

# Continuity of parental behavioural ratings of children adopted from China and parenting competence, confidence and enjoyment\*

**Mary Beth Bruder, Carl J Dunst, Cristina Mogro-Wilson and Tony Xing Tan** used an analytic procedure called structural equation modelling (SEM) to evaluate the effects of adoption and post-adoption child behaviour measures on parents' self-judgements of their parenting competence, confidence and enjoyment. SEM is a statistical procedure for investigating complex relationships among multiple variables simultaneously. The study participants were 314 adults (mostly mothers) who had adopted a child from China. Parents' recall of their children's behaviour at the time of adoption was related to two outcomes: concerns about their children's development and post-adoption behavioural ratings of child functioning. The more positive the parents' ratings of their children's behaviour, the more positive they judged their parenting competence, confidence and enjoyment. Findings supported the main hypothesis that parents' judgements of their children's behaviour at and following adoption are both directly and indirectly related to their sense of parenting.

**Mary Beth Bruder is Professor and Director, University of Connecticut AJ Pappanikou Center for Excellence in Developmental Disabilities Education, Research, and Service, Farmington, Connecticut, USA**

**Carl J Dunst is Research Scientist, Orelena Hawks Puckett Institute, Asheville, NC, USA**

**Cristina Mogro-Wilson is Assistant Professor, School of Social Work, and Research Director, AJ Pappanikou Center for Excellence in Developmental Disabilities Education,**

## Introduction

Before becoming pregnant and during the transition to parenthood, prospective parents often develop expectations for, and beliefs about, their birth child (eg, LaRossa and LaRossa, 1981; Glass, 1983; Cowan *et al.*, 1985; Belsky *et al.*, 1986; Palkovitz and Sussman, 1988). Prospective adoptive parents behave similarly with regards to their new child (Levy-Shiff *et al.*, 1991; Silin, 1996; Borders *et al.*, 1998; Groza and Ryan, 2002; Solomon and Poirier, 2006). These perceptions are multiply determined and complex, and shape parental adjustment to and cognitions about children (Sigel *et al.*, 1992; Okagaki and Divecha, 1993). Especially important among these

beliefs are self-appraisals of parenting capabilities (Pridham and Chang, 1992; Leve *et al.*, 2001; Brodzinsky and Pinderhughes, 2002; Bornstein *et al.*, 2003).

The significance of parental beliefs and judgements about child behaviour for parenting has been the focus of much theory and research (see Goodnow and Collins, 1990). Prospective parents often have quite vivid ideas about how their children will look, behave, respond to being held, and so forth (Davis and Keyser, 1997). For example, they often have expectations about their children's temperament and react negatively or have difficulties adjusting when their children's behavioural styles do not match expectations (Milliones, 1978; Hagekull and Bohlin, 1990; Lerner, 1993; Kochanska *et al.*, 2004; Sheinkopf *et al.*, 2006).

The common consequence of violated expectations is an attenuated sense of parenting capabilities (Mash and Johnson, 1983; Pridham and Chang, 1992), whereas the confirmation of expectations strengthens a sense of success (Bohlin and Hagekull, 1987). Thirty years ago, Goldberg (1977) explored the conditions under which parents' expectations about their infants' and toddlers' behaviour were likely to affect parents' appraisals of their competence and confidence (see also Belsky, 1984) and since then, numerous studies have reiterated these findings (Bondy and Mash, 1999; Guzell and Vernon-Feagans, 2004). In the majority of cases, parents' assessments of their children's behaviour have been found to

\*The study reported in this article was supported, in part, by funding from the US Department of Health and Human Services, University Centers of Excellence in Developmental Disabilities (90DD0576). The opinions expressed, however, are those of the authors and are not necessarily those of the Department. Appreciation is extended to the parents who participated in the study and to Deborah W Hamby for data analysis.

be more strongly related to their judgement of their own parenting capabilities than parents' background characteristics, such as age, education, socio-economic status (Jarrett, 1982; Bogenschneider *et al*, 1997; Slep and O'Leary, 1998; Peters *et al*, 1999; Bornstein *et al*, 2003; Loo *et al*, 2006).

Research on factors affecting parenting capabilities also highlights the effects of real or imagined child behaviour influences on parenting competence and confidence (Collins *et al*, 2000). Parental recollections and recall of child behaviour at and following birth often exert a continual influence on later parenting (van den Broek *et al*, 1997) and are particularly accurate for events and milestones that parents view as highly significant (Simons *et al*, 1986; Treharne, 1992). It seems likely, therefore, that child behaviour at the time of adoption will influence subsequent parenting capabilities inasmuch as adoption is such an important event in their lives.

This study seeks to ascertain if parent recall about their children's behaviour at the time of adoption is related to the parents' subsequent ratings of child behaviour and to their self-attributions of their parenting competence, confidence and enjoyment in situations where children have been adopted from China into families residing in the United States. The theory informing the investigation is derived from research on factors that influence the behaviour of children in institutionalised settings, parents' adjustments and adaptations to adoption, and the influences of children's behaviour on parenting beliefs (Dix and Grusec, 1985; Miller, 1995; Bugental and Johnston, 2000; Gunnar *et al*, 2000; Holden and Buck, 2002). This approach differs from those previously tested, which have focused primarily on the relationship between parents' judgements of their children's behaviour early in life and subsequent measures of their children's behaviour (eg Verlaan and Schwartzman, 2002). Our interest was the *continuity* of adoptive parents' ratings of their children's behaviour and

the influences that those judgements had on parents' assessments of their own parenting capabilities.

One hypothesis tested was that the older the child at the time of adoption, the less positive and more negative would be the parents' recall about their children's behaviour at the time of adoption (Groza *et al*, 2003; Gunnar *et al*, 2007; Tan *et al*, 2007). Another was that the less positive and more negative the parents' recall (Marcovitch *et al*, 1997; Leve *et al*, 2001; Wilson *et al*, 2006), the more likely the parents would be concerned about the children's behaviour and development, and the more likely the children would be referred to professional services (Johnson and Dole, 1999; Welsh *et al*, 2007). The model also proposed that the more positive and less negative the parents' recall of their children's behaviour at the time of adoption, the more likely the parents' behavioural judgements would persist (Scott and Hill, 2001; Groza *et al*, 2003) and, in turn, influence their feelings of parenting competence, confidence and enjoyment (Leve *et al*, 2001). The components of the model are shown in Figure 1, which depicts the various pathways subsequently evaluated using structural equation modelling (Hoyle, 1995b). The main thesis is, therefore, that parental recall influences parents' assessments of their adopted children's behaviour and, depending on whether recall and contemporaneous child behaviour ratings are positive or negative, in turn determines their perceptions of their parenting capabilities.

