

# Empowerment in parents of school-aged children with and without developmental disabilities

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## Abstract

**Background** Despite the widespread use of the term 'empowerment' in clinical literature to describe both a desirable process and the outcome of service delivery, the term remains more of a theoretical than practical construct. This study examined the factors that contribute to empowerment in parents of school-aged children with and without developmental disabilities (DD) using the Double ABCX model of family adaptation contrasted with the linear ACBX model.

**Methods** Parents of children with ( $n = 100$ , 97% mothers) and without ( $n = 100$ , 98% mothers) DD completed questionnaires relating to child behaviour problems, parent stress and well-being, and formal and informal support. Structural equation modelling was used

**Results** Parents of children with DD reported more child behaviour problems, more stress, less well-being and more social support than parents of children without DD. Structural equation modelling supported the ACBX model for both groups. A linear relationship was found in which parent well-being and resources mediated the relationship between the

stressor (child behaviour problems) and the outcome (empowerment).

**Conclusions** The results of the current study support Hastings and Taunt's assertion in 2002, in that empowerment was adequately explained using a traditional model of family functioning. The significant prediction offered by the parent's resources points to the need to deliver services in a manner that is more family-centred. In the education system, this means providing parents with clear messages regarding the schools goals, clarifying the parent's rights and responsibilities, including the parent in planning and decision making, respecting their knowledge as caregivers and supporting their hopes for their child.

**Keywords** developmental disabilities, empowerment, family-centred services, parent, school

The Supreme Court of Canada has confirmed that school boards must accommodate the educational needs of children with developmental disabilities (DD), requiring collaboration between parents and professionals, who have been encouraged to adopt a philosophy of *empowerment* in their interactions (Dunst *et al.* 1988). However, the factors that lead to individual empowerment remain unclear (Trivette *et al.* 1996). In the current study, parent, child and school factors were modelled in relation to an outcome of empowerment using the Double ABCX

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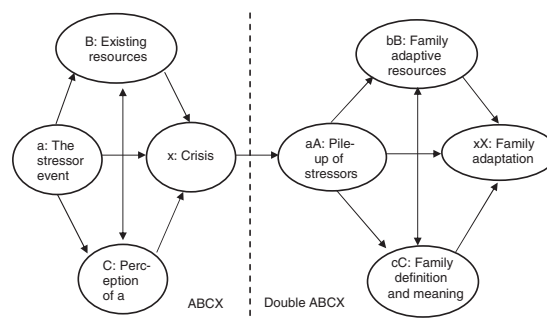
model of family adjustment (McCubbin & Patterson 1983) compared with Orr *et al.*'s (1991) ACBX model.

Although parents are encouraged to participate in their child's education, studies have questioned parents' sense of parent-professional collaboration (Soodak & Erwin 1995; McWilliam *et al.* 1999). Unlike medical services, which are disproportionately utilized by parents of children with DD (Newacheck *et al.* 2004), education services are equally important to parents of children with and without disabilities. Involvement of parents of non-disabled children is associated with positive education outcomes including achievement (Miedel & Reynolds 1999). Increased involvement is influenced by factors such as higher socio-economic status (SES); self-perceptions, including self-efficacy and self-confidence; parents' own experiences as students; teacher encouragement of involvement; and lower stress and higher psychological well-being (Hill & Taylor 2004).

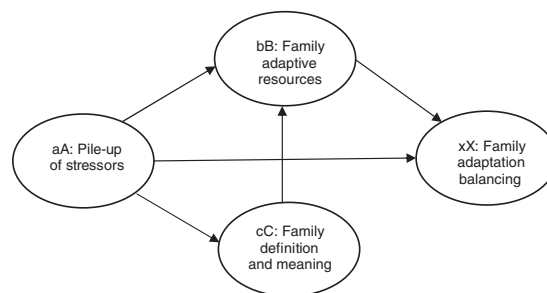
Stresses experienced by parents of children with DD compared to those experienced by parents of children without disabilities are well documented (Beckman 1991; Dyson 1991). Recently, researchers have argued for an increase in studies examining positive outcomes in families of children with disabilities (Hastings & Taunt 2002), which 'can coexist and even be orthogonal to negative outcomes but may never get measured if investigators are not hypothesizing that they are present' (Glidden 1993, p. 482). Furthermore it may not be helpful to interpret an *absence of stress* as adaptation, and researchers should incorporate measures of positive outcomes within current models of family functioning (Hastings & Taunt 2002).

### The Double ABCX and ACBX models

McCubbin & Patterson's (1983) Double ABCX model (see Fig. 1) has often been used as a framework for an examination of family outcomes (Bristol 1987; Minnes 1988; Flynt & Wood 1989; Willoughby & Glidden 1995). Adaptation to a crisis (xX) is explained by a pile-up of other family stresses (aA), the family's existing and new resources (bB) and the meaning of the stressor to the family (cC). Lavee *et al.* (1985) supported the use of this model in research on family adaptation using structural equation modelling.



**Figure 1** The ABCX model (Hill 1949) and the Double ABCX model (McCubbin & Patterson 1983).



**Figure 2** The ACBX model (Orr *et al.* 1991).

Orr *et al.* (1991) evaluated the Double ABCX model in their examination of stress and coping in families of children with DD. They found a linear progression from the stressor (aA), to the family's perceptions of the stressor (cC), to the family's use of resources (bB) and to the experience of stress (xX) (ACBX model; see Fig. 2).

Further research has failed to find a direct effect of the stressor (aA) on the family's resources (bB) (Herman & Marcenko 1997; Shin & Crittenden 2003). Therefore, the current study compares the Double ABCX and the ACBX model to examine an outcome of family empowerment (xX) in relation to child behaviour problems (aA), stress and well-being in relation to the caregiving role (cC), and resources (bB), more specifically, social support and the degree to which the child's school services are perceived by the parent to be family-centred.

