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## Preschool children with and without developmental delay: behaviour problems, parents' optimism and well-being

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### Abstract

**Background** Children with intellectual disability are at heightened risk for behaviour problems, and these are known to increase parenting stress. This study explored the relation of behaviour problems to less child-related domains of parent well-being (depression and marital adjustment), as well as the moderating effect of a personality trait, dispositional optimism.

**Method** Participating children ( $N = 214$ ) were classified as developmentally delayed, borderline, or non-delayed. Mothers' and fathers' well-being and child behaviour problems were assessed at child ages 3 and 4 years.

**Results** Parents of delayed and nondelayed preschoolers generally did not differ on depression or marital adjustment, but child behaviour problems were strongly related to scores on both measures. Optimism moderated this relationship, primarily for mothers. When child behaviour problems were high, mothers who were less optimistic reported lower scores on measures of well-being than did mothers who were more optimistic.

**Conclusions** Interventions for parents that aim to enhance both parenting skills and psychological well-being should be available in preschool. It may be beneficial for such programmes to focus not only on behaviour management strategies aimed at child behaviour change, but also on parents' belief systems, with the aim of increasing dispositional optimism.

**Keywords** intellectual disability, children, behaviour problems, parental well-being, optimism–pessimism

### Introduction

Intellectual disability (ID) appears to predispose individuals to heightened emotional and/or behavioural problems. This 'dual diagnosis' has been the object of considerable research that has found increased risk for mental disorder in adults with ID (Nezu *et al.* 1992). Evidence for increased risk has now been extended to adolescents and children as well (Einfeld & Tonge 1996; Stromme & Diseth 2000; Molteno *et al.* 2001; Baker *et al.* 2002; Gray & Mohr 2004).

The overall aim of our research programme is to derive a better understanding of this heightened risk for mental disorder in children with ID. We are study-

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ing young children longitudinally from age 3; our focus in the preschool years is on behaviour problems, although we expect that in many cases these will lead to diagnosable mental disorder in later childhood. We have found that children with delays as young as age 3 are already evidencing significantly greater behaviour problems than their nondelayed peers; indeed they are three times as likely to score in the clinical range as their nondelayed age mates (Baker *et al.* 2002).

One focus of our research has been on the relationship between child behaviour problems and parental well-being. Parenting stress was higher in families of children with (vs. without) delays; however, stress was related more to behaviour problem severity than to the developmental delay (Baker *et al.* 2002). The present paper reports an extension of these findings in two directions. First, we extended our measures of parental well-being beyond parenting stress, to examine the relationship of developmental delays and behaviour problems to less child-focused indicators of parental well-being, depression and marital adjustment. Second, despite the strong relationship between child behaviour problems and parental well-being, there is still considerable variability in how individual parents respond. Family researchers in developmental disabilities have paid scant attention to the role of parental personality factors. We examined the individual personality trait of optimism–pessimism as a possible moderator of the relationship between challenging child behaviour and parental well-being.

### Parents' well-being

The aspect of parents' well-being most commonly considered in research on families and disability is stress, variously measured as, for example, parenting stress, negative impact, malaise, and parent and family problems. A clear finding is that parents of children with a physical or intellectual disability experience heightened stress. Parenting stress is evident even in early childhood and across disabilities (Blacher 1984; Rodrigue *et al.* 1990; Baker *et al.* 1997). In one recent study, parenting stress attributed to the family member with a disability was about twice that attributed to the youngest sibling without a disability (Baxter *et al.* 2000). Historically, this

heightened stress was believed to be related to the presence of disability *per se*.

However, recent studies have found that parents' stress is heightened in the presence of child behaviour problems (Stores *et al.* 1998), and, further, that this relationship may account for the association of disability and stress (Floyd & Gallagher 1997; Fidler *et al.* 2000; Baker *et al.* 2003). Donenberg & Baker (1993) found that while parents of preschool children with autism reported higher negative impact than control families, their impact scores did not differ from families of children without delays but with externalizing behaviour problems. Also, Floyd & Gallagher (1997), comparing Child Behaviour Checklist (CBCL) scores from families of children with ID, chronic illness, or behaviour problems (but no ID), found that the presence of significant behaviour problems related to parenting stress more than disability type did. Baker *et al.* (2002) found in regression analyses that once behaviour problems were accounted for, the child's intellectual delay accounted for little or no further variance.

The present study examined the robustness of this finding by considering additional indicators of parent's well-being that are not as directly related to child rearing. Dyson (1997) reported that mothers and fathers with a school-aged child with disabilities experienced heightened child-related stress, but did not differ in overall family functioning from families with normally developing children. Similarly, although Donenberg & Baker (1993) found large differences in stress (negative impact) in parents of preschool children with autism or externalizing problems relative to parents of normally developing children, these authors did not find differences on mothers' reports of depression or marital adjustment.

In the present study we examined indicators of individual (depression) and relationship (marital) well-being. Ever since Olshansky's (1962) provocative essay posing 'chronic sorrow' as a natural and universal reaction to a child with handicaps, researchers and clinicians alike have sought signs of depression. There is some evidence for heightened maternal depression in families with ID (Blacher *et al.* 1997; Olsson & Hwang 2001; Weiss 2002). However, this finding has not been consistent, in part because of methodological shortcomings (e.g. small samples, inadequate controls) (Stoneman & Berman 1993).

When a child has a disability, the marriage may suffer from added burden or the parents may feel closer to one another (Gath 1977; Benson & Gross 1989). Thus it is not surprising that studies have reported some marriages strengthened and some affected adversely (Taanila *et al.* 1996; Heiman 2002). One possible predictor of how marital satisfaction will be affected by disability is child behaviour problems. Simmerman *et al.* (2001), in a study of preadolescents with severe ID, found that greater child maladaptive behaviour was associated with lower marital satisfaction for both mothers and fathers.