There is now a sizeable body of research to show that adopted children demonstrate considerable recovery from their pre-adoption circumstances, and on most developmental and academic measures, subsequently score well within the normal ranges of performance (Brodzinsky and Pinderhughes, 2002; van IJzendoorn *et al*, 2005; Tan and Marfo, 2006; Tan *et al*, 2007). But contrary to this generally optimistic picture, research also shows that children often develop behaviour difficulties that persist into adolescence

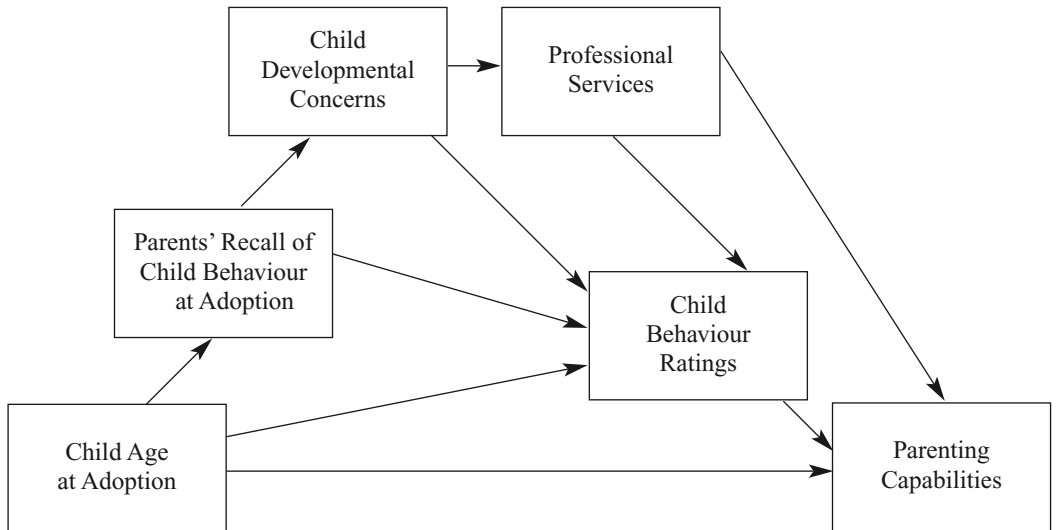
**Research, and Service, University of Connecticut, Farmington, Connecticut, USA**

**Tony Xing Tan is Assistant Professor, Department of Psychological and Social Foundations, University of South Florida, Tampa, Florida, USA**

**Key words:** China, adoption, child behaviour, parenting competence, parenting confidence

Figure 1

**Hypothesised relationships between parents' recall of child behaviour at the time of adoption and parents' concerns, child behaviour ratings and self-judgements about parenting capabilities**



(Groza, 1999; Gunnar *et al*, 2000; Gunnar *et al*, 2007). For example, a study by Groza *et al* (2003) indicated a strong relationship between early parental reports of poor child functioning and later child behaviour problems. Parental assessments of their children's behaviour, therefore, appear to play a role in explaining and predicting future child behaviour problems. The extent to which positive or negative recall 'carries over' and influences parents' judgements of their own competence, confidence and enjoyment seems crucial to the welfare of children.

There is substantial evidence that long-term child outcomes are shaped by factors that include both child behaviour and development (eg Bornstein, 1989; Belsky *et al*, 1991) and continuity in parenting (eg, Morfei *et al*, 2001; Hirsh-Pasek, 2006). Contemporary models of human development incorporate bi-directional influences of parents' behaviour on children's behaviour, and of children's behaviour on that of parents (Bronfenbrenner, 1995; Sameroff and MacKenzie, 2003), suggesting that parents' behaviour in terms of their beliefs, attributions and expectations influence their perceptions and inter-

pretations of their interactions with their children. The children's behaviour, in turn, influences parents' judgements of their own parenting capabilities. This article seeks to clarify these relationships by exploring how and why children's behaviour, as judged by their adoptive parents, influences parents' judgements of their own parenting competence, confidence and enjoyment.

## Method

### Participants

Prospective participants were recruited by contacting a number of Chinese adoption agencies who were asked to publicise the study on their websites or in agency newsletters and emails to parents. Details were also posted on relevant Yahoo discussion group websites. The communications included contact information for parents to request a copy of the survey, an informed consent letter and a pre-paid return envelope. Seventy-five (75) per cent of 415 surveys requested and sent out were returned. As the number of parents receiving an invitation to participate was not known, no overall response rate could be determined and

the characteristics of those who declined cannot be surmised, a problem that commonly affects studies of similar populations (Tan *et al.*, 2007).

The participants comprised 314 adoptive parents, the majority of whom were female and married or living with a partner (85%) at the time of the study and almost all (95%) reported their ethnicity as white or Caucasian.

The respondents were generally middle aged and well educated. The average age was 41.95 ( $SD = 5.10$ ) and most had university degrees (97%) – 33 per cent at masters level and 15 per cent had doctorates. Two-thirds (67%) were employed full time (45%) or part time (22%) and family annual income was at least \$US 70,000 for the majority (80%). The background characteristics of the participants and their families were very similar to those found in other studies of parents adopting from China (cf, Tan *et al.*, 2007).

The children's mean age at adoption was 13.62 months ( $SD = 6.45$ ). Almost all (98%) were female. At the time of the study, their average age was 39.91 months ( $SD = 16.41$ ). Nearly three-quarters (73%) had been in some type of residential placement at the time of adoption and 27 per cent had been in foster care. Nine per cent of the children were described as having special needs.

### Survey and measures

The participants completed a survey that included questions about the parents' recall of their children's behaviour at the time of adoption, any concerns they had about it, either at that time or afterwards, and the professional services (if any) the children received. It also explored the children's current behaviour and parents' self-judgements about their parenting competence, confidence and enjoyment. Respondents were further asked for information about the adopted child, such as age, gender, pre-adoption placement, and about their own wider family, for example, age, education, marital status, family income.