### Adaptation to crisis (xX): empowerment

Despite the widespread use of the term 'empowerment' to describe both a desirable process and

outcome of service delivery (Dempsey & Foreman 1997) it remains more of a theoretical than practical construct (Salzer 1997). The most commonly cited definition states that empowerment is ‘. . . an intentional, ongoing process . . . through which people lacking an equal share of valued resources gain greater access to and control over those resources’ (Cornell Empowerment Group 1989, p. 2). Empowerment requires an understanding of the sociopolitical environment, beliefs regarding competency to act in regard to that understanding, and an effort to exert control over one’s environment (Koren *et al.* 1992). It has been shown to be related to lower parental stress, more flexible and adaptable family functioning, parental employment and higher parental education (Scheel & Rieckmann 1998). Other research has implicated family-centred services (Thompson *et al.* 1997; Dempsey & Dunst 2004) in the prediction of empowerment.

#### Pile-up of stressors (aA): child behaviour problems

Numerous studies have examined the impact of child behaviour problems on family outcomes using the Double ABCX model in families of children with DD (Saloviita *et al.* 2003; Shin & Crittenden 2003; Pak-enham *et al.* 2004). Studies have demonstrated a greater likelihood of behaviour problems in children with disabilities (Baker *et al.* 2002), the severity of which contributes to a variety of family outcomes, including parental stress and coping (Cameron & Orr 1989; Margalit *et al.* 1989), regardless of disability status (Baker *et al.* 2002, 2003) or diagnosis (Abbeduto *et al.* 2004). Other than the study by Scheel & Rieckmann (1998) in which child behaviour-related stress contributed to the prediction of empowerment, the influence of child behaviour on empowerment remains largely unexplored.

#### Family crisis meeting resources (bB): informal and formal resources

The value of social support is described frequently in studies of parental stress and coping (Flynt & Wood 1989; Barakat & Linney 1992; Flynt *et al.* 1992). A recent review of the literature on social support in mothers of children with Autism (Boyd 2002) highlighted the benefits of social support as a buffer for parental stress. Boyd concluded that mothers who

have more social support relate better emotionally to their children and are less depressed and anxious than those with lower levels of social support.

Receiving helpful formal support from service providers is also relevant to parental empowerment. Van Ryn & Heaney (1997) concluded that the effectiveness of helping relationships is, in part, determined by the degree to which these relationships are empowering. Dunst & Trivette (1987) proposed an enablement model of helping, which ‘de-emphasizes client responsibility for causing their problems, and emphasizes client responsibility for acquisition of competencies necessary to solve problems, meet needs, realize personal projects, or otherwise attain goals or goal states’ (p. 451). These types of services can be classified as *family-centred* reflecting the centrality of the family’s role in the delivery of service, and predicting more satisfaction with services (Trivette *et al.* 1995; King *et al.* 1999). Particularly relevant is the family-centredness of service delivery in the school system (McWilliam *et al.* 1999).

#### Family’s perception of the stressor (cC): parent stress and well-being

The presence of a child with DD does not necessarily imply parental maladjustment. Glidden (1993) argued for separation of stressors, which can be quantified: stress, which depends on the effect of the stressors on the specific individual or family; and strains, which are the actual negative effects in the person or persons. She states that demands in families of children with DD are greater than for families whose children are typically developing, as a result of their unique needs; however, these demands do not necessarily translate into increased stress or strain. In the current study the parent’s perceptions of the stressor were conceptualized as stress and well-being specifically in relation to the caregiving role in order to capture its function as a mediator between the objective stressor (child behaviour problems) and the outcome of empowerment. Thompson *et al.* (1997) indicated that family stress was inversely related to empowerment in parents of children with DD.

#### The current study

No studies have used an empirically validated model of family functioning to provide an integrated view of

the correlates of empowerment and their interrelationships with each other. The purpose of this study was to examine family empowerment within the framework of the Double ABCX model (McCubbin & Patterson 1983), comparing it to the ACBX model proposed by Orr *et al.* (1991). A further goal was to examine how the influences on empowerment differ for parents of children with and without DD.

### Research questions

- 1 Is the Double ABCX or the Double ACBX model a better fit to the data?
- 2 How do parent, child and school characteristics contribute to a sense of empowerment in parents of children with DD?
- 3 Is the nature of empowerment different for parents of children without disabilities?

### Method

#### Participants

##### *Recruitment*

A letter was sent out to all parents of children identified as having DD in a local school board informing them of the study, and providing them with the researcher's contact information. Organizations serving parents and children with and without DD across Canada were also contacted and provided with a brief description of the study, and were asked to distribute the information. Each participant was invited to pass on information about the study to friends or neighbours with elementary-school-aged children. Parents of typically developing children were also recruited through signs posted in public places, such as libraries and shopping malls. Three fathers who completed a questionnaire in addition to the mother were excluded, as were two parents of children without DD whose children had been diagnosed with behaviour disorders. Seven participants were excluded because of missing data. One parent was excluded because her/his child was too young (3 years old).

##### *Demographic information*

Participants included 100 parents of children with DD (DD group) and 100 parents of children

described as 'typically developing' (an absence of any emotional, behavioural, or developmental disorder, or any chronic health condition requiring academic accommodations; non-DD group). Disability diagnoses included Autism (38%), Down syndrome (32%), cerebral palsy or spina bifida (5%), other diagnoses (13%) and unknown aetiology (12%). The children in both groups were not significantly different in age,  $t(198) = 0.41$ , with a mean of 8.61 (SD = 2.63) for the DD group and 8.31 (SD = 2.45) for the non-DD group. There were more boys in the DD group (70%) than in the non-DD group (50%;  $\chi^2(1) = 9.68$ ,  $P < 0.01$ ).

Mothers formed the majority of the respondents in each group (DD = 97%, non-DD = 98%). Respondents in the DD group were significantly older than those in the non-DD group (40.32 years, SD = 5.45 vs. 37.67 years, SD = 5.80;  $t(196) = 3.32$ ,  $P = 0.001$ ). The majority of parents in both groups were married, remarried or in a common-law relationship (85% in the DD group and 83% in the non-DD group). Both groups were highly educated, with 69% of the DD group and 76% of the non-DD group having at least a college or university education. SES was calculated using Hollingshead's *Four-Factor Index of Social Status* (1975), revealing no significant difference between each group ( $t(186) = -0.99$ , *ns*). The DD group had a mean SES of 48.19 (SD = 12.33; maximum SES = 66), whereas the mean SES for the non-DD group was 49.86 (SD = 10.99), revealing a high-SES sample.