### Optimism–pessimism

Family researchers in developmental disabilities have drawn heavily on Hill's (1949) ABCX model of stress and its variations (McCubbin & Patterson 1982; Bristol 1987), wherein the impact of the child as stressor (A) is moderated by parental resources (B), and parental cognitions (C), to result in an outcome of stress or some other indicator of adjustment (X). Family researchers in ID have begun to examine personality or related cognitive variables (primarily C in the model) that may relate to coping with the challenges of child rearing. Most of these involve a positive perspective. Among these interrelated constructs are, positive perceptions (Hastings *et al.* 2002), cognitive coping (Turnbull *et al.* 1993), hope (Padencheri & Russell 2002), hardiness (Judge 1998), and optimism (Hyman & Oliver 2001).

In many cases, however, the measures are not so much of general personality dispositions but of reactions specific to the child with disability. Hyman & Oliver (2001), for example, assessed optimism with two questions about whether parents believed that their child's behaviour problems were permanent and whether intervention would help. The 'Pessimism' scale of the widely used short form of the Questionnaire on Resources and Stress (Friedrich *et al.* 1983) is, in fact, a series of predictions about the future for the child with disabilities. Rousey *et al.* (1992) noted the high correlation of this scale with another scale measuring child capabilities, and cautioned that the score 'does not, necessarily, reflect a pessimistic outlook as much as a realistic appraisal of the situation (p. 107).' Our interest was in studying personality as

a dispositional trait, independent of the particular child rearing situation.

The literature on optimism–pessimism suggests that this personality trait could moderate parent stress levels in the presence of challenging child behaviour, both by influencing cognitions (self-talk) about the child's behaviour and by affecting use of stress-reducing behaviours. Optimism and pessimism, defined as generalized positive and negative outcome expectancies, represent relatively stable individual difference variables that promote or abate psychological well-being (Scheier & Carver 1985). Optimists have a favourable outlook on life; they believe that good rather than bad things will happen to them (Olason & Roger 2001). Researchers distinguish between optimistic explanatory style and dispositional optimism. Optimistic (pessimistic) explanatory style represents typical ways of understanding the causes and implications of events, and involves causal attributions about the internality, stability, and globality of specific events. Dispositional optimism (pessimism) represents generalized positive (negative) expectancies about future outcomes, broadly conceived. Although the two are highly related, our assessment herein was of dispositional optimism.

There is considerable evidence that optimism is beneficial to one's health. Optimistic people, for example, are reported to have fewer illnesses and doctor visits, fewer accidents, greater physician ratings of general well-being, longer survival time following a heart attack or AIDS diagnosis, and a longer life (Peterson 2000). Researchers have considered many pathways by which optimism may function to affect healthier outcomes, invoking effects on the immune system, cognition, emotions, social relationships, and health-promoting behaviour (Aspinwall & Brunhart 2000; Peterson 2000). At a cognitive level, Beck and colleagues have argued that chronic engagement in pessimistic thinking may lead to the development of a psychological vulnerability to experiencing negative emotions, which may contribute to psychological disturbances as indicated by symptoms of anxiety, depression, panic, and anger (Clarke & Beck 1999). Optimistic or pessimistic expectations may result in schemas of success or failure that are chronically accessible, leading to differences in attention, interpretation, and emotional and physiological reactions (Segerstrom 2001). Optimists are more

likely than pessimists to reinterpret negative events in a positive way and to find meaning or growth in stressful experiences.

The optimism literature suggests that mothers' optimism may lead to less distress in the face of challenging child behaviours in at least two ways. Cognitively, less optimistic (more pessimistic) thinking is linked to vulnerability to experiencing negative emotions (Clarke & Beck 1999). Behaviourally, coping strategies are linked conceptually to optimism. Dispositional optimism has an influence on self-regulation – on goal striving and motivation – when people encounter obstacles to reaching their goals (Carver & Scheier 1990). Optimistic persons will see good future outcomes as more likely, and, in turn, will be more likely to persist in pursuing the goal. Optimists may gain an advantage in dealing with threatening events from their preference for more active coping strategies, such as problem solving and social support (Dougall *et al.* 2001). When a situation appears more uncontrollable and active coping may not be possible, optimists report more use of acceptance and positive reinterpretation coping strategies, while pessimists report preferences for palliative coping strategies, such as avoidance and denial. These differences in coping may contribute to the greater distress and poorer health outcomes exhibited by pessimists (Dougall *et al.* 2001). In a recent study of mothers with a child with developmental disabilities, reframing (positive reinterpretation) as a coping strategy was the best predictor of mothers' positive perceptions of their children (Hastings *et al.* 2002).

Beck has implicated optimism–pessimism in stress and depression, and Fincham (2000) makes a similar point regarding marital adjustment. He notes that when a negative marital event is explained using an optimistic explanatory style, there is higher reported marital quality; indeed, he suggests that this association represents, 'arguably, the most robust phenomenon documented in the marital literature' (pp. 274–5). Accordingly, we expected that optimism–pessimism will have a main effect relationship to parents' report of well-being on measures of stress (negative impact), depression, and marital adjustment. We also hypothesized that, in the presence of high child behavioural challenges, optimism–pessimism will have a moderating effect on parental well-being. Optimistic parents will experience less adverse

impact on well-being than pessimistic ones. This role of optimism, as a buffer when faced with a stressor, has been explored less. Indeed, Fincham (2000) goes on to note that 'the paucity of research on explanatory style in the context of stress means that its role as a moderator variable remains unexplored in the marital domain' (p. 276).

The present study examines the well-being of mothers and fathers of young children with and without developmental delay. We questioned whether the pattern of relationships between child behaviour problems and parental well-being, as well as the role of optimism as a buffer, differed for mothers and fathers. Heller *et al.* (1997), studying caretaking burden, found that behaviours and health of the offspring (child or adult) had a greater impact on mothers than on fathers. These authors, in considering explanations, cited research indicating that women are more strongly influenced by stressful events within the family, whereas men are more likely distressed from work and financial events (Conger *et al.* 1993). Following this line of reasoning, we would expect that in the present study mother's well-being would be affected more than father's well-being by child behaviour problems. We did not hypothesize about parent differences in the moderating role of optimism.