#### Parental recall of child behaviour

The survey included a series of questions asking participants to indicate, on a five-point scale, the extent to which their children's behaviour at the time of adoption had been or had not been as expected. The behaviours rated by respondents included those frequently identified as typical of newly adopted children (see, for example, Groza, 1999), such as crying episodes, expressing affection, smiling and laughter, frustration, controlling emotions, showing pleasure and depressed affect. The options offered were: 'much worse than expected'; 'somewhat worse than expected'; 'about what I expected'; 'somewhat better than I expected'; and 'much better than I expected'.

The parental ratings were grouped into three behavioural categories: affect, emotional regulation and interpersonal adjustment. A principal components factor analysis with oblique rotation was used to ascertain if summated scores (Spector, 1992) for each behavioural category were warranted. In other words, was each category an independent or a unitary construct? Each analysis produced a single factor solution with internal consistency estimates of .90, .86 and .75 for the three behavioural categories respectively. Summated scores for each behavioural category were then used to construct a latent variable of *parents' child behaviour ratings at the time of adoption*. For all three measured variables, higher ratings indicated more positive parental judgements. Length of time since adoption did not influence any of the recall measures ( $r_s = .02$  to  $.07$ ,  $p > .10$ ).

#### Parental concerns and professional involvement

The survey included three questions which explored participants' concerns about their children's behaviour, whether they or others sought professional help and what these interventions were. The participants' responses to these questions were used to compute measures of *parental concerns*, *referral for services* and the *number of such services*. The parental concerns measure was the sum

of three yes/no questions, which asked the respondent to indicate if they ever had concerns about their child's development, if the child ever had a formal developmental evaluation and if a professional ever gave the child a development-related diagnosis. The referral measure was the parents' response to the question, 'At any time did a professional recommend that your child be referred to early intervention or specialty care?' The number of professional services was the sum of four services that the respondents indicated their children received (special education, speech/language therapy, occupational therapy and physical therapy). The concerns, referral and services scores were used as measured variables in the study analysis.

#### Parents' child behaviour ratings at time of study participation

The participants were asked to indicate on a five-point scale ranging from 'never' to 'quite often' the extent to which different child behaviours were manifested or displayed on a typical day at the time of the survey. The behaviours the parents were asked to rate included smiles and laughs, fusses or cries, gets excited about new things and gets upset or frustrated. Four positive child behaviours and three negative ones were used as measures of child functioning.

Principal components factor analysis with varimax rotation was again used to ascertain if summated scores were warranted for each type of child behaviour. Each analysis produced a single factor solution with internal consistency estimates of .65 for the positive child ratings and .60 for the negative child ratings. Summated scores for each type of child behaviour were used to construct a latent variable of child behaviour ratings.

#### Parenting competence, confidence and enjoyment

A short-form version of the Everyday Parenting Scale (Dunst and Masiello, 2002; Dunst and Dempsey, 2007) was used to measure self-judgement of parenting capabilities. The survey in-

cluded four competence items (eg 'I am good at calming my child when (s)he is upset'), four confidence ones (eg 'Being a good parent comes naturally to me') and four enjoyment ones (eg 'Doing things with my child is a lot of fun'). Each scale item was rated on a seven-point scale ranging from 'never' to 'always'.

The extent to which summated scores (ie total subscale scores) were warranted for each type of parenting capability was determined by a factor analysis procedure that determined if each subscale was measuring a unitary construct. Each analysis produced a one-factor solution with internal consistency estimates of .77, .80 and .84 for the parenting competence, confidence and enjoyment subscales respectively. Summated scores for each parenting capability measure were then used to construct a latent variable of parenting capabilities, which was used as the outcome measure in the forthcoming analysis. For all three measured variables, higher scores indicated more positive parent self-appraisals of parenting capabilities.

#### Method of analysis

The ways in which child age at adoption, parent recall, parent concerns, professional services and child behaviour were related to parenting competence, confidence and enjoyment were determined using a path analysis procedure called structural equation modelling (SEM). Path analysis is a way of showing the expected or hypothesised relationships among measures like that shown in Figure 1. SEM is the way the relationships are tested statistically (Bentler, 1995). SEM permitted us to evaluate how well the hypothesised pathways are statistically connected and how well the connections explain the relationships among the variables of interest.

The model tested included both measured and latent variables (Hoyle, 1995b). A measured variable is a *direct* measure of a person's behaviour or characteristic, such as age or education level. The measured variables examined were: child age at adoption, parent con-

cerns about child development, referrals to specialty care and the number of professional services. A latent variable is an *indirect* measure of some trait or characteristic that is not directly observed but rather inferred from two or more observed or measured variables. Examples are quality of life or self-efficacy beliefs. The model included three latent variables: parental recall of child behaviour at the time of adoption (affect, emotional regulation and interpersonal interactions), child behaviour functioning at the time of survey (positive and negative child behaviour functioning) and parenting capabilities (competence, confidence and enjoyment).

The model we tested had 465 degrees of freedom and 314 participants. The power to detect significant relationship among the measures was 85 per cent, which exceeds a generally agreed figure of 80 per cent (MacCallum *et al*, 1996).

Three sets of statistics were the focus of substantive interpretation in the analysis: the fit indices of the model (Hu and Bentler, 1995), the standardised parameter estimates for the direct effects of one variable on another (Hoyle, 1995a) and the direct, indirect and total effects of the relationships among variables (Kline, 2005).<sup>1</sup>

The software package EQS, which was used to perform the SEM (Bentler, 1995), provides three fit indices where each can range from 0 to 1. The closer the indices are to each other, the better the fit of the model to the data. A fit index of .90 or higher is considered an adequate fit of the model to the data, with anything more indicating something even better. Standardised para-

meter estimates, which can range from -1 to +1, are measures of the strength of the relationship between variables. These estimates are evaluated in terms of statistical significance in a manner similar to traditional statistical testing. Direct, indirect and total effects are measures of the nature of the relationship among variables and help identify the sources and pathways of influence on an outcome or dependent measure, as well as the indirect and mediated influences of a predictor variable on a study outcome.

## Results

### Model fit

The first step of a SEM is to determine if the hypothesised or expected patterns of relationships among the study measures map onto the empirical relationships among the measures. This is determined by the fit of the model to the data. Figure 2 shows the results of SEM analysis. There was a good fit of the model to the data as evidenced by fit statistics all greater than .90. The comparative fit index (CFI) was .95, providing strong evidence that the model was supported by the relationships among the study measures. More specifically, the fit indices indicate that the hypothesised relationships between the predictor variables and both parents' ratings of child behaviour functioning and parenting capabilities were supported.

