

Paths to child social adjustment: parenting quality and children's processing of social information

M. E. Haskett* and M. Willoughby†

*Department of Psychology, North Carolina State University, Raleigh, and

†Frank Porter Graham Child Development Institute, Chapel Hill, NC, USA

Accepted for publication 23 January 2006

Abstract

Background The purpose of this research was to examine the manner in which multiple influences on child social adjustment operated together to predict differential outcomes for young children. Specifically, this study was designed to (i) examine the role of social cognitive and emotional factors in parents' observed and self-reported behaviour towards their children, and (ii) investigate the impact of parenting and children's social information processing (SIP) patterns on children's subsequent social adjustment in the school setting.

Methods A model of children's peer social adjustment was evaluated using a group of 166 children, over-sampled for history of physical child abuse. Assessment of constructs was multi-method, including parent and child self-reports as well as teacher reports of child adjustment and observations of parent-child and child-peer interactions.

Results Using structural equation modelling, support was found for our theoretical model. Specifically, parents' negative child-related beliefs and clinical elevations in emotional distress were predictors of harsh, insensitive parenting, which in turn predicted children's SIP operations and social maladjustment 6 months later. However, children's SIP did not significantly predict their social adjustment above and beyond the impact of parenting.

Conclusions Results indicated that the quality of parenting that children received was more central to subsequent adjustment in peer interactions than were children's SIP operations. Furthermore, the quality of parenting children experienced was closely linked to parents' beliefs about their children and parents' mental health status. Directions for future research and potential implications for clinical practice are discussed.

Keywords

child social adjustment, parenting quality, social information processing

Correspondence:

Mary E. Haskett,
Department of
Psychology, Box 7650,
North Carolina State
University, Raleigh, NC
27695, USA
E-mail:
mary_haskett@ncsu.edu

Findings were presented,
in part, at the 2003
biennial meeting of the
Society for Research in
Child Development,
Tampa, FL, USA.

Introduction

Numerous studies have established a robust association between parenting and children's peer social competence; however, relatively few studies have been conducted to discern processes that underlie the association between parent/child and peer social worlds. Indeed, numerous investigators have examined only singular risk factors for social maladjustment, despite the fact that comprehensive models have been proposed for many years. Research designed to examine the contributions of

multiple predictors, simultaneously, could enhance development of interventions for children who show an early path towards social maladjustment. The purpose of this research was to investigate a model of influences on children's social adjustment. The model to be tested is depicted in Fig. 1. The model assumes that parents' beliefs about their children and parents' emotional health are associated with parenting quality (Path a) and in turn, parenting is a predictor of children's subsequent social adjustment (Path b). In addition, the model assumes that parenting is associated with children's social information pro-

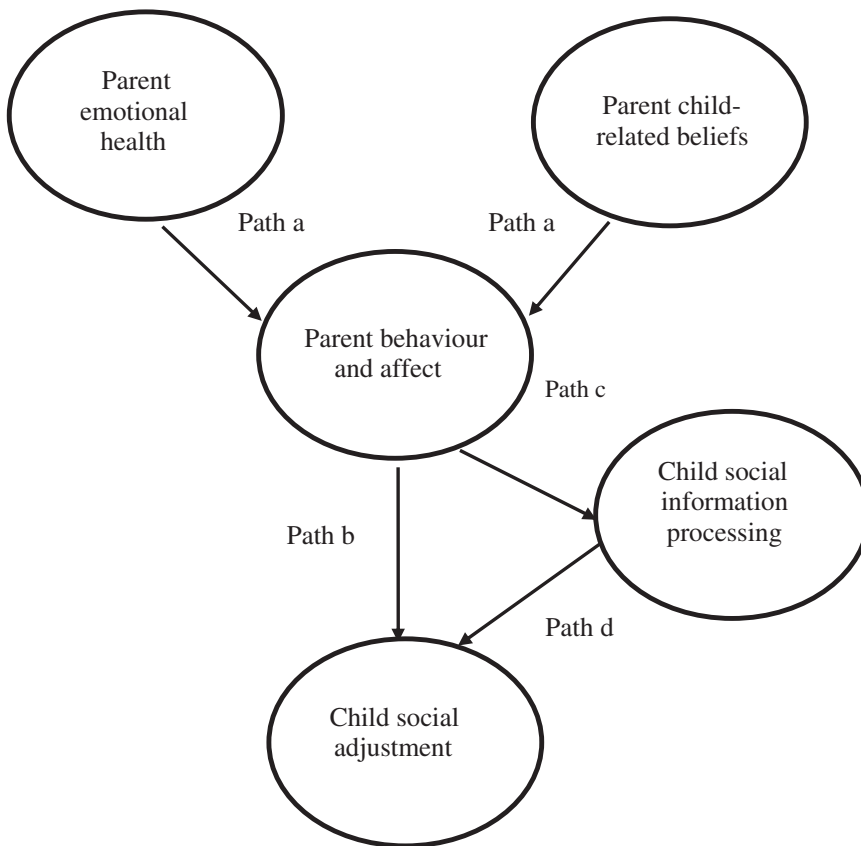


Figure 1. Model of child social adjustment.

cessing (SIP; Path c), which predicts children's social adjustment (Path d). A brief overview of support for each link in the model is provided below.