#### Procedure

Participants were recruited through several organizations serving individuals with disabilities, listservs and websites, and posters and advertisements about the study. Parents who were interested in participating contacted the researcher by phone or by email. The questionnaire package took approximately 1–2 h to complete.

#### Measures

##### *Demographics*

A demographic questionnaire included questions relating to the child, the parent completing the questionnaire and the rest of the family.

*AA: the stressor*

*The Child Behavior Checklist.* The Child Behavior Checklist (CBCL; Achenbach 1991) uses 118 items to measure children's competencies and problems as reported by their primary caregiver. Nine subscales reflect syndromes, or groupings of symptoms that have been shown to empirically co-occur. Internalizing subscales include Withdrawn, Somatic Complaints and Anxious/Depressed. Externalizing subscales include Delinquent Behavior and Aggressive Behavior. Social Problems, Thought Problems, Attention Problems and Other Problems are also measured. As well, a Total Problem score is measured. In a sample of children who are typically developing, the interparent agreement was found to be fair for the Internalizing scale score ( $r = 0.66$ ), and adequate for the Externalizing ( $r = 0.80$ ) and the Total Problem scores ( $r = 0.76$ ). The test-retest reliability was also found to be adequate (Internalizing:  $r = 0.89$ ; Externalizing:  $r = 0.93$ ; Total Problems:  $r = 0.93$ ).

The CBCL employs T-scores, in reference to age and gender norms, so that scores can be compared across age groups. Although Achenbach (1991) recommends using raw scores for statistical research with the syndrome scales, the Internalizing, Externalizing and Total Problems scales can be compared using T-scores, to prevent the age and sex variables from being confounded with other variables.

*The Parenting Stress Index: Child Domain.* The Parenting Stress Index (PSI; Abidin 1995) is a 120-item self-report instrument developed to measure stress in parent and child domains, and has been used with families of children with DD (Beckman 1991; Orr *et al.* 1991; Weiss *et al.* 2003). The Child Domain consists of six subscales: Adaptability, Acceptability, Demandingness, Mood, Distractibility/Hyperactivity and Reinforces Parents. The internal consistency of the PSI subscales ranged from 0.70 to 0.83 for the subscales of the Child Domain.

*BB: family resources*

*The Family-Centered Elementary School Practices Scale.* The Family-Centered Elementary School Practices Scale (FCESPS; McWilliam *et al.* 1996) is a 20-item scale designed to measure family-centred

practices in elementary schools. Fifteen items address general family-centred school practices, and five items address family-centred special education practices. Each item on the scale consists of five statements reflecting different levels of family-centred practice. Parents are asked to select the statement that best reflects the typical practice (summing to form the Typical Practices scale), and the statement that reflects the practices that they would consider to be ideal (summing to form the Ideal Practices scale). Only the first 15 items, common to parents of children with and without DD, were used in this study. In the current study, the Typical Practices scale was found to be internally consistent for both the DD group ( $\alpha = 0.92$ ) and the non-DD group ( $\alpha = 0.87$ ). The Ideal Practices scale was also found to have acceptable internal consistency for both the DD group ( $\alpha = 0.72$ ) and the non-DD group ( $\alpha = 0.73$ ).

*The Social Support Index.* The Social Support Index (SSI; McCubbin *et al.* 1982) is a 17-item instrument that uses a five-point Likert scale ranging from Strongly Disagree to Strongly Agree. This scale measures the degree to which families view their community as a source of support. The internal reliability of the SSI has been found to be adequate ( $\alpha = 0.82$ ), with test-retest reliability of  $r = 0.83$  (McCubbin *et al.* 1982).

*Cc: the perception of the stressor*

*The Parenting Stress Index: Parent Domain.* The Parent Domain of the PSI (Abidin 1995) consists of seven subscales: Depression, Attachment, Restriction of Role, Sense of Competence, Social Isolation, Relationship with Spouse and Parental Health. The internal consistency of the PSI Parent Domain subscales ranged from 0.70 to 0.84. Factor analytic studies have supported the structure of the PSI and it has been validated in studies with parents of children both with and without DD (Abidin 1995).

*The Family Member Well-Being Index.* The Family Member Well-Being Index (FMWB; McCubbin & Patterson 1982) is an eight-item measure of the family members' well-being in the areas of health, tension, energy, cheerfulness, fear, anger, sadness and general concern. This eight-item scale has been found to have adequate reliability ( $\alpha = 0.86$ ) and validity.

*Xx: family adaptation*

*The Family Empowerment Scale.* The Family Empowerment Scale (FES; Koren *et al.* 1992) was developed to assess empowerment in families whose children have 'emotional disabilities'. The framework of the questionnaire consists of two dimensions. The first dimension reflects three levels of empowerment: (i) Family; (ii) Service System; and (iii) Community/Political. Only the Family level was used in this analysis, reflecting the ability to manage day-to-day situations. The second dimension reflects the expression of empowerment: (i) Attitudes; (ii) Knowledge; and (iii) Behaviours. Responses fall on a five-point Likert scale ranging from Not True at All to Very True. In order to make the questionnaire applicable to parents of children without DD, minor wording changes were made to two of the questions to remove specific reference to disability (Koren, personal communication, 2001).