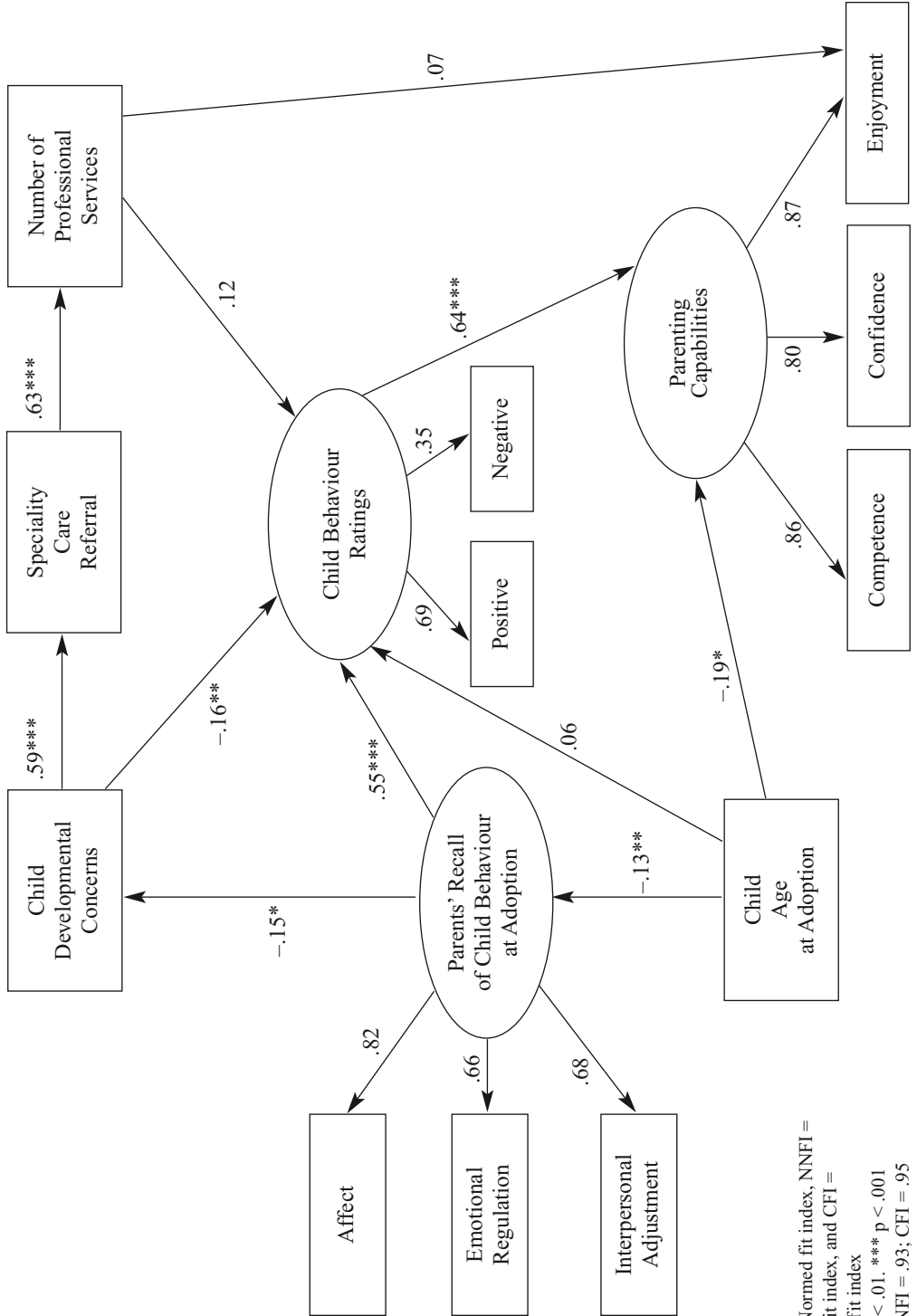
### Direct effects

Several noteworthy direct effects are evident in the SEM results. First, the older the child, and presumably how

---

<sup>1</sup> A fit index is a measure of how well (close) the hypothesised relationships among the measures in a SEM fit the actual relationships among the measures (as determined, for example, by the correlations among all the measures). A standardised parameter estimate is the path coefficient between two measures, which is a type of regression coefficient. Direct effects are estimated by the path coefficients between two measured or latent variables. Indirect effects are determined by the product of two direct effects. For example, the indirect effect of professional services on parenting capabilities in Figure 1 is determined by the product of the path coefficients between professional services and child behaviour ratings, and child behaviour ratings and parenting capabilities. (In instances when the size of the product of two path coefficients is large enough, the relationship between two variables connected by a variable in the middle is said to be mediated by the middle variable.) The total effects of one variable on another variable are the sum of all direct and indirect effects, and provide a measure of the overall size of the relationship between measures.

**Figure 2**  
**Relationships between the predictor variables and parents' ratings of child behaviour and their self-judgement of parenting competence, confidence and enjoyment**



Note: NFI = Normed fit index, NNFI = Nonnormed fit index, and CFI = Comparative fit index  
 $*p < .05$ .  $**p < .01$ .  $***p < .001$   
 NFI = .92; NNFI = .93; CFI = .95

long he or she had been in institutional care, at the time of adoption, the less positive and more negative were the parents' recall of their children's behaviour and the more negative the study participants judged their parenting capabilities.

Second, the less positive and more negative the parents' recall of their children's behaviour at the time of adoption, the more likely the parents reported concerns about their children's development. The more the parents were concerned about their children's behaviour, the more likely the parents sought out or their children were referred to professional services. If a child was referred for specialty care, the more services he or she received. Additionally, the more concerns the parents had at and following adoption, the less positive were their ratings of their children's behaviour at the time of the survey.

Third, and particularly important from a treatment or intervention perspective, the number of services a child received influenced neither parents' behaviour ratings of their children nor their self-judgements of their parenting capabilities. This indicates that the pathways through which parents' judgements of their children's, as well as their own behaviour, were not influenced by child services but by other factors.

Fourth, and most revealing, is the pathway from parents' recall of their children's behaviour and their judgement of their parenting capabilities. Parents' recall of their children's behaviour at the time of adoption was the best predictor of parents' behaviour ratings of their children. The more positive and less negative the children's behaviour at the time of adoption, the more positive were the ratings at the time the parents completed the survey. In turn, the more positive and less negative the parents' ratings of their children's behaviour, the more positive were the parents' judgements of their parenting competence, confidence and enjoyment.