We studied mothers' and fathers' well-being at child ages 36 and 48 months, to assess the prediction of well-being from earlier behaviour problems, and to examine the stability of behaviour problems, optimism, well-being, and their interrelationships across 1 year. We addressed two primary questions. First, are parental depression and marital adjustment, indicators of well-being beyond child-related stress, affected by child delay status and/or child behaviour problems? Second, does parents' dispositional optimism moderate relationships between child behaviour problems and parental well-being?

## Method

### Participants

Participants were 214 families with a 3-year-old child. Families had been recruited to participate in a longitudinal study of young children from ages 3–5 years, with samples drawn from Central Pennsylvania and Southern California. This 'Collaborative Family

Study' is based at three universities: Penn State University, University of California, Los Angeles, and University of California, Riverside.

School and agency personnel mailed brochures describing the study to families who met selection criteria, and interested parents phoned the research centre. General selection criteria were that the child be between 30 and 40 months of age and not be diagnosed with autism, as this diagnosis is known to have unique problem behaviours associated with it. Participating children were classified as developmentally delayed ( $n = 81$ ), borderline ( $n = 10$ ), or nondelayed ( $n = 123$ ). We used the term 'developmental delay', because for some of these young children it was not as yet clear whether they would meet criteria for ID (American Psychiatric Association 2000). Delayed group families were recruited primarily through community agencies that serve persons with developmental disabilities. Further selection criteria were that the child: (1) score between 30 and 75 on the Bayley Scales of Infant Development II (BSID II; see *Measures*); and (2) be ambulatory. Nondelayed group families were recruited primarily through local preschools and daycare programmes that serve the same catchment areas as the agencies that serve delayed group children. Further selection criteria were that the child: (1) score 85 or above on the BSID

II; and (2) not have been born prematurely and did not have a developmental disability. Borderline group children had BSID II scores of 76–84. Families were paid an honorarium for participation. All procedures were approved by the Institutional Review Boards of the three universities involved.

Child age at intake averaged 35.2 months ( $SD = 3.0$ ). Overall, there were more boys (58.9%) than girls. Child race/ethnicity was Caucasian (60.7%), Hispanic (15.9%), African-American (6.1%), Asian-American (2.8%) or other/mixed (14.5%). In the delayed group the most frequent diagnoses were Down syndrome (14.8%) and cerebral palsy (11.1%); the majority of children had not received a specific diagnosis. Recruitment initially focused on intact families, so most (85.5%) participants were married (defined here as legally married or living together at least 6 months). The socioeconomic status was generally high, with 49.5% of mothers and 49.7% of fathers having graduated from college, and 51.6% of families having an annual income of \$50 000 or more. Table 1 shows demographic characteristics separately for the delayed and nondelayed groups.

The two status groups did not differ on the child attributes shown in Table 1 except, of course, BSID II scores. However, the percentage of mothers and

**Table 1** Demographic variables by group status (delayed/nondelayed) ( $N = 204$ )

	Status <sup>†</sup>		t or $\chi^2$
	Delayed ( $n = 81$ )	Nondelayed ( $n = 123$ )	
<b>Child variables</b>			
Age at testing (months)	35.6 (SD: 2.88)	34.9 (SD: 3.12)	t = 1.55
Gender (% boys)	65.4	52.8	$\chi^2 = 2.68$
Race (% Caucasian)	59.3	62.6	$\chi^2 = 0.11$
Siblings (% only children)	32.1	29.3	$\chi^2 = 0.08$
BSID II: MDI	58.0 (SD: 11.68)	104.0 (SD: 11.60)	t = 27.70***
<b>Parent and family variables</b>			
Marital status (% married)	81.5	88.6	$\chi^2 = 1.50$
Mother education (% college degree)	30.9	64.2	$\chi^2 = 20.44***$
Mother employment (%)	49.4	60.2	$\chi^2 = 1.88$
Father education (% college degree) <sup>‡</sup>	37.7	58.3	$\chi^2 = 6.51^*$
Family income (% \$50K+)	44.4	58.2	$\chi^2 = 3.16$

BSID II, Bayley Scales of Infant Development II; MDI, Mental Development Index.

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

<sup>†</sup>Borderline IQ group ( $n = 10$ ) not included.

<sup>‡</sup> $n = 184$ .

fathers graduating from college was higher in the nondelayed group. In subsequent analyses we covaried mother education when it correlated significantly with the dependent variable. The small borderline delay group was excluded for status group analyses but included in full sample analyses not examining the status group variable.

### Assessment procedures

The data examined in this study were obtained in two ways. The initial measures of child developmental level and problem behaviours were obtained at a home intake assessment session, conducted when the child was between 30 and 40 months of age. Prior to this session, parents had completed a telephone intake interview with our staff, and had received an informed consent form. Two trained research assistants visited the family for a 2-h assessment session. After reviewing procedures and obtaining informed consent, the staff administered the BSID II to the child. Mother, and father if present, completed a demographic questionnaire and the CBCL (below). The CBCL was obtained again at a home assessment session when the child was 48 months of age. Measures of parental stress, depression, marital adjustment, and optimism were part of a packet completed prior to a home observation, conducted at 36 months or soon after the intake if the intake was later than 36 months, and again at 48 months. These measures, with the exception of optimism, have been used frequently by researchers studying families and developmental disabilities.