Support for paths in the model

Path from child-related cognitions and emotional health to parenting (Path a)

The manner in which parents explain their children's misbehaviour has an impact on their parenting emotions and behaviour (see Sigel *et al.* 1992). To illustrate, parental attributions of purposeful attempts by children to disobey (e.g. 'he wet his pants to get my attention') have been associated with reactions of anger, dysfunctional parenting and provision of a low-quality child-rearing environment (Baden & Howe 1992; Daggett *et al.* 2000). Parents who view their child as having negative intentions also tend to have inappropriately high expectations for their children's developmental abilities (Dix & Reinhold 1991) and to anticipate using power-assertive discipline such as spanking (Paz Montes *et al.* 2001). With respect to the associa-

tion between parenting and emotional health, parents in today's society experience numerous stressors (Sidebotham & the ALSPAC Study Team 2001), and high parental stress is associated with less optimal childrearing (see Deater-Deckard 1998). Depression, in particular, is associated with negativity, hostility and withdrawal from the parenting role (e.g. Conger *et al.* 1995).

Path from parenting to child adjustment (Path b) and SIP (Path c)

In our model, parents' behaviour and affect are expected to be associated with children's SIP and linked to children's future social adjustment. There is compelling evidence of the significant impact of parenting on children's social adjustment (e.g. Cummings *et al.* 2000). Parenting attributes of interest in the current research include discipline practices and sensitivity/warmth. Past research indicates that early experiences of harsh and abusive discipline are associated with increased risk for child aggression and other conduct problems, although there are moderators of the relation (e.g. Deater-Deckard & Dodge

1997). Early experiences of parental warmth are associated with positive outcomes in later childhood, and lack of parental warmth is associated with child aggression and other behaviour problems (Fine *et al.* 1993; Booth *et al.* 1994).

There is relatively limited research that attempts to explain *how* parental behaviour influences child adjustment. One theoretical tradition with potential to explain the link between children's experiences with their parents and subsequent relationships with peers is the highly influential SIP framework put forth by Crick and Dodge (1994). According to that model, the ways children mentally receive and process social cues during interactions with peers impact their behaviour in those situations. Substantial research supports the tenets of the SIP model; children who display atypical processing of information during interactions with peers tend to show evidence of social incompetence. An associated line of research indicates that various aspects of parenting influence children's SIP patterns. Specifically, a history of power assertive discipline (Hart *et al.* 1990), restrictive parenting (Jones *et al.* 1980) and harsh parenting (Dodge *et al.* 1995) predicts several SIP operations. Further, parents' level of nurturance (Jones *et al.* 1980) is associated with the strategies children use to resolve peer problems.

Path from children's SIP to social adjustment (Path d)

Finally, the model predicts that children's attributions for other children's behaviour and ability to generate solutions to peer conflicts will predict children's adjustment. Past research indicates that children with peer relationship difficulties are less accurate in interpreting the intentions of other children and are more likely to attribute hostile intent to neutral peer behaviour (de Castro *et al.* 2002). Research also shows that socially competent children generate more effective, socially appropriate solutions to peer-related problems than do aggressive children (see Dodge 1993). More direct evidence of the link between SIP and child adjustment is found in research which indicates that modifying children's processing of information in peer interactions has a positive impact on their behavioural adjustment (e.g. Hudley & Graham 1993).

Current study

As stated above, the purpose of this investigation was to explore several paths to social competence among young children. Specifically, we tested a conceptual model that linked parenting and children's SIP to child social adjustment. Deater-Deckard and Dodge (1997) have suggested that samples which include the full range of harsh discipline and child aggression may be

necessary to confirm linkages between parenting and social behaviour that are less apparent in the absence of extremes. Furthermore, a tenet of developmental psychopathology is that systematic study of populations at risk for psychopathology can inform us about typical developmental processes. That tenet has directed researchers' attention to the study of abused children, who are at risk for maladjustment in several areas of social functioning. Accordingly, the current investigation included parent/child dyads in which physical abuse had occurred.

Support for each individual path in our model has been provided by past research involving abusive parents and their children. First, physically abusive parents exemplify the manner in which negative child-related beliefs might culminate in inappropriate parenting. Many abusive parents consider children's misbehaviour to be intentionally annoying (Dopke *et al.* 2003), and abusive parents' expectations for children can be unrealistic (Wolfe 1999). In terms of the path from parental emotional health to parenting behaviour and affect, characteristics of depressed and highly stressed mothers are strikingly similar to those of abusive parents (e.g. Zuravin 1989). Furthermore, there is evidence of high levels of distress (Whipple & Webster-Stratton 1991) and depression (Culp *et al.* 1989) among abusive and high-risk parents. The path from harsh, insensitive parenting to children's social cognitive development is supported by research that shows abused children (Price & Glad 2003) and those who have experienced harsh discipline (Dodge *et al.* 1995) differ from non-abused children in several SIP operations. Finally, in terms of the path from parenting to child adjustment, children who have experienced abuse display deficits in multiple areas of emotional and social functioning (Wolfe 1999). In sum, extant research demonstrates that families in which abuse has occurred were particularly suitable for inclusion in the present study.