Fifth, and also particularly revealing, is the fact that the influence of parents' recall on their judgements of their own

parenting capabilities is mediated by parents' ratings of their children's behaviours. This is determined by the product of the direct effect of parents' recall on child behaviour ratings ( $\beta = .55$ ,  $p < .001$ ) and the direct effect of child behaviour ratings on parenting capabilities ( $\beta = .64$ ,  $p < .001$ ), which is  $\beta = .55 \times .64 = .36$ ,  $p < .001$ ).

### Effects decomposition

Table 1 shows the direct, indirect and total effects of the six predictor variables on the different criterion measures. The pattern of results makes clear the relative importance of parents' judgements of their children's behaviour as the determinants of parenting competence, confidence and enjoyment. Parents' behaviour ratings of their children's functioning at the time of the study had a direct positive effect on parents' self-attributions of their parenting capabilities ( $\beta = .64$ ,  $p < .001$ ); and their recall of their children's behaviour at the time of adoption indirectly influenced parents' self-attributions mediated by positive child behaviour ratings and fewer child developmental concerns ( $\beta = .36$ ,  $p < .001$ ).

The only other indirect effect involved the influence of parental concerns on the provision of professional services. The more the parents reported developmental concerns, the more services the children received, but the pathway relies on referrals to specialty care ( $\beta = .37$ ,  $p < .001$ ).

The only discernable relationship between the three concerns-based measured variables and parenting capabilities was the combined total direct and indirect effects of professional services on the parenting measure. The number of professional services provided for the children had a small, positive effect on parents' attributions of their capabilities.

### Discussion

Findings from the SEM showed that for the study participants, their recall of their children's behaviour at the time of adoption and their judgements of child behaviour some two years later were



Table 1

**Standardised direct, indirect and total effects of the predictor variables on child behaviour and parenting capabilities**

Predictor	Effects decomposition			
	Criterion	Direct	Indirect	Total
Child age at adoption	Parent recall	-.13*	–	-.13*
	Parent concerns	–	.02	.02
	Specialty care referral	–	.01	.01
	Professional services	–	.01	.01
	Child behaviour	.06	-.07	-.01
	Parenting capabilities	-.19*	-.01	-.20*
Parent recall	Parent concerns	-.15*	–	-.15*
	Specialty care referral	–	-.09	-.09
	Professional services	–	-.06	-.06
	Child behaviour	.55***	.02	.57***
	Parenting capabilities	–	.36***	.36***
Parent concerns	Specialty care referral	.59***	–	.59***
	Professional services	–	.37***	.37***
	Child behaviour	-.16**	.04	-.12
	Parenting capabilities	–	.05	-.05
Specialty care referral	Professional services	.63***	–	.63***
	Child behaviour	–	.07	.07
	Parenting capabilities	–	.09	.09
Professional services	Child behaviour	.12	–	.12
	Parenting capabilities	.07	.08	.15*
Child behaviour	Parenting capabilities	.64***	–	.64***

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

both directly and indirectly associated with self-judgements of parenting competence, confidence and enjoyment. Results also showed that the older a child was at the time of adoption, the less positive and more negative the parents' recall of child behaviour, and the more likely a parent would have concerns about their child's development. These concerns turned into referrals to and provision of more professional services. Of special note is the fact that these services had only a small total effect on a sense of parenting capabilities. The majority of the children who received services were involved in the federal early intervention programme under the Individuals with Disabilities Education Improvement Act (IDEA) (Apling and Jones, 2005). The focus of such services is on building and strengthening parenting capacity (Hebbeler *et al*, 2007) but these findings indicate that this did not happen with the parents in this study.

The results also support the hypothesis that parental judgements of their children's behaviour influence their sense of parenting. The findings are highly consistent with parenting theory (eg Bugental *et al*, 1998), as well as findings from studies of the influence of birth and adopted children's behaviour on parenting self-appraisals (eg Leve *et al*, 2001). More importantly, the results add to our understanding of the direct and indirect effects that parents' judgements about their children's behaviour have on their own sense of parenting (Jones, 1997). These findings replicate and extend results from other studies by showing how parents' judgements of the children's behaviour affect their own parenting beliefs.

Internationally adopted children demonstrate considerable recovery from pre-adoption conditions and perform within the normal range of functioning without professional interventions inasmuch as adoption is a successful

natural intervention (van IJzendoorn and Juffer, 2005; van IJzendoorn *et al*, 2005). However, there are children who are adopted internationally from countries including China who have developmental delays or disabilities that were either known to the parents prior to the adoption or diagnosed shortly afterwards. It would seem that the families of these children would therefore benefit from post-adoption services, including early intervention (Brooks *et al*, 2002). However, few studies have evaluated the effects of these, as most follow-up support is reported descriptively only (Barth and Miller, 2000; Rushton, 2003). The fact that we found that early intervention professional services had little or no impact on either parents' behavioural ratings of their children or judgements of their parenting capabilities deserves comment in light of the increased call for early intervention for adopted children (eg Johnson and Dole, 1999; Judge, 1999; Welsh *et al*, 2007). As a field, early intervention is designed to support parents as they facilitate their children's behaviour and development, and there is a growing evidence base on the powerful effects that professional support can have on parenting behaviour (Dunst, 1999; Dunst and Dempsey, 2007; Dunst *et al*, 2007). The extent to which early intervention is warranted, and how professional services are provided, would seem to require more attention than it has been given in the adoption literature to date (Rushton, 2003; Rushton *et al*, 2006; Bruder *et al*, 2009). In cases where intervention is indicated, findings from this study suggest that there ought to be a focus on promotion of positive child behaviours which, in turn, is likely to improve parents' self-judgements of their parenting capabilities (Oswald, 2001). However, before clear conclusions can be reached, research must continue to illuminate the complex interactions of child and parent behaviours, and their effects on child and parent functioning over time (Palacios, 2009; Wrobel and Neil, 2009).

Previous research on parenting has

stressed the importance of self-assessments of parenting confidence and competence because these types of self-efficacy beliefs are mediators of day-to-day parenting practices (Bandura, 1997). It has also long been known that parenting styles are important determinants of child behaviour and development (Nievar and Becker, 2008) and that sensitive and responsive styles influence parenting efficacy beliefs (Coleman and Karraker, 2003). A next step in research would be to expand the model to include both additional determinant variables, such as support practices (Dunst *et al*, 2008) and child developmental outcomes (Bruder, 2010), to assess the direct and indirect effects of parenting efficacy beliefs on child behaviour.