### Measures

#### *Assessment of child developmental level and behaviour problems*

*Bayley Scales of Infant Development II (BSID II; Bayley 1993).* The BSID II is a widely used assessment of mental and motor development in children aged 1–42 months. The BSID II was administered in the child's home, with the mother present. In most cases, there was a primary examiner and an assistant. Only mental development items were administered; the Mental Development Index (MDI) is normed with a mean of 100 and a SD of 15. Bayley (1993) reported high short-term test–retest reliability for the MDI ( $r = 0.91$ ).

*Child Behaviour Checklist for ages 1.5–5 (CBCL; Achenbach 2000).* This new version of the widely used CBCL (Achenbach 1991) is aimed at the pre-school years. It has 99 items that indicate child problems, listed in alphabetical order (from 'aches and pains without medical cause' to 'worries'), and one 'other' item. The respondent indicates, for each item, whether it is 'not true' (0), 'somewhat or sometimes true' (1), or 'very true or often true' (2), now or within the past 2 months. The CBCL yields a total problem score, broad-band externalizing and internalizing scores, and seven narrow-band scales. The present study utilized only total problem scores; these are converted to T scores with a mean = 50 and a SD = 10. For some analyses, behaviour problem groups were determined from parents' CBCL Total T scores following Achenbach's (1991) suggested cut-offs. These were designated as Low (T score  $\leq 60$ , indicating nonclinical range) and High (T score  $\geq 60$ , indicating borderline or clinical range).

The CBCL is a widely used assessment instrument for behaviour problems in children without or with intellectual delays. In the present sample, scale alphas at 36 months were equivalent for the nondelayed sample (Mothers = 0.93; Father = 0.93) and the delayed sample (Mothers = 0.95; Fathers = 0.95). The test–retest reliability from age 36–48 months were also equivalent for the nondelayed sample (Mothers  $r = 0.66$ ; Fathers  $r = 0.75$ ) and the delayed sample (Mothers  $r = 0.80$ ; Fathers  $r = 0.72$ ). Convergent validity between the total scores on the CBCL and the Developmental Behaviour Checklist (a measure specifically for children with developmental delays) was found to be very strong,  $r = 0.85$  (Dekker *et al.* 2002).

#### *Assessment of parental well-being and optimism*

*Family Impact Questionnaire (FIQ; Donenberg & Baker 1993).* The FIQ is a 50-item questionnaire that asks about the 'child's impact on the family compared to the impact other children his/her age have on their families' (e.g. Item 1: 'My child is more stressful'). Parents endorse items on a 4-point scale ranging from 'not at all' to 'very much'. The FIQ has six scale scores. Of interest here is a combined negative impact score (from scales measuring negative impact on feelings about parenting (9 items) and social relation-

ships (11). Alphas in the present sample at the 36 month assessment for negative impact were 0.92 (mothers) and 0.89 (fathers).

*Centre for Epidemiologic Studies Depression Scale (CES-D; Radloff 1977).* This is a 20-item self-report scale designed to measure depressive symptoms of mood, feelings, and perceptions. It is a valid and reliable screening instrument frequently used in family research. The scoring range is 0–60, with higher scores indicating greater psychopathology. Radloff (1977) recommends a clinical range of 16 or higher. In the present sample, 18.7% of mothers and 14.7% of fathers scored in the clinical range. Alphas for the present sample at the 36 month assessment were 0.89 (mothers) and 0.86 (fathers).

*Dyadic Adjustment Scale (DAS; Spanier 1976).* The DAS is a 32-item self-report measure that sums to a total score for marital adjustment. Total scores can range from 0 to 151. Higher scores indicate greater marital adjustment, or marital quality. Spanier (1976) reported internal consistency (Alpha) of 0.96. Alphas for the present sample at the 36 month assessment for mothers and fathers were both 0.95.

*Life Orientation Test (LOT; Scheier et al. 1994).* This is a six-item (plus four filler items) self-report measure of dispositional optimism, or people's generalized positive (or negative) expectancies about the future in general. Sample items include: 'In uncertain times, I usually expect the best', and 'If something can go wrong for me, it will.' Each item is rated on a 5-point scale ranging from 0 (I disagree a lot) to 4 (I agree a lot). Answers to three negatively worded items are reversed and the six items are summed for scoring (possible range 0–24). Alphas for the present sample at the 36 month assessment were 0.82 (mothers) and 0.79 (fathers). For analyses of variance, optimism was recoded as a three level variable. Cut-off points were determined for mother and father scores at 36 and 48 months from each frequency distribution and were selected to yield three groups as equal in size as possible. The low optimism group scored  $\leq 14$ ; the moderate optimism group scored 15–18, and the high optimism group scored of  $\geq 19$ .

## Results

### Overview of analyses

The first set of analyses addresses the question of whether the strong relationship between child behaviour problems and parental well-being that has been found with child-related stress is also evident in less child-related domains of depression and marital adjustment. We examined correlations of these two measures with each other and with negative impact (parenting stress). We then conducted ANCOVAs to examine the relationship of group status (delayed vs. nondelayed) and child behaviour problems (borderline/clinical range vs. nonclinical range) to depression and marital adjustment. We conducted all analyses separately for mothers and fathers, and at the 36 and 48 month assessment points. We covaried mothers' education in analyses involving group status. We then employed hierarchical regression to examine the relationship between child behaviour problems and parental well-being over 1 year.

The second set of analyses addressed the question of whether the optimism personality trait moderated the relationship between child behaviour problems and parental well-being. We conducted ANOVAs to examine the relationship of optimism (low, medium, high) to parental well-being, including negative impact. We also examined the moderating, or buffering, effect of optimism on the relationship between child behaviour problems and parental well-being (Baron & Kenny 1986).