Methods

Participants and procedures

One hundred and sixty-six children (50% girls) and one of their parents (85% mothers) participated. Children were between 5 and 10 years of age (mean 7.2 years; SD = 1.5 years). Slightly more than one-half ($n = 86$) of the children had a substantiated history of physical abuse. Seventy-three per cent of children were African-American, 25% were European-American, and the remaining children were Hispanic or biracial. The majority of children (61%) lived in a single-parent household; 39% lived with two parents/parent figures. The full range of socioeconomic status (A. B. Hollingshead, unpublished) was repre-

sented (34% at the highest two levels and 43% at the lowest two levels). Mean parent age was 34 years, 38% of parents were married, and 64% were employed. There were no significant group differences between abuse and comparison participants on any of these demographic variables (all $P > 0.15$).

Abuse families were recruited through social services staff referrals and child protection records reviews. Recruitment of comparison families was accomplished by distribution of flyers in the neighbourhoods where the abuse families resided. Potential comparison parents were screened for child abusive behaviour through administration of a discipline tactics scale and a review of the child protective services register. A psychosocial interview was conducted with each parent and if they met research criteria (e.g. child between ages of 5–10 years; parent and child resided in the same home and spoke English; no self-reported history of sexual abuse perpetrated by the parent or against the child) they were invited to participate in a family data collection session at a university family clinic. Data collection began after parental informed consent. During the data collection session, all parent measures and child measures of SIP were administered. Six months later, teacher-report and observational measures of child social adjustment were collected.

Measures of parents' child-related cognitions

Parental expectations

The Parent Opinion Questionnaire (POQ; Twentyman *et al.* 1981), designed to assess parental expectations of child behaviour, consists of 80 brief descriptions of child abilities (e.g. 'A 7-year-old is old enough to set his or her own curfew and meal times'). Parents indicate whether they agree or disagree with each statement, and a total score is generated based on the sum of items to which the parent agree. Higher scores indicate a greater level of unrealistic expectations. The total score is internally consistent ($KR-20 = 0.82$; Haskett *et al.* 2006). Research indicates that abusive and non-abusive parents obtain significantly different POQ scores, and the POQ is recommended for clinical use (Kolko & Swenson 2002).

Attributions of intent

The Child Vignettes (CV; Plotkin 1983) includes a series of 18 brief vignettes that depict child misbehaviour. Parents imagine that the child is their own and then use a 9-point scale to rate the degree to which the child's behaviour was intended specifically to annoy the parent. A score is derived based on the sum

of ratings across all items; that score was used in the present study as one indicator of parent social cognition. There is evidence to support the internal consistency of scores (coefficient alpha = 0.83; Haskett *et al.* 2006), and the CV scores differentiate abusive and non-abusive parents (Plotkin 1983; Haskett *et al.* 2006).

Measures of emotional health

To complete the Symptom Checklist-90-Revised (SCL-90-R; Derogatis 1983), parents use a 5-point scale to indicate how much each of the 90 symptoms has bothered them in the last 7 days. Scores are derived for nine symptom dimensions. For purposes of the current study, T-scores for Depression and Hostility subscales were employed as indicators of emotional health. Internal consistency coefficients of the subscales are 0.90 for Depression and 0.84 for Hostility; and 1-week test-retest reliability of scales is high. There is substantial support for validity and clinical utility of the SCL-90-R (Derogatis & Lazarus 1994).

Measures of parenting behaviour

Discipline strategies

A modified form (Kaufman *et al.* 1994) of the Conflict Tactics Scale (CTS; Straus 1990) was administered by phone. Respondents used a 3-point scale (Never = 1, Once = 2, More than once = 3) to indicate the frequency with which they used 20 different discipline strategies (e.g. 'reasoned with your child', 'hit your child with strap, belt, or rope') in the 3 months preceding the interview. The CTS is a psychometrically sound and frequently used measure of family violence and parent-to-child aggression (Straus 1990) that is correlated with parenting behaviour and predictive of child outcomes (e.g. Kaufman *et al.* 1994; Nordstrom-Klee 2002). A total raw score was generated as an indicator of parenting behaviour by summing frequency ratings for 11 items that represented harsh physical discipline.

Observed parenting

Each dyad participated in a 30-min session divided into three 10-min segments. First, dyads played together with a standard set of age-appropriate toys. Then parents were told to ask their children to clean up the toys, draw a picture of a person, and then sit quietly while the parent read a magazine. Finally, parents were instructed to help their children quickly complete two puzzles. Parents were not allowed to touch the puzzle pieces and a visible and audible timer was set for 10 min. Six dimensions

of parenting were coded using the Qualitative Ratