (Lazarus & Folkman 1984; Carver *et al.* 1989). Research on coping among parents of children with DD has frequently defined Positive Reinterpretation/Growth as a problem-focused strategy, however, as it is associated with other problem-focused strategies (Seltzer *et al.* 1995; Essex *et al.* 1999; Abbeduto *et al.* 2004). Reframing problems in a positive light was found to have a positive association with parenting efficacy contemporaneously. Use of this strategy was also found to moderate the impact of behaviour problems on maternal depressive symptoms, such that Positive Reinterpretation/Growth had a greater impact on depressive symptoms for mothers of adolescents with greater problematic behaviour. This finding is consistent with prior research in this population (Seltzer *et al.* 1995; Essex *et al.* 1999). The findings related to Positive Reinterpretation/Growth highlight the importance of considering the impact of individual coping scales on parental outcomes, as the beneficial effect of this coping strategy would have been masked if it were combined with other emotion-focused strategies.

The function of Denial also contradicted the research hypothesis, as it predicted lower depressive symptoms and higher feelings of parenting efficacy contemporaneously. This finding is inconsistent with previous research demonstrating the negative impact of denial on the depressive symptoms of mothers of adults with IDs (e.g. Seltzer *et al.* 1995). Carver *et al.* (1989) discussed the potential for denial to be an adaptive coping strategy in the short term, as not dealing with stressors may allow an individual to maintain a sense of well-being. Denial may also be adaptive for mothers who perceive the stressors in their lives as beyond their control, following Folkman & Lazarus' (1980) assertion that emotion-focused strategies may function to minimise emotional reactions to stressors. Given the frequency with which the mothers in this sample reported using denial as a coping strategy, future research should investigate the potential adaptive function of denial among mothers of children with disabilities.

Adolescent characteristics

Several characteristics of the adolescent were predictive of mothers' well-being. First, this study lends

further support to existing literature highlighting the role of child behaviour problems in predicting parental well-being (e.g. Abbeduto *et al.* 2004; Herring *et al.* 2006; Smith *et al.* 2008). Problematic behaviour predicted maternal well-being contemporaneously as well as depressive symptoms prospectively. Second, adolescent cognitive skills also related to mothers' depressive symptoms, with higher cognitive skills predicting greater symptoms of depression among mothers. This finding is consistent with early research on families of children with DD that found stress to be greater in families of children with mild levels of ID as compared with families of children with more extensive ID (Bristol 1984). Problematic behaviour was a more consistent predictor of well-being than cognitive skills, however, as it predicted parenting efficacy and changes in depressive symptoms. This finding lends support to the notion that problematic behaviour is more salient than cognitive skills to aspects of maternal well-being.

In addition, adolescent gender predicted changes in mothers' parenting efficacy over time, with mothers' of boys experiencing increases in parenting efficacy from their child's mid- to late-adolescence. Several studies have found that child gender influences the parenting beliefs and practices of parents of typically developing children (Jones & Prinz 2005). It has been found that parents, especially fathers, of sons report higher levels of parenting self-efficacy than parents of daughters (Bogenschneider *et al.* 2007; Leerkes & Burney 2007). Findings from the present study are consistent with this literature and suggest that child gender may also impact beliefs about parenting among mothers of children with DD.

Adolescents with diverse disabilities were represented in this study. A heterogeneous sample allowed us to test for differences in well-being between mothers of adolescents with and without a known chromosomal abnormality. We did not find significant group differences in depressive symptoms or parenting efficacy, whereas others have found that parents of children with known chromosomal abnormalities report higher well-being (e.g. Hodapp *et al.* 2001). Our results support the finding that it is behaviour problems, and not disability diagnosis, that accounts for differences in aspects of maternal well-being (Abbeduto *et al.* 2004; Blacher & McIntyre 2006).

Conclusion

This study contributes to the growing literature on the multidimensional nature of coping by examining the use and function of various coping strategies independently. Above and beyond family socio-economic status and adolescent characteristics, several coping strategies emerged as significant predictors of maternal depressive symptoms and maternal parenting efficacy, both cross-sectionally and longitudinally. By examining each coping strategy individually, the relations between emotion-focused and problem-focused strategies and maternal well-being were disentangled. Strategies such as Positive Reinterpretation/Growth and Denial emerged as adaptive coping strategies, contrary to what might be expected of emotion-focused strategies in general.