### Parental well-being measures: interrelationships and stability

There were moderate relationships among the measures of parental well-being, all significant at  $P < 0.001$ . At the 36 month assessment, measures of depression and marital adjustment correlated  $r(196) = -0.50$  (mothers) and  $r(186) = -0.42$  (fathers). Correlations of negative impact (our child-related stress measure) with depression were  $r(212) = 0.36$  (mothers) and  $r(188) = 0.44$  (fathers), and with marital adjustment were  $r(196) = -0.25$  (mothers) and  $r(186) = -0.30$  (fathers). The correlations at the 48 month assessment were very similar to these. Thus, although these indicators of parental well-being were related, there is good justification for analyzing them as separate domains. Stability from



the 36–48 month assessment, was moderate to high for depression,  $r(212) = 0.62$  (mothers) and  $r(181) = 0.63$  (fathers), and for marital adjustment,  $r(188) = 0.73$  (mothers) and  $r(180) = 0.76$  (fathers).

#### Parental well-being measures: delay status and behaviour problems

The relationship between delay status and clinical status on the CBCL was significant at each assessment. For example, at 36 months, 32.1% of the delayed group and 12.2% of the nondelayed were scored in the clinical range by mothers [ $\chi^2(1) (N = 204) = 12.05, P = 0.001$ ]. At 48 months, mothers scored 29.6% of the delayed group and 13.8% of the nondelayed group in the clinical range [ $\chi^2(1) (N = 204) = 6.65, P = 0.01$ ].

Table 2 shows ANCOVAs conducted on parental well-being measures, by child delay status (delayed vs. nondelayed) and child behaviour problem group

(low vs. high). Child delay status was unrelated to mothers' depression and marital adjustment scores at both time points. Child behaviour problems were significantly associated with mothers' reports of higher depression and lower marital adjustment at both time points.

For fathers, child delay status was related to depression and marital adjustment scores at the 36 month assessment, although the differences were contrary to expectation. Delayed condition fathers reported less depression and higher marital adjustment. At 48 months child delay status was no longer related to fathers' depression and marital adjustment. Child behaviour problems were significantly associated with fathers' reports of higher depression, and lower marital adjustment at both time points. There were no significant interactions between delay status and child behaviour problems in either parents' depression or marital adjustment scores.

**Table 2** Parental well-being scores by delay status (delayed, nondelayed) and behaviour problem group (low, high)

	D <sup>1</sup> (n = 82)		ND (n = 122)		F			Eta BP
	Lo BP	Hi BP	Lo BP	Hi BP	Delay	BP	DXBP	
<i>Mother n<sup>2</sup></i>	55	26	105	15				
Negative impact (FIQ)								
36 months (n = 204)	13.2 (7.7)	29.3 (14.2)	10.2 (6.7)	20.6 (8.0)	14.08***	72.75***	3.41	0.268
48 months (n = 203)	12.6 (6.6)	31.7 (12.9)	10.3 (6.9)	22.9 (10.6)	11.59***	119.65***	4.51*	0.377
Depression (CES-D)								
36 months (n = 204)	8.0 (6.0)	18.4 (8.9)	9.0 (8.4)	14.3 (11.7)	0.48	24.49***	3.01	0.110
48 months (n = 204)	8.9 (6.6)	18.6 (12.3)	9.3 (10.1)	13.5 (11.1)	0.60	16.94***	2.05	0.078
Marital adjustment (DAS)								
36 months (n = 189)	111.5 (26.2)	98.9 (20.5)	108.3 (18.9)	100.0 (24.8)	0.26	5.28*	0.34	0.028
48 months (n = 182)	112.2 (23.3)	98.1 (27.7)	109.5 (17.7)	93.8 (21.3)	1.33	14.88***	0.09	0.078
<i>Father n<sup>2</sup></i>	40	26	97	18				
Negative impact (FIQ)								
36 months (n = 181)	10.8 (5.4)	21.7 (11.7)	9.4 (6.9)	21.9 (7.7)	0.09	73.75***	0.37	0.295
48 months (n = 176)	12.6 (6.7)	24.0 (12.0)	8.8 (5.3)	17.7 (8.5)	17.00***	60.11***	0.99	0.260
Depression (CES-D)								
36 months (n = 181)	6.6 (4.6)	9.8 (8.6)	8.1 (6.9)	15.2 (10.8)	9.74**	15.98***	2.23	0.083
48 months (n = 176)	6.5 (5.0)	10.3 (8.1)	8.0 (8.0)	11.6 (9.7)	1.82	6.04*	0.00	0.034
Marital adjustment (DAS)								
36 months (n = 179)	112.7 (21.2)	107.0 (20.9)	110.7 (17.6)	94.1 (26.9)	4.72*	9.62**	2.30	0.052
48 months (n = 177)	113.1 (18.7)	99.1 (20.5)	108.2 (18.3)	100.4 (18.6)	0.33	9.26**	0.76	0.051

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

<sup>1</sup> D (Delayed); ND (non-delayed).

<sup>2</sup> n in sub-groups when total N = 204 for mothers, 181 for fathers.

As our measures of parental well-being and child behaviour problems are both based on self-report, it is possible that the relationships found reflect a reporting bias; depression, for example, may lead a parent to perceive greater child problem behaviours than a neutral party would (Chi & Hinshaw 2002). We can partially address this problem within our existing data set. Because each parent completed the CBCL, we can substitute the other parent's CBCL scores in the child behaviour problem/parental well-being analyses. This approach is conservative, as one parent is not likely to observe or be concerned about the same behaviours that the other parent reports. Nonetheless, we conducted these ANCOVAs at 36 and 48 months, using the opposite parent's CBCL scores to define behaviour problem groups (with the same criteria for low and high as previously used). Mothers' and fathers' depression and marital adjustment continued to be unrelated to child delay status, except that father depression at 36 months was still significantly higher in the nondelayed group,  $F = 4.04, P < 0.05$ . Child behaviour problems were still related to depression and marital adjustment respectively, for mothers, at 36 months [ $F(1178) = 3.66, P = 0.06, F(1177) = 4.17, P < 0.05$ ] and 48 months [ $F(1173) = 7.33, P < 0.01; F(1172) = 7.14, P < 0.01$ ] and for fathers at 36 months [ $F(1177) = 4.62, P < 0.05; F(1175) = 5.26, P < 0.05$ ], though not at 48 months. The child delay status by behaviour problem interactions remained nonsignificant in all analyses except for mother depression at 36 months,  $F(1178) = 6.50, P < 0.05$ , where scores

were very high in the delayed status and clinical behaviour problems cell.