The study described in this article has both strengths and limitations. One strength is the use of structural equation modelling for testing the fit of the hypothesised model to the patterns of relationships among the study measures. But a methodological weakness is that the measures of parents' judgements of their children's behaviour at the time of adoption were retrospective and there is likely to have been some 'slipping' in terms of recall. This concern is partly offset by the fact that the parents' retrospective assessments were related to age of adoption and concerns about their children's behaviour at and following adoption, and were not correlated with time since adoption. This concern is also partly offset by the fact that salient events like first meeting one's adopted child are highly likely to be remembered. Notwithstanding this, a prospective longitudinal study of children's behaviour at the time of adoption and the subsequent assessments of study outcomes would provide a better test of the hypothesis posited here.

Additionally, the families in this study had cared for their children for a relatively short time. It could be the case that there has been limited time for adjustment, and this could have skewed their competence and confidence reports. A last and most salient limitation is the fact that the sample consisted

of children adopted from one country, China, into a sample of families from the US who on average were 40 years of age or older, were university educated and had financial resources. These demographics limit the generalisability of the findings. Nonetheless, implications for child and family post-adoption interventions can be drawn, as can the need for more research into the types of interventions that effectively meet the needs of children and families at different times in the adoption process.

## References

- Apling RN and Jones LJ, *Individuals with Disabilities Education Act (IDEA): Analysis of changes made by P.L. 108-446*, Washington, DC: Congressional Research Service, 2005
- Bandura A, *Self-efficacy: The exercise of control*, New York: Freeman, 1997
- Barth RP and Miller JM, 'Building effective post-adoption services: What is the empirical foundation?', *Family Relations* 49, pp 447-55, 2000
- Belsky J, 'The determinants of parenting: a process model', *Child Development* 55, pp 83-96, 1984
- Belsky J, Fish M and Isabella R, 'Continuity and discontinuity in infant negative and positive emotionality: family antecedents and attachment consequences', *Developmental Psychology* 27, pp 421-31, 1991
- Belsky J, Ward MJ and Rovine M, 'Prenatal expectations, postnatal experiences and the transition to parenthood', in Ashmore R and Brodzinsky D (eds), *Thinking about the Family: Views of parents and children*, Hillsdale, NJ: Erlbaum, 1986
- Bentler P, *EQS Structural Equation Modeling Manual*, Encino, CA: Multivariate Software, 1995
- Bogenschneider K, Small SA and Tsay JC, 'Child, parent, and contextual influences on perceived parenting competence among parents of adolescents', *Journal of Marriage and the Family* 59, pp 345-62, 1997
- Bohlin G and Hagekull B, 'Good mothering: maternal attitudes and mother-infant interaction', *Infant Mental Health Journal* 8, pp 352-63, 1987
- Bondy EM and Mash EJ, 'Parenting efficacy, perceived control over caregiving failure, and mothers' reactions to preschool children's misbehaviour', *Child Study Journal* 29, pp 157-73, 1999
- Borders LD, Black LK and Pasley BK, 'Are adopted children and their parents at greater risk for negative outcomes?', *Family Relations* 47, pp 237-41, 1998
- Bornstein MH, 'Stability in early mental development: from attention and information processing in infancy to language and cognition in childhood', in Bornstein MH and Krasnegor NA (eds), *Stability and Continuity in Mental Development: Behavioural and biological perspectives*, Hillsdale, NJ: Erlbaum, 1989
- Bornstein MH, Hendricks C, Hahn C-S, Haynes OM, Painter KM and Tamis-LeMonda CS, 'Contributors to self-perceived competence, satisfaction, investment, and role balance in maternal parenting: a multivariate ecological analysis', *Parenting* 3, pp 285-326, 2003
- Brodzinsky DM and Pinderhughes EB, 'Parenting and child development in adoptive families', in Bornstein MH (ed), *Handbook of Parenting: Volume 1, Children and parenting*, Mahwah, NJ: Erlbaum, 2002
- Bronfenbrenner U, 'Developmental ecology through space and time: a future perspective', in Moen P, Elder GH Jr and Lüscher K (eds), *Examining Lives in Context: Perspectives on the ecology of human development*, Washington, DC: American Psychological Association, 1995
- Brooks D, Allen J and Barth R, 'Adoption services use, helpfulness, and need: a comparison of public and private agency and independent adoptive families', *Children and Youth Services Review* 24, pp 213-18, 2002
- Bruder, MB, 'Early childhood intervention: a promise to the future of children and families', *Exceptional Children* 76:3, pp 339-55, 2010
- Bruder MB, Dunst CJ and Mogro-Wilson C, 'Child factors associated with enrolment in Part C early intervention among children adopted from China', *Journal of Early Intervention* 32, pp 54-67, 2009
- Bugental DB and Johnston C, 'Parental and child cognitions in the context of the family', *Annual Review of Psychology* 51, pp 315-44, 2000
- Bugental DB, Johnston C, New M and Silvester J, 'Measuring parental attributions: conceptual and methodological issues', *Journal of Family Psychology* 12, pp 459-80, 1998
- Coleman PK, 'Maternal self-efficacy beliefs as predictors of parenting competence and toddlers