The psychometric properties of the questionnaire were examined in a study of 440 parents of children with emotional and behavioural disorders. The scale was found to have adequate internal consistency for each of the three subscales (Family:  $\alpha = 0.88$ ; Service System:  $\alpha = 0.87$ ; Community/Political:  $\alpha = 0.88$ ). The test-retest reliability ( $n = 107$ ) was also found to be adequate for each of the three subscales (Family:  $r = 0.83$ ; Service System:  $r = 0.77$ ; Community/Political:  $r = 0.85$ ) over a 3- to 4-week interval. Validity of the scale was assessed through a factor analysis, which supported the correspondence of the level dimension of the conceptual framework. As well, the questionnaire was found to significantly discriminate parents who were involved in a variety of advocacy-related activities from those who were not. In the current study, internal consistency was found for the DD group on the Family empowerment scale ( $\alpha = 0.86$ ), the Service System empowerment scale ( $\alpha = 0.89$ ) and the Community/Political empowerment scale ( $\alpha = 0.88$ ). The scores in the non-DD group were also found to demonstrate internal consistency on the Family empowerment scale ( $\alpha = 0.88$ ), the Service System empowerment scale ( $\alpha = 0.86$ ) and the Community/Political empowerment scale ( $\alpha = 0.86$ ).

**Data entry and analysis**

Model fit was then analysed using the structural equation modelling (SEM) program AMOS version

4.0 (Arbuckle & Wothke 1999). SEM permits the analysis of two types of relationships: (i) the relationship between measured variables, which are observed, and latent variables, which are the constructs that are presumed to underlie the person's scores on the observed measures (the Measurement Model) and (ii) the relationships between the underlying constructs (the Structural Model). In the measurement model, theoretically related observed variables are considered to measure a particular underlying construct. SEM determines the degree to which the observed variable is related to the underlying construct, as well as indicating its unique variance and error term. The predicted relationships among the latent variables are optimally estimated based on Maximum Likelihood statistical theory (predicted variance-covariance matrix), and these estimates are compared with the observed variance-covariance matrix. The 'goodness-of-fit' of the data to the predicted model can be examined to determine whether or not the model fits with the observed data.

**Results****Group differences**

Parents of children with DD reported significantly more behaviour problems on the Total Problems scale of the CBCL ( $M = 62.19$ ,  $SD = 11.32$ ) than those of children without DD ( $M = 47.67$ ,  $SD = 8.99$ ) ( $t(198) = 10.44$ ,  $P < 0.001$ ). Parents of children with DD also reported higher scores on the subscales of the Child Domain of the PSI ( $M = 132.38$ ,  $SD = 24.01$ ) than those of children without DD ( $M = 112.43$ ,  $SD = 20.17$ ) ( $t(198) = 12.69$ ,  $P < 0.001$ ).

Parents of children without DD reported significantly more social support on the SSI ( $M = 50.67$ ,  $SD = 7.16$ ) than those of children with DD ( $M = 46.67$ ,  $SD = 8.37$ ) ( $t(198) = -3.36$ ,  $P < 0.001$ ). The Typical Practices score on the FCESPS did not differ significantly between the groups ( $t(198) = -1.05$ , *ns*), indicating that neither the DD group ( $M = 47.85$ ,  $SD = 12.76$ ) nor the non-DD group ( $M = 49.55$ ,  $SD = 10.06$ ) perceived their typical services as more family-centred.

Parents of children with DD reported more stress on the Parent Domain of the PSI ( $M = 132.38$ ,

SD = 26.13) than those of children without DD ( $M = 112.43$ ,  $SD = 20.17$ ) ( $t(198) = 6.36$ ,  $P < 0.001$ ). Parents of children without DD reported significantly higher caregiver well-being on the FMWB scale ( $M = 50.70$ ,  $SD = 12.60$ ) than those of children with DD ( $M = 44.14$ ,  $SD = 14.47$ ) ( $t(198) = -3.42$ ,  $P < 0.01$ ).

Parents of children with ( $M = 49.67$ ,  $SD = 5.96$ ) and without DD ( $M = 51.07$ ,  $SD = 5.12$ ) did not differ significantly in their level of Family Empowerment ( $t(198) = -1.78$ , *ns*). Although there are no norms available for the FES, if one considers that the highest possible score on the Family subscale is 60, it appears that both groups expressed a high level of empowerment.

### Research questions

*Is the Double ABCX or the Double ACBX model a better fit to the data?*

Table 1 presents the means, standard deviations and intercorrelations for the variables assessed in the models for all parents.

The structural equation modelling was used to explore the fit of the data to the Double ABCX model of family adaptation (McCubbin & Patterson 1983) and the ACBX model (Orr *et al.* 1991) using AMOS version 4.0 (Arbuckle & Wothke 1999). The Maximum Likelihood Method of parameter estimation was utilized. The chi-square statistic tests the difference between the observed variance-covariance

and the one reproduced by the model therefore smaller, nonsignificant chi-square values indicate a better fit. The chi-square is sensitive to sample size and therefore, a number of alternative absolute fit measures have been proposed including the Goodness of Fit Index (GFI; Joreskog & Sorbom 1993), the Normed Fit Index (NFI; Bentler & Bonett 1980) and the Comparative Fit Index (CFI; Bentler 1990). A value of at least 0.90 is required to accept the model. Another fairly widely used index is the Root Mean Square Error of Approximation (RMSEA; Steiger 1990). Browne & Cudeck (1993) suggested that a RMSEA value of less than 0.05 indicates a close fit.

The path diagram for the Double ABCX model is presented in Fig. 3.

As indicated in Fig. 3, Child Behaviour was directly and negatively linked to Resources ( $\beta = -0.46$ ) and Parent Stress and Well-Being ( $\beta = -0.71$ ), but not Family Empowerment ( $\beta = 0.03$ ). That is, increased child behaviour problems were related to lower resources and lower parent well-being, but not the outcome variable. Neither resources ( $\beta = 0.27$ ) nor Parent Well-Being ( $\beta = 0.30$ ) were significantly linked to empowerment. Resources and Parent Well-Being were significantly correlated ( $\beta = 0.73$ ).

The path diagram for the ACBX model is presented in Fig. 4.