#### Parental well-being and child behaviour problems over time

We examined the relationship between child behaviour problems and parental well-being over 1 year, using two sets of hierarchical multiple regressions. In the first analyses, the dependent measure was either the 48 month depression or marital adjustment score. On Step 1 we entered the 36 month score for the same variable. Delay status was entered as Step 2, and Total CBCL score at 36 months as Step 3. For mothers, Delay status did not account for significant variance. Child behaviour problems accounted for significant additional variance in depression (2.9%) and marital adjustment (1.6%). Table 3 shows the regression analysis for mothers only. For fathers, child behaviour problems did not account for additional significant variance in either variable. Thus for mothers, although the well-being scores were moderately stable, the child's initial behaviour problems accounted for significant additional variance in depression and marital adjustment scores over this 1-year period. When these regressions were conducted using the broadband rather than total scores, internalizing behaviour problems accounted for significant additional variance in depression and marital adjustment, while externalizing behaviour problems accounted for significant additional variance only in depression.

**Table 3** Hierarchical regression analyses. Predicting mothers' well-being at 48 months from child delay status and behaviour problems at 36 months, controlling for 36 month well-being

	Unstandard error beta	Standard error beta	R <sup>2</sup>	R <sup>2</sup> change	F R <sup>2</sup> change	d.f.	P
Depression at 48 months							
Step 1. Depression 36 month	0.646 (0.066)	0.564	0.379	0.379	133.10	1202	0.000
Step 2. Delay status	-0.256 (1.14)	-0.012	0.398	0.019	0.34	1201	ns
Step 3. CBCL 36 month	0.183 (0.057)	0.189	0.427	0.029	10.20	1200	0.002
Marital adjustment at 48 months							
Step 1. Marital adjustment 36 month	0.738 (0.054)	0.706	0.538	0.538	208.31	1179	0.000
Step 2. Delay status	1.923 (2.29)	0.043	0.538	0.000	0.05	1178	ns
Step 3. CBCL 36 month	-0.275 (0.109)	-0.134	0.554	0.016	6.37	1177	0.012

ns, not significant; CBCL, Child Behaviour Checklist.

Alternatively, the relationship between child behaviour problems and parental well-being might be explained by low parental adjustment contributing to the development and exacerbation of child behaviour problems. A second set of hierarchical regressions tested this hypothesis. The dependent variable was the 48 month CBCL total score. On Step 1 we entered 36 month CBCL total score. On Step 2 we entered the 36 month score on the well-being measure. For mothers, neither depression nor marital adjustment accounted for additional variance in child problems. For fathers, depression accounted for an additional 2.0% of variance in child behaviour problems [ $F$  change (1180) = 7.66,  $P < 0.01$ ] and marital adjustment accounted for an additional 2.6% of variance [ $F$  change (1178) = 10.32,  $P < 0.01$ ].

#### Optimism–pessimism

Optimism scores were stable across time points for mothers,  $r(212) = 0.74$ ,  $P < 0.001$ , and for fathers,  $r(182) = 0.79$ ,  $P < 0.001$ . Optimism scores for mothers and fathers were not related at either time point [ $r(188, 184) = 0.10$  and  $0.09$  respectively]. Mothers' optimism scores were lower in delayed group families, although significantly so only at the 48 month assessment [ $t(202) = 2.70$ ,  $P < 0.01$ ]. Fathers' optimism scores did not differ by group status. Mothers' and fathers' optimism scores were moderately but

significantly related to CBCL total behaviour problem scores at each time point. Correlations ranged from  $-0.25$  to  $-0.27$ , all  $P < 0.001$ ; higher optimism was associated with lower behaviour problem scores.

Table 4 shows ANOVAs conducted to determine the main effect of optimism on parental well-being variables, as well as the moderating effect of optimism on the relationship between child behaviour problems and parental well-being. For these analyses, the child-related stress score (FIQ Negative impact) was included. Optimism had a consistently positive main effect relationship with parental well-being (significant in 11 of 12 analyses). Optimism related to depression and marital adjustment more strongly than child behaviour problems did in every analysis.

For mothers, there was evidence that optimism moderated the relationship between child behaviour problems and parental well-being. In five of the six analyses for mothers, behaviour problems related significantly to well-being. In three of these analyses, optimism was a significant moderator of this relationship. Figure 1 shows these three significant relationships. When optimism was low, there was a marked worsening of maternal well-being from low to high child behaviour problems on all three measures. When optimism was medium or high, negative impact scores increased from low to high child behaviour problems, but less so than when optimism was low. There was no relationship between level of child