- emotional, social, and cognitive development', Doctoral dissertation, West Virginia University (1998), *Dissertation Abstracts International* 60, 2981B; available at <https://eidr.wvu.edu/files/219/DISERTF.mcw.pdf> (retrieved 19 November 2007)
- Coleman PK and Karraker KH, 'Maternal self-efficacy beliefs, competence in parenting, and toddlers' behaviour and developmental status', *Infant Mental Health Journal* 24, pp 126–48, 2003
- Collins WA, Maccoby EE, Steinberg L, Hetherington EM and Bornstein MH, 'Contemporary research on parenting: the case for nature and nurture', *American Psychologist* 55, pp 218–32, 2000
- Cowan CP, Cowan PA, Heming G, Garrett E, Coysh WS, Curtis-Boyles H and Boles AJ, III, 'Transitions to parenthood: his, hers, and theirs', *Journal of Family Issues* 6, pp 451–81, 1985
- Davis L and Keyser J, *Becoming the Parent You Want to Be*, New York: Broadway Books, 1997
- Dix T and Grusec JE, 'Parental attribution processes in the socialization of children', in Sigel IE (ed), *Parental Belief Systems: The psychological consequences for children*, Hillsdale, NJ: Erlbaum, 1985
- Dunst CJ, 'Placing parent education in conceptual and empirical context', *Topics in Early Childhood Special Education* 19, pp 141–47, 1999
- Dunst CJ and Dempsey I, 'Family-professional partnerships and parenting competence, confidence, and enjoyment', *International Journal of Disability, Development, and Education* 54, pp 305–18, 2007
- Dunst CJ, Hamby DW and Brookfield J, 'Modeling the effects of early childhood intervention variables on parent and family well-being', *Journal of Applied Quantitative Methods* 2, pp 268–88, 2007
- Dunst CJ and Masiello TL, *Everyday Parenting Scale*, Asheville, NC: Winterberry Press, 2002
- Dunst CJ, Trivette CM and Hamby DW, *Research Synthesis and Meta-analysis of Studies of Family-centered Practices* (Winterberry Monograph Series), Asheville, NC: Winterberry Press, 2008
- Glass J, 'Pre-birth attitudes and adjustment to parenthood: when "preparing for the worst" helps', *Family Relations* 32, pp 377–86, 1983
- Goldberg S, 'Social competence in infancy: a model of parent–infant interaction', *Merrill-Palmer Quarterly* 23, pp 163–77, 1977
- Goodnow JJ and Collins WA, *Development According to Parents: The nature, sources, and consequences of parents' ideas*, Hove: Erlbaum, 1990
- Groza V, 'Institutionalization, behaviour, and international adoption', *Journal of Immigrant Health* 1, pp 133–43, 1999
- Groza V and Ryan SD, 'Pre-adoption stress and its association with child behaviour in domestic special needs and international adoptions', *Psychoneuroendocrinology* 27, pp 181–97, 2002
- Groza V, Ryan SD and Cash SJ, 'Institutionalization, behaviour and international adoption: predictors of behaviour problems', *Journal of Immigrant Health* 5, pp 5–17, 2003
- Gunnar MR, Bruce J and Grotevant HD, 'International adoption of institutionally reared children: research and policy', *Development and Psychopathology* 12, pp 677–93, 2000
- Gunnar MR, van Dulmen MH and International Adoption Project Team, 'Behaviour problems in postinstitutionalized internationally adopted children', *Development and Psychopathology* 19, pp 129–48, 2007
- Guzell JR and Vernon-Feagans L, 'Parental perceived control over caregiving and its relationship to parent–infant interaction', *Child Development* 75, pp 134–46, 2004
- Hagekull B and Bohlin G, 'Early infant temperament and maternal expectations related to maternal adaptation', *International Journal of Behavioural Development* 13, pp 199–214, 1990
- Hebbeler K, Spiker D, Bailey D, Scarborough A, Mallik S, Simeonsson R, Singer M and Nelson L (2007), *Early Intervention for Infants and Toddlers with Disabilities and their Families: Participants, services, and outcomes: Final Report of the National Early Intervention Longitudinal Study* (NEILS) (SRI Project 11247), Menlo Park, CA: SRI International; available at [www.sri.com/neils/pdfs/NEILS\\_Report\\_02\\_07\\_Final2.pdf](http://www.sri.com/neils/pdfs/NEILS_Report_02_07_Final2.pdf) (retrieved 22 May 2007)
- Hirsh-Pasek K, 'Mother and caregiver sensitivity over time: predicting language and academic outcomes with variable- and person-centered approaches', *Merrill-Palmer Quarterly* 52, pp 449–85, 2006
- Holden GW and Buck MJ, 'Parental attitudes toward childrearing', in Bornstein MH (ed), *Handbook of Parenting: Volume 3, Being and becoming a parent*, Mahwah, NJ: Erlbaum, 2002

- Hoyle R, 'The structural equation modeling approach: basic concepts and fundamental issues', in Hoyle R (ed), *Structural Equation Modeling: Concepts, issues, and applications*, Thousand Oaks, CA: Sage, 1995a
- Hoyle RH (ed), *Structural Equation Modeling: Concepts, issues, and applications*, Thousand Oaks, CA: Sage, 1995b
- Hu L and Bentler PM, 'Evaluating model fit', in Hoyle RH (ed), as above, 1995
- Jarrett GE, 'Childrearing patterns of young mothers: expectations, knowledge, and practices', *MCN: The American Journal of Maternal Child Nursing* 7, pp 119–21, 1982
- Johnson DE and Dole K, 'International adoptions: implications for early intervention', *Infants and Young Children* 11:4, pp 34–45, 1999
- Jones SM, *Parents' Emotion-related Behaviours and Children's Social Competence: The mediating role of children's affective displays*, Unpublished doctoral dissertation, Arizona State University, Tempe, 1997
- Judge SL, 'Eastern European adoptions: current status and implications for intervention', *Topics in Early Childhood Special Education* 19, pp 244–54, 1999
- Kline RB, *Principles and Practice of Structural Equation Modeling* (second edition), New York: Guilford Press, 2005
- Kochanska G, Friesenbergh AE, Lang LA and Martel MM, 'Parents' personality and infants' temperament as contributors to their emerging relationship', *Journal of Personality and Social Psychology* 86, pp 744–59, 2004
- LaRossa R and LaRossa MM, *Transition to Parenthood: How infants change families*, Beverly Hills, CA: Sage, 1981
- Lerner JV, 'The influence of child temperamental characteristics on parental behaviours', in Luster T and Okagaki L (eds), *Parenting: An ecological perspective*, Hillsdale, NJ: Erlbaum, 1993
- Leve LD, Scaramella LV and Fagot BI, 'Infant temperament, pleasure in parenting, and marital happiness in adoptive families', *Infant Mental Health Journal* 22, pp 545–58, 2001
- Levy-Shiff R, Goldshmidt I and Har-Even D, 'Transition to parenthood in adoptive families', *Developmental Psychology* 27, pp 131–40, 1991
- Loo KK, Zhu H, Yin Q, Luo H, Min L and Tyler R, 'Maternal confidence in China: association with infant neurobehaviours but not sociodemographic variables', *Journal of Pediatric Psychology* 31, pp 452–59, 2006
- MacCallum RC, Browne MW and Sugawara HM, 'Power analysis and determination of sample size for covariance structure modeling', *Psychological Methods* 1:2, pp 130–49, 1996
- Marcovitch S, Goldberg S, Gold A, Washington J, Wasson C, Krekewich K and Handley-Derry M, 'Determinants of behavioural problems in Romanian children adopted in Ontario', *International Journal of Behavioural Development* 20, pp 17–37, 1997
- Mash EJ and Johnson C, 'Parental perceptions of child behaviour problems, parenting self-esteem, and mothers' reported stress in younger and older hyperactive and normal children', *Journal of Consulting and Clinical Psychology* 51, pp 86–99, 1983
- Miller SA, 'Parents' attributions for their children's behaviour', *Child Development* 66, pp 1557–84, 1995
- Milliones J, 'Relationship between perceived child temperament and maternal behaviours', *Child Development* 49, pp 1255–57, 1978
- Morfei MZ, Hooker K, Fiese BH and Cordeiro AM, 'Continuity and change in parenting possible selves: a longitudinal follow-up', *Basic and Applied Social Psychology* 23, pp 217–23, 2001
- Nievar MA and Becker BJ, 'Sensitivity as a privileged predictor of attachment: a second perspective on De Wolff and van IJzendoorn's meta-analysis', *Social Development* 17, pp 102–14, 2008
- Okagaki L and Divecha DJ, 'Development of parental beliefs', in Luster T and Okagaki L (eds), *Parenting: An ecological perspective*, Hillsdale, NJ: Erlbaum, 1993
- Oswald DP, 'Child strengths and the level of care for children with emotional and behavioural disorders', *Journal of Emotional and Behavioural Disorders* 9, pp 192–99, 2001
- Palacios J, 'The ecology of adoption', in Wrobel GM and Neil E (eds), *International Advances in Adoption Research for Practice*, Chichester: Wiley-Blackwell, 2009
- Palkovitz RJ and Sussman MB (eds), *Transitions to Parenthood*, New York: Hawthorne Press, 1988
- Peters BR, Atkins MS and McKay MM, 'Adopted children's behaviour problems: a review of five explanations', *Clinical Psychology Review* 19, pp 297–328, 1999