As indicated in Fig. 4, Child Behaviour was directly and negatively linked to Parent Stress and Well-Being ( $\beta = -0.70$ ), but not Family Empower-

**Table 1** Means, standard deviations and intercorrelations between variables in the ABCX and ACBX models for the full sample ( $n = 200$ )

Measure	1	2	3	4	5	6	7	8
1. Diagnosis	–							
2. CBCL	0.58***	–						
3. PSI: Child	0.67***	0.80***	–					
4. SSI	-0.25***	-0.29***	-0.34***	–				
5. FCESPS	-0.07	-0.24**	-0.25***	0.34***	–			
6. PSI: Parent	0.41***	0.54***	0.68***	-0.57***	-0.35***	–		
7. Well-being	-0.24**	-0.34***	-0.45***	0.44***	0.21**	-0.64***	–	
8. FES: Family	-0.13	-0.21**	-0.31***	0.39***	0.17*	-0.47***	0.32***	–
M	0.50	54.93	111.84	48.67	49.70	122.40	47.42	50.37
SD	0.50	12.53	31.45	8.02	11.49	24.28	13.92	5.58

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

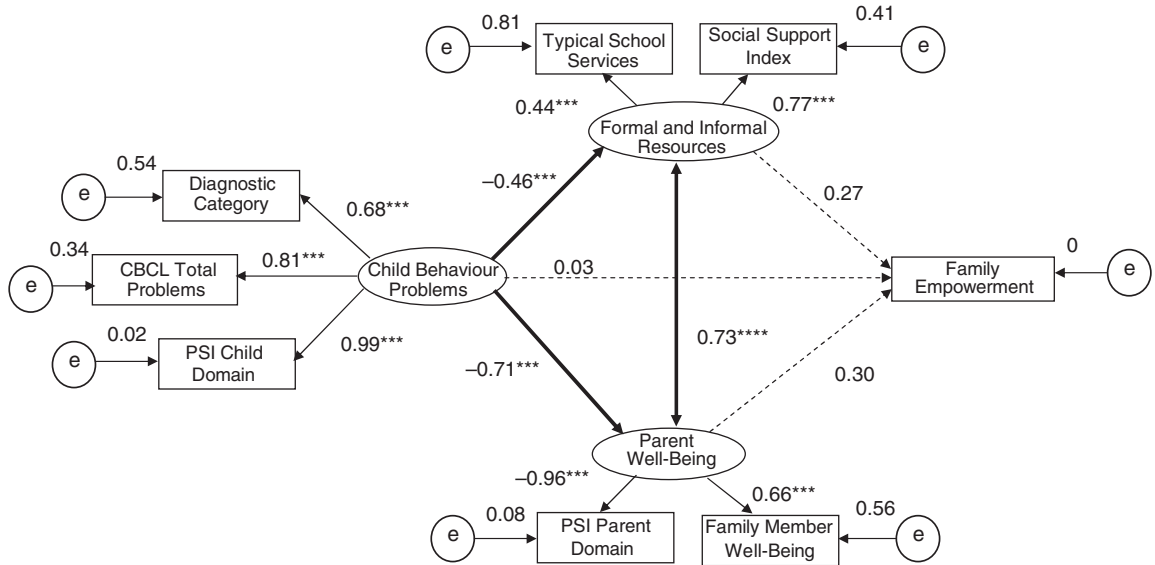


Figure 3 Path diagram of the Double ABCX model.

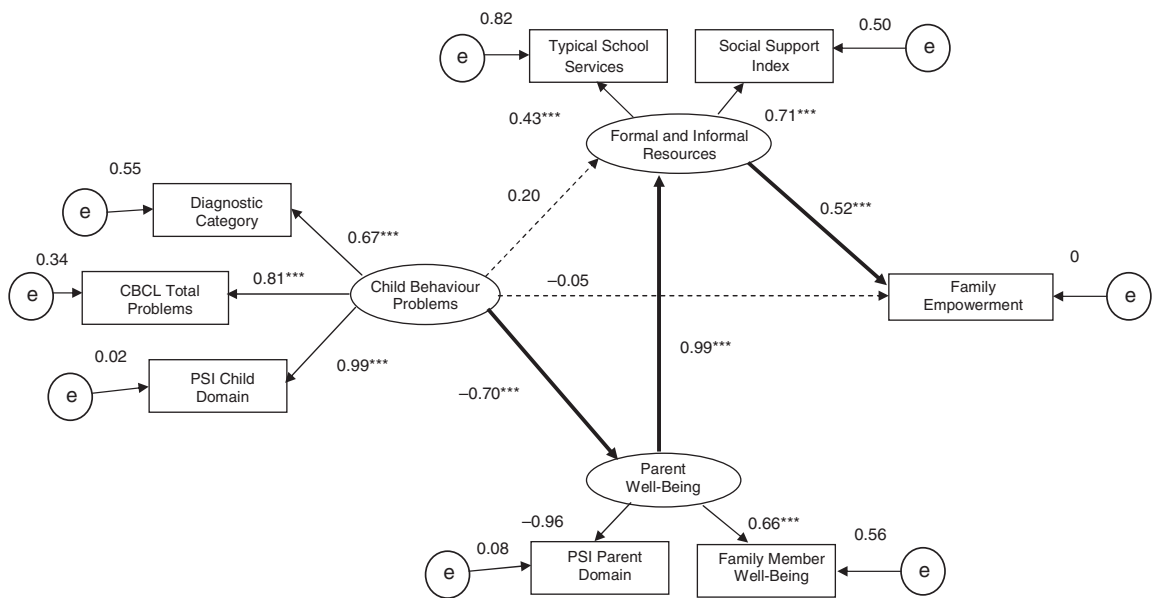


Figure 4 Path diagram for the ACBX model.

ment ( $\beta = -0.05$ ) or Resources ( $\beta = 0.20$ ). That is, increased child behaviour problems were related to lower parent well-being, but not resources or empowerment. Stress and Well-Being was positively and directly linked to Resources ( $\beta = 0.99$ ), which was

positively and directly linked to Family Empowerment ( $\beta = 0.52$ ).