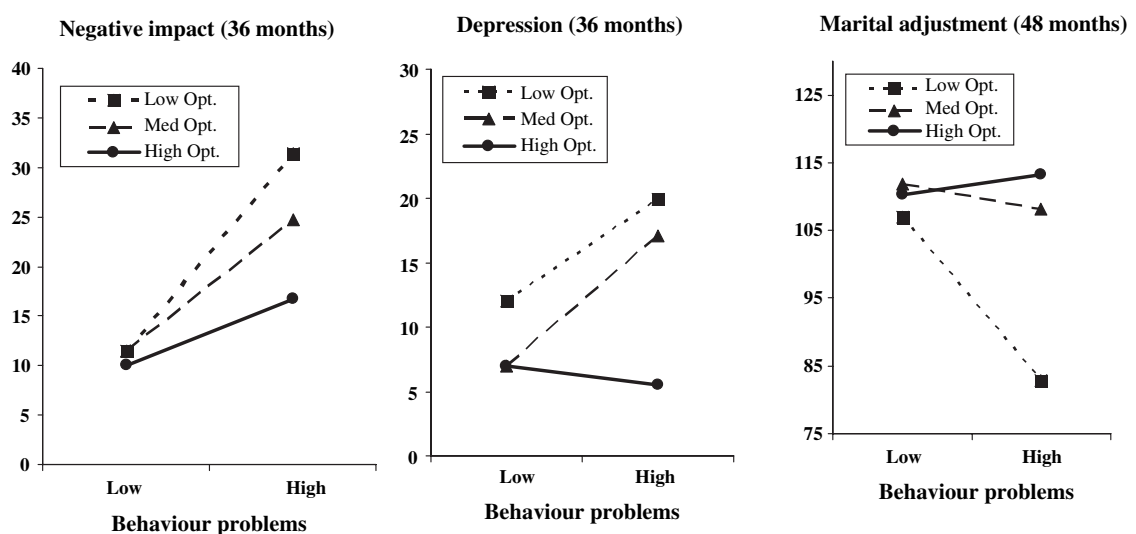


Figure 1 Dispositional optimism (low, medium, high) as a moderator between child behaviour problems (low, high) and mothers' well-being.

Table 4 Parental well-being scores: optimism main and moderating effects

BP: Optimism:	Low			High			High			F BP	Optimism BP × optimism	Eta Optimism/BP × optimism
	Low	Medium	High	Low	Medium	High	Low	Medium	High			
Mother n <sup>†</sup>	55	59	55	21	18	6						
Negative impact												
36 month (n = 214)	11.5 (7.0)	11.5 (6.6)	10.0 (7.8)	31.4 (12.5)	24.7 (13.5)	16.7 (5.6)	63.92***	7.55**	5.62**	0.068/0.051		
48 month (n = 213)	12.2 (7.1)	11.7 (7.1)	9.8 (6.2)	29.8 (13.7)	24.8 (10.5)	27.0 (12.8)	100.30***	1.38	0.97	0.013/0.009		
Depression												
36 month (n = 214)	12.0 (8.9)	7.0 (5.1)	7.0 (7.2)	19.9 (11.8)	17.1 (8.6)	5.5 (4.1)	11.73**	12.40***	4.43*	0.107/0.041		
48 month (n = 214)	14.2 (12.6)	9.4 (7.6)	5.9 (5.3)	24.1 (11.9)	11.4 (10.3)	7.7 (6.9)	6.96**	18.56***	2.98(*)	0.152/0.028		
Marital adjustment												
36 month (n = 198)	107.2 (21.0)	107.8 (21.2)	113.9 (21.3)	89.2 (19.7)	102.9 (22.4)	118.0 (17.9)	1.79	5.47**	2.78(*)	0.054/0.028		
48 month (n = 191)	107.0 (20.2)	111.9 (18.3)	110.3 (20.7)	82.8 (21.3)	108.2 (22.6)	113.3 (12.4)	4.40*	8.96***	4.98**	0.089/0.051		
Father n <sup>†</sup>	34	59	50	24	12	10						
Negative impact												
36 month (n = 189)	12.4 (8.8)	8.9 (5.4)	8.9 (5.2)	22.5 (11.1)	23.0 (8.7)	16.8 (9.0)	65.17***	4.01*	1.71	0.042/0.018		
48 month (n = 184)	9.6 (4.1)	11.0 (5.9)	9.1 (7.3)	24.3 (10.8)	18.0 (7.8)	14.2 (15.5)	36.96***	4.42*	4.69*	0.048/0.050		
Depression												
36 month (n = 189)	11.5 (7.7)	6.2 (6.1)	6.3 (4.2)	16.2 (9.8)	8.8 (7.7)	4.4 (4.9)	1.92	20.29***	3.03(*)	0.182/0.032		
48 month (n = 184)	11.2 (9.4)	6.9 (5.7)	5.0 (5.4)	13.5 (10.1)	8.7 (5.4)	2.8 (1.6)	0.17	10.67***	0.69	0.108/0.008		
Marital adjustment												
36 month (n = 187)	103.8 (24.0)	111.1 (14.8)	116.6 (16.1)	98.1 (25.7)	100.0 (21.6)	114.1 (18.9)	3.43(*)	5.98**	0.48	0.062/0.005		
48 month (n = 185)	102.1 (25.2)	110.6 (13.2)	114.2 (16.1)	96.0 (18.1)	101.3 (21.7)	116.6 (4.2)	1.36	5.87**	0.71	0.062/0.008		

BP, behaviour problem.

(\*) $P < 0.10$ ; \*\* $P < 0.05$ ; \*\*\* $P < 0.001$ .<sup>†</sup>n in subgroups when total N = 214 for mothers, 189 for fathers.

behaviour problems and depression when optimism was high. There was essentially no relationship between level of child behaviour problems and marital adjustment when optimism was medium or high. Thus, for both mothers and fathers, higher optimism scores were consistently related to more positive scores on measures of well-being. In addition, mothers' optimism moderated, or buffered, the relationship between child behaviour problems and parental distress.

Consistent with the view of optimism as a trait, we did not hypothesize that optimism would *mediate* the relationship between child behaviour problems and parental well-being. Nonetheless, we conducted mediator analyses, as the three required conditions were met for each parent, at each assessment point: (1) CBCL Total was correlated significantly with each well-being variable; (2) CBCL Total was correlated significantly with Optimism; and (3) Optimism was correlated significantly with each well-being variable. We conducted 12 regression analyses, for each of the three well-being variables, for mother and father, at 36 and 48 months. We examined changes in the *t*-values and beta weights when optimism was added to each model. In no case was there even partial mediation.