- Pridham KF and Chang AS, 'Transition to being the mother of a new infant in the first 3 months: maternal problem solving and self-appraisals', *Journal of Advanced Nursing* 17, pp 204–16, 1992
- Rushton A, 'Support for adoptive families: a review of current evidence on problems, needs and effectiveness', *Adoption & Fostering* 27:3, pp 41–50, 2003
- Rushton A, Monck E, Upright H and Davidson M, 'Enhancing adoptive parenting: devising promising interventions', *Child and Adolescent Mental Health* 11, pp 25–31, 2006
- Sameroff AJ and MacKenzie MJ, 'Research strategies for capturing transactional models of development: the limits of the possible', *Development and Psychopathology* 15, pp 613–40, 2003
- Scott DA and Hill J, 'Stability and change in parenting beliefs in first-time mothers from the pre- to postnatal period', *Journal of Reproductive and Infant Psychology* 19:2, pp 105–19, 2001
- Sheinkopf SJ, Lester BM, LaGasse LL, Seifer R, Bauer CR, Shankaran S, Bada HS, Poole WK and Wright LL, 'Interactions between maternal characteristics and neonatal behaviour in the prediction of parenting stress and perception of infant temperament', *Journal of Pediatric Psychology* 31, pp 27–40, 2006
- Sigel IE, McGillicuddy-DeLisi AV and Goodnow JJ (eds), *Parental Belief Systems: The psychological consequences for children* (second edition), Hillsdale, NJ: Erlbaum, 1992
- Silin MW, 'The vicissitudes of adoption for parents and children', *Child and Adolescent Social Work Journal* 13, pp 255–69, 1996
- Simons CJ, Ritchie SK, Mullett MD and Liechty EA, 'Parental recall of infant medical complications and its relationship to delivery method and education level', *Journal of Developmental and Behavioural Pediatrics* 7, pp 355–60, 1986
- Slep AM and O'Leary SG, 'The effects of maternal attributions on parenting: an experimental analysis', *Journal of Family Psychology* 12, pp 234–43, 1998
- Solomon CR and Poirier M-C, 'Parenting styles and attributions and the behaviour of children in the "no" stage in adoptive and biological families', *Adoption Quarterly* 10, pp 63–83, 2006
- Spector PE, *Summated Rating Scale Construction: An introduction*, Newbury Park, CA: Sage, 1992
- Tan TX and Marfo K, 'Parental ratings of behavioural adjustment in two samples of adopted Chinese girls: age-related versus socio-emotional correlates and predictors', *Applied Developmental Psychology* 27, pp 14–30, 2006
- Tan TX, Marfo K and Dedrick RF, 'Special needs adoption from China: exploring child-level indicators, adoptive family characteristics, and correlates of behavioural adjustment', *Children and Youth Services Review* 29, pp 1269–85, 2007
- Treharne DA, 'Parental recall of children's early development', *European Journal of Disorders of Communication* 27, pp 221–30, 1992
- van den Broek P, Bauer PJ and Bourg T (eds), *Developmental Spans in Event Comprehension and Representation: Bridging fictional and actual events*, Mahwah, NJ: Erlbaum, 1997
- van IJendoorn MH and Juffer F, 'Adoption is a successful natural intervention enhancing adopted children's IQ and school performance', *Current Directions in Psychological Science* 14, pp 326–30, 2005
- van IJendoorn MH, Juffer F and Poelhuis CWK, 'Adoption and cognitive development: a meta-analysis comparison of adopted and non-adopted children's IQ and school performance', *Psychological Bulletin* 131, pp 301–16, 2005
- Verlaan P and Schwartzman AE, 'Mothers' and fathers' parental adjustment: links to externalising behaviour problems in sons and daughters', *International Journal of Behavioural Development* 26, pp 214–24, 2002
- Welsh J, Viana A, Petrill S and Mathias M, 'Intervention for internationally adopted children and families: a review of literature', *Child and Adolescent Social Work Journal* 24, pp 285–311, 2007
- Wilson C, Gardner F, Burton J and Leung S, 'Maternal attributions and young children's conduct problems: longitudinal study', *Infant and Child Development* 15, pp 109–21, 2006
- Wrobel GM and Neil E (eds), *International Advances in Adoption Research for Practice*, Chichester: Wiley-Blackwell, 2009

© Mary Beth Bruder, Carl J Dunst, Cristina Mogro-Wilson and Tony Xing Tan 2010