Child Behaviour Problems had an indirect effect on Family Empowerment through Parent Stress and Well-Being and Resources ( $-0.70 \times 0.99 \times 0.52$ ). The

total effect of child behaviour problems on empowerment was  $\beta = -0.36$ . In total, the variables in the model accounted for 30% of the variance in empowerment.

The fit indices for the two models are compared in Table 2.

Although observation of the fit indices does not suggest any statistical advantage of one model over another, the ACBX model held two main advantages. First, the ACBX model is slightly more parsimonious, with one less path. More importantly, the ACBX model is more interpretable. The resulting path diagram holds true to the proposed model in that there is an indirect effect of child behaviour on empowerment, mediated by parenting stress and resources. Furthermore, the ACBX explained 30% of the variance in empowerment, offering a better representation of the data. Therefore, the ACBX model was used to compare the two groups.

#### *What contributes to a sense of empowerment in parents of children with DD? Parents of children without DD?*

The means, standard deviations and intercorrelations between the variables tested in the ACBX model for the parents of children with (Table 3) and without (Table 4) DD are displayed.

To test for the fit of the ACBX model in both groups, a multigroup analysis was run using AMOS 4.0 (Arbuckle & Wothke 1999). The model tested was essentially identical to the one shown in Fig. 4, with the removal of diagnostic category as a measure of Child Behaviour Problems, as the groups were divided on the basis of that variable. The first run of the model resulted in an inadmissible solution because of a Heywood case, with a negative variance for the error associated with the PSI Child Domain. Examination of the model revealed that the likely cause of the Heywood case was the relatively small sample size of each group ( $n = 100$ ) and the fact that

**Table 2** Goodness-of-fit indices for ABCX and ACBX models

Model	$\chi^2$	d.f.	P	GFI	AGFI	NFI	CFI	RMSEA
ABCX	18.82	15	0.22	0.978	0.947	0.974	0.995	0.036
ACBX	20.01	16	0.22	0.977	0.948	0.97	0.994	0.035

GFI, Goodness of Fit Index; AGFI, adjusted Goodness of Fit Index; NFI, Normed Fit Index; CFI, Comparative Fit Index; RMSEA, Root Mean Square Error of Approximation.

**Table 3** Means, standard deviations and intercorrelations between variables in the ABCX and ACBX models for the parents of children with developmental disabilities ( $n = 100$ )

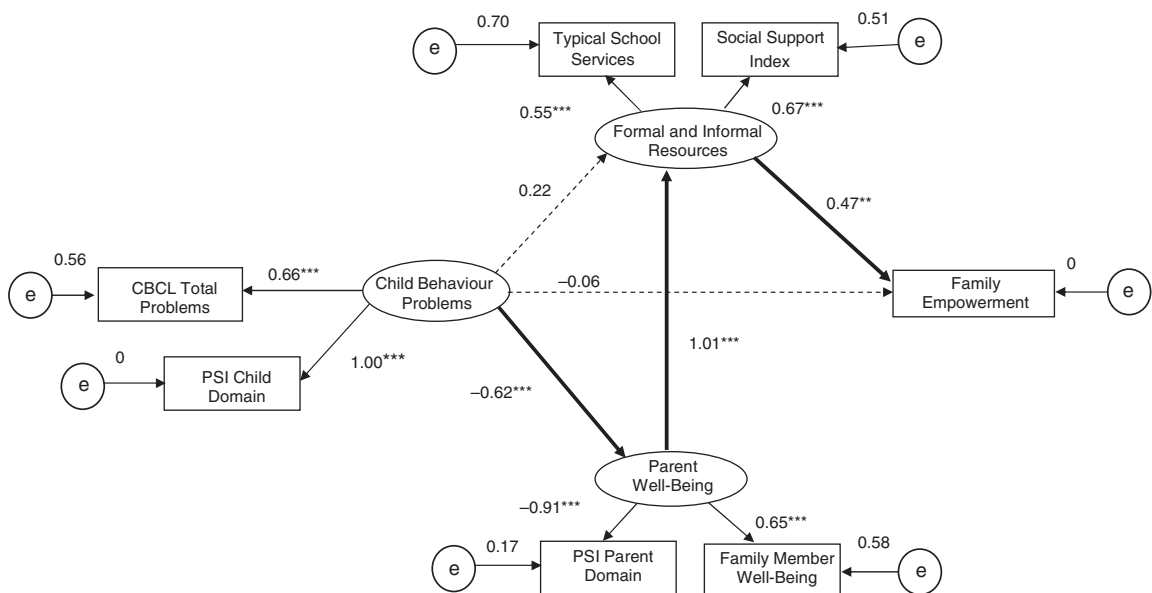
Measure	1	2	3	4	5	6	7
1. CBCL: Total score	–						
2. PSI: Child Domain	0.66***	–					
3. Social Support Index	–0.17	–0.19	–				
4. Typical FCESPS	–0.28**	–0.34**	0.35***	–			
5. PSI: Parent Domain	0.35***	0.56***	–0.52***	–0.46***	–		
6. Well-Being	–0.24*	–0.42***	0.35***	0.35***	–0.59***	–	
7. Family Empowerment	–0.09	–0.25*	0.37***	0.28*	–0.41***	0.24*	–
M	62.19	132.85	46.67	47.85	132.38	44.14	49.67
SD	11.32	26.13	8.37	12.76	24.01	14.47	5.96

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

**Table 4** Means, standard deviations and intercorrelations between variables in the ABCX and ACBX models for the parents of children without developmental disabilities ( $n = 100$ )

Measure	1	2	3	4	5	6	7
1. CBCL: Total score	–						
2. PSI: Child Domain	0.71***	–					
3. Social Support Index	–0.22*	–0.30**	–				
4. Typical FCESPS	–0.18	–0.16	0.30**	–			
5. PSI: Parent Domain	0.50***	0.64***	–0.54***	–0.19	–		
6. Well-Being	–0.29**	–0.36***	0.49***	–0.02	–0.63***	–	
7. Family Empowerment	–0.28**	–0.39***	0.37***	0.06	–0.55***	0.39*	–
M	47.67	90.82	50.66	49.55	112.42	50.70	51.07
SD	8.98	20.32	7.16	10.06	20.17	12.60	5.12