This study also extends the research base on the role of coping processes as moderators of the relationship between adolescents' challenging behaviours and aspects of maternal well-being. As expected, certain coping strategies had a greater impact on depressive symptoms and parenting efficacy in conditions of high stress, in this case in the context of high levels of adolescent behaviour problems. The impact of problematic behaviours on depressive symptoms was reduced by greater use of Active Coping/Planning and Positive Reinterpretation/Growth as coping strategies among mothers of adolescents with higher levels of behaviour problems. Conversely, the impact of problematic behaviours on changes in depressive symptoms over time was exacerbated by use of Behavioural/Mental Disengagement as a coping strategy for mothers of children with higher levels of behaviour problems.

The present study supports and extends previous literature on the role of coping strategies in predicting aspects of positive well-being over time. Although much research on the adjustment of parents to raising a child with a disability has focused on parents' depressive symptoms, very little research has examined predictors of parenting efficacy in this population. Yet cognitions about one's ability to parent successfully are at the core of parenting competence (Coleman & Karraker 2000). Parenting efficacy is strongly associated with parents' ability to provide stimulating and nurturing

environments for their children (Coleman & Karraker 2000). This association is consistent with Bandura's (2006) notion that personal efficacy is a pertinent mechanism of human agency. Unless individuals believe that their actions will produce the desired result, they have little incentive to act or persist in the face of challenges (Bandura 2006). Mothers who feel more effective in their parenting role are thus more likely to engage in parenting practices in the face of caregiving challenges, according to this view. Beyond child outcomes, parenting efficacy is related to important aspects of parental well-being, including parenting stress and general feelings of worthlessness (Jones & Prinz 2005).

The longitudinal design of this study lends support to the hypothesis that coping processes impact well-being; however, the possibility of the opposite direction of effects should be acknowledged. It is possible that mothers with greater depressive symptoms, for instance, are more likely to employ certain coping strategies, such as ruminating on negative emotions and disengagement. Few studies have investigated the role of parent and family factors (e.g. personality, parenting role) in predicting the choice of coping strategies and their efficacy at reducing symptoms of distress among parents of children with disabilities (Glidden *et al.* 2006). Future research should more explicitly examine factors that contribute to the use and function of various coping strategies.

Limitations

This study has several limitations. First, the statistical power of the analyses was reduced by a small sample size. A larger sample size would have allowed exploration of additional predictors, for instance the impact of different types of behaviour problems on maternal well-being. Second, the cultural and socio-economic homogeneity of the sample limits the generalisability of these findings. Moreover, the present sample consists of adolescents with early onset disabilities who received early intervention services, thereby limiting the generalisability of these findings to families of adolescents with late onset or acquired disabilities and to families who did not receive similar early intervention services. Third, shared variance is a limitation in

this study as the majority of measures were mother report. Last, fathers were excluded from this study because of limited sample size in data collected from fathers. Consideration of the impact of fathers' coping strategies on aspects of their well-being would have improved our understanding of resiliency processes among parents of adolescents with disabilities more generally.

Despite its limitations, this study contributes to our understanding of the mechanisms through which mothers successfully adapt to raising a child with a disability. Few studies focus on processes of resilience among mothers of adolescents, yet adolescence may represent a particularly stressful period of development for parents. The findings of this study point to specific coping strategies that influence both positive and negative outcomes among these mothers. Coping skills education, such as cognitive behavioural training, has been found to effectively reduce depressive symptoms and other forms of psychological distress among parents of children with DD (Singer *et al.* 2007). Results from the present study further suggest the use of coping skills interventions to reduce symptoms of depression and promote feelings of parenting confidence among mothers of adolescents with early onset DD. Moreover, these findings indicate that mothers of adolescents with high levels of behaviour problems should be targeted for intervention efforts, given the increased salience of coping strategies to the well-being of these mothers.

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