## Discussion

We examined the well-being of mothers and fathers who were raising a young child with, or without, developmental delay. Previously we had found that mothers and fathers of delayed group children, at age 3 and 4 years, reported greater negative impact of the child on the family, or parenting stress (Baker *et al.* 2003). Moreover, we had found that child behaviour problems related strongly to mothers' and fathers' parenting stress; in fact, behaviour problems explained most of the relationship between child delay status and parenting stress (Baker *et al.* 2002, 2003). The first primary question in the present study was whether indicators of parental well-being that are less directly related to child rearing – depression and marital adjustment – also related to the child's delay status and/or behaviour problems.

The present analyses did not show greater depression or marital maladjustment in families of children with delays. For mothers at child ages 3 and 4 years,

neither indicator of well-being was related to delay status. For fathers, there was a relationship at child age 3, although it was contrary to expectations, with delay group fathers reporting greater well-being. At age 4, for fathers, there was no relationship. It will be important to track these relationships over subsequent years of assessment, to determine whether a relationship between these less child-focused domains and delay status emerge as the child grows older, and especially to aid in understanding the contradictory findings for fathers.

The present analyses further indicated that child behaviour problems related to the less child-focused indicators of well-being: depression and marital adjustment. Mothers and fathers alike reported more symptoms of depression and lower marital adjustment when their child presented behaviour problems in the borderline or clinical range. The present sample was recruited so as to minimize inclusion of children with identifiable genetic disorders that are linked with high behaviour problems (e.g. autism, Prader-Willi, fragile X, and other rare disorders; Dykens *et al.* 2000). If children with these disorders had been included in the sample, yielding a larger high problem group, the relationship between child behaviour problems and parental well-being might have been stronger still.

When examined longitudinally, child behaviour problems at 36 months were predictive of mother's negative impact scores at 48 months (Baker *et al.* 2003). Herein, these earlier child behaviour problems were also predictive of mothers' depression, and marital adjustment 1 year later, even after accounting for initial levels on these well-being variables. We should note that because the child behaviour problems score at 36 months accounted for considerable variance in the well-being scores at that time, entering 36 month well-being scores first in our regression analyses minimized the apparent contribution of problem behaviours to subsequent well-being. Nonetheless, for mothers, child behaviour problems relate to parental well-being not only at present but also over time, and not only to the proximal domain of parenting stress but also to the more distal domains of depression and marital adjustment. On the other hand, child behaviour problems were not predictive of father's well-being longitudinally.

These findings of diminished mother's well-being in the presence of behaviour problems are consistent

with those of other investigators, using the CBCL with different indicators of well-being. Fidler *et al.* (2000) found that within disability groups of 3- to 10-year-old children (Smith–Magenis and Williams syndromes), the best predictor of family stress was maladaptive behaviour. Floyd & Gallagher (1997) reported that mothers of children with behaviour problems made more visits to mental health clinics. Some investigators have noted a limitation of instruments such as the CBCL that were initially developed for typically developing children, as children with developmental disabilities often show deviant behaviours seldom reported for typically developing children and thus not included (e.g. eating nonfood; humming and grunting; echolalia; avoiding eye contact) (Einfeld & Aman 1995; Dekker *et al.* 2002). A more disability-specific measure of behaviour problems, such as the Developmental Behaviour Checklist (Einfeld & Tonge 1995) might show even stronger relationships between child problems and maternal well-being than we have reported here.

Although child behaviour problems are a strong predictor, there is still much unexplained variability in parental well-being. Our second primary question was whether the individual personality trait of dispositional optimism would be a moderator, or buffer, of the relationship between challenging child behaviour and parental well-being. Our measure of optimism, the Life Orientation Test score, was highly stable across time points, supporting the view of optimism–pessimism as a trait variable. Although dispositional optimism was significantly related to child behaviour problems and to parental well-being indicators, in no case was optimism a significant *mediator* of the relationship between child problems and parental well-being. That is, child problems did not appear to affect parental well-being by the mechanism of decreasing parents' optimism, which, in turn, would lead them to experience lowered well-being. The lack of mediator effects is also consistent with the conceptualization of optimism as a trait that is stable.

The hypothesis that optimism would be a moderator, or buffer, however, was supported, especially for mothers. Pessimistic mothers (low optimism) whose children had behaviour problems in the clinical range had the lowest adjustment scores in each of six analyses (three well-being variables at two time points). This relationship was significant in three cases and borderline significant in two others. There is, then,

evidence that mothers higher in dispositional optimism are better able to cope with their children's challenging behaviour. Pessimistic fathers whose children had behaviour problems in the clinical range also had the lowest adjustment scores in five of six analyses. For fathers there was some evidence that optimism buffered the behaviour problems – parenting negative impact/stress relationship. For depression and marital adjustment, however, none of the behaviour problem main effects or optimism moderating effects were significant.

These findings have implications for interventions with parents that aim to enhance both parenting skills and psychological well-being. The strong relationship between child behaviour problems and varied domains of parental well-being support the recommendation that school and clinic programmes should make parenting programmes including behaviour problem management strategies readily available to families with young children. Indeed, there is evidence that parenting programmes focused on child behaviour management often produce generalized benefits in parental and family well-being (Koegel *et al.* 1984; Baker 1989, 1996; Pisterman *et al.* 1992; Feinfeld & Baker 2003). There is the further implication, though, that it might be beneficial for such programmes to focus not only on child behaviour change, but also on parents' belief systems, with the aim of increasing dispositional optimism. Although there is evidence that explanatory style crystallizes around age 9 and remains stable across one's lifespan (Shatte *et al.* 2000), it can, in fact, be changed. The most successful psychological treatment for depression is cognitive behaviour therapy, a major component of which is helping people to identify negative thought patterns and to develop more optimistic cognitive styles (Abramson *et al.* 2000; Shatte *et al.* 2000). There may be promise in adding a similar component to parent educational programmes, especially those enrolling mothers of young children with very challenging behaviours.

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