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

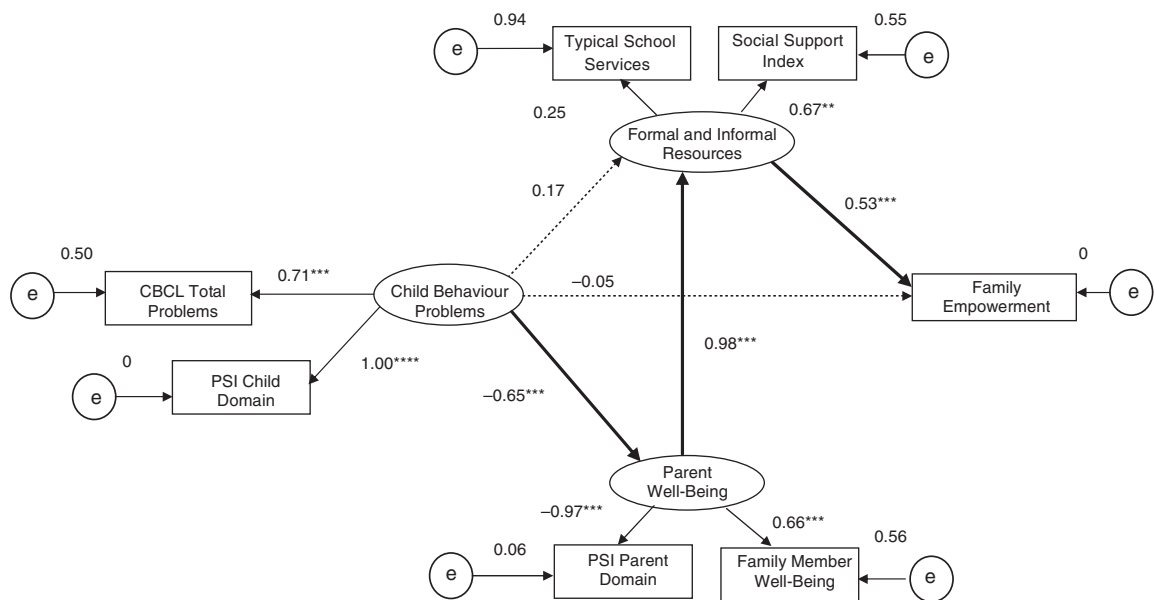
**Figure 5** ACBX model of empowerment for parents of children with developmental disabilities.

none of the latent variables was measured by more than two indicators. In accordance with recommendations by Chen *et al.* (2001) the variance was set at zero for both groups and the analysis was successfully rerun. The path diagrams for the parents of children with (Fig. 5) and without (Fig. 6) DD are presented.

The models were similar for both groups. The chi-square goodness of fit statistic indicated that the model did not differ significantly from the data

for both groups ( $\chi^2(22, n = 100/\text{group}) = 28.763$ ,  $P = 0.15$ ). Model fit was strongly supported by the other fit indices (GFI = 0.963, CFI = 0.985, NFI = 0.942, RMSEA = 0.039), indicating that the data fit the ACBX model in both groups.

To determine whether there were any differences in the factor loadings or pathways between the two groups, an analysis of multiple group invariance was run with the parameters constrained to be invariant



**Figure 6** ACBX model of empowerment for parents of children without developmental disabilities.

between the two groups. The chi-square goodness of fit statistic indicated that the model did not differ significantly from the data for both groups ( $\chi^2(30)$ ,  $n = 100/\text{group}$ ) = 36.06,  $P = 0.21$ ). Model fit was strongly supported by the other fit indices (GFI = 0.954, CFI = 0.987, NFI = 0.928, RMSEA = 0.032). A chi-square difference test between the fit of the invariant model and the fit of the non-invariant multigroup model was nonsignificant ( $\chi^2(8)$ ,  $n = 100/\text{group}$ ) = 7.30,  $P = 0.50$ ), indicating that there were no significant differences in the parameters of the ACBX model between parents of children with and without DD.

## Discussion

Parents' roles have expanded to include the 'jobs of information seeker, problem solver, committee member, public educator, political activist and, most importantly, spokesperson for the needs of a child who may be unable to communicate his or her own needs to those in power' (Minnes *et al.* 2003, p. 665). Parent empowerment, encompassing all of these roles, has been identified as an important direction for research with families of children with DD

(Nachshen 2005). Despite the need for research regarding positive family adaptation to a child with DD (Hastings & Taunt 2002), research on family empowerment remains largely theoretical and definitional in nature. The primary purpose of the current study was to examine empowerment as a positive adaptation to stress.

## Group differences

Consistent with previous research parents of children with DD reported more child behaviour problems (Feldman *et al.* 2000; Stremme & Diseth 2000; Maes *et al.* 2003) and more stress and less well-being than those of children without DD (Beckman 1991; Dyson 1991). In this study, parents of children without DD reported significantly more community support than did those of children with DD. However, the groups did not differ in regard to their ratings of school services as family-centred. This finding contrasts with a study by McWilliam *et al.* (1999) indicating that, compared to parents of children without DD, those of children with DD reported that school practices were less family-centred. In McWilliam's study the parents of children with DD were less likely to be university-educated than those of children without

disabilities, whereas the education level of the participants in the current study was uniformly high. It is likely that parents with more education may feel more able to participate in their child's education than those who may have been disenfranchised by the education system. It is also possible that educators are more inclusive towards parents who they viewed as more competent to understand and participate in their child's education.

The groups did not differ with regard to levels of family empowerment, that is, the ability to manage day-to-day situations in their family and deal with the growth and development of their children. This is interesting in light of the fact that parents of children with DD reported more negative experiences, such as stress, less social support and more child behaviour problems. These findings support Hastings & Taunt's (2002) assertion that positive and negative perceptions occur simultaneously and are predicted by different variables.

### Research questions

*Is the Double ABCX or the ACBX model a better fit to the data?*

The ACBX model was more parsimonious and more interpretable than the Double ABCX model, explaining 30% of the variance in empowerment. This finding is consistent with other studies demonstrating a lack of a significant direct relationship between the stressor (aA) and the family's resources (bB) (Orr *et al.* 1991; Herman & Marcenko 1997; Shin & Crittenden 2003), as well as Orr *et al.*'s (1991) assertion that the relationship between the perception of the stressor and the outcome is mediated by the family's use of resources. This finding supports Glidden's (1993) and Brannan & Heflinger's (2001) distinction between stressors, strain and psychological outcomes. Finally, the findings support Hasting & Taunt's (2002) contention that positive adaptation may be examined using existing models of family adaptation.

*How do parent, child and school characteristics contribute to a sense of empowerment in parents of children with developmental disabilities?*

The findings of this study support Orr *et al.*'s (1991) assertion that family outcomes may be best explained

by a linear relationship, with perceptions and resources mediating the relationship between the stressor and the outcome. It is important to note that the only significant path to empowerment originated from the family's resources, suggesting that a strong network of social support and family-centred services are critical to a sense of empowerment. This finding is similar to the results of a study by Dempsey & Dunst (2004) demonstrating that enabling practices were most predictive of empowerment, even after demographics, parent locus of control and frequency of service contact were taken into account.

*Is the nature of empowerment different for parents of children without disabilities?*

The results of this study provide evidence that the nature of empowerment is not different for parents of children with and without DD. This finding provides further argument against the notion that families of children with DD are, by their very nature, maladjusted. Despite more child behaviour problems, increased stress, decreased well-being and decreased social support, empowerment functioned similarly in both groups. As well, both groups were equally empowered and viewed school services as equally family-centred.

### Theoretical implications

Hastings & Taunt (2002) asserted that positive perceptions of parenting a child with DD (bonadaptation) are independent from negative perceptions (maladaptation), have different predictors, should be examined as a separate construct and not simply conceptualized as an absence of maladaptation. The results of the current study support this assertion, in that empowerment was adequately explained using an established model of family functioning.

This study supported the use of the ACBX model (Orr *et al.* 1991) over the more conventionally employed Double ABCX model (McCubbin & Patterson 1983). This finding is consistent with other studies demonstrating a lack of a significant direct relationship between the stressor (aA) and the family's resources (bB) (Orr *et al.* 1991; Herman & Marcenko 1997; Shin & Crittenden 2003), as well as Orr *et al.*'s (1991) assertion that the relationship between the stressor and the outcome is mediated by the per-

ceptions of the stressor and the family's use of resources. This finding further supports Glidden's (1993) and Brannan & Heflinger's (2001) distinction between stressors, strain and psychological outcomes.

### Clinical implications

Despite significantly more child behaviour problems and parenting stress, and less social support than parents of children without DD, parents of children with DD report an equally strong sense of empowerment. Educators, clinicians or service providers cannot assume maladaptation in families of children with disabilities, simply as a result of the increased parenting demands. This finding also supports use of strength-based approaches with families, highlighting parents' ability to cope in the face of challenges.

It can be inferred from this research that, although child-based interventions are critical in improving the adaptive skills of children, they may not influence parent empowerment directly. Instead, child-based interventions may help by reducing child behaviour problems, thereby decreasing parenting stress and increasing parent well-being. In regard to the outcome variable, empowerment, the significant prediction offered by the parent's resources, points to the need to deliver services in a manner that is more family-centred. In the education system, this means providing parents with clear messages regarding the schools goals, clarifying the parent's rights and responsibilities, including the parent in planning and decision making, respecting their knowledge as caregivers and supporting their hopes for their child.

### Limitations and directions for future research

Although SEM is an invaluable technique for analysing the fit of observed data to a theoretical model, its strict assumptions can be limiting to the user. One assumption relates to sample size. Whereas the sample size of this study was adequate for a combined group analysis using SEM, the presence of a Heywood case suggested that it may not have been large enough to detect differences in parameters between the two groups. Furthermore, the use of the Maximum Likelihood approach to SEM makes an assumption of multivariate normality and the inclusion of a dichotomous variable (diagnosis) violated

this assumption. However, it has been argued (Byrne 2001) that categorical variables can be treated as continuous with little effect. Although this assumption was violated, the model did demonstrate a good fit to the data. As well, the multigroup analyses without the use of the dichotomous variable continued to show similar parameter estimates.

The use of SEM also gives rise to a number of limitations based on human error. First, the researcher must choose a model based on sound theory; however, the model chosen may not be the only accurate representation of the data. It is possible that other permutations of the measures and pathways may also yield results that 'fit'. In addition, it is dependent on the researcher to choose the best indicators of the underlying latent variables with the least amount of measurement error. Therefore, it is possible that 'truer' measures of the latent construct were not included here. Furthermore, the analysis was run on a very specific sample and future research is required to determine if the models will hold for different types of disability and levels of severity, different cultural groups and different family structures (i.e. single parents).

The sample in this study was comprised mainly of highly educated, upper-middle class mothers. However, less well-educated, poor families may experience empowerment differently. As well, the issue of race was not explored. It will be valuable for future researchers to examine empowerment in the context of groups that have traditionally been seen as unempowered or oppressed, such as parents from minority groups, low-SES neighbourhoods, or immigrant families. Concerns regarding self-selection bias and subjective measurements raise the issue of social desirability. The last group of participants may include the parents who placed the most emphasis on education and research, and were thus more likely to answer in a manner consistent with those values.

This study was cross-sectional in nature, and thus causality can only be inferred. Experimental research should be undertaken to examine the effects of improving parental resources on empowerment. Finally, this study only examined the influences on family empowerment, that is, the parents' attitudes, knowledge and behaviours in regard to their ability to manage day-to-day situations. Future research should examine the factors that increase parents' attitudes, knowledge and behaviours in regard to actively

working with the service system and advocating for improved services for children in general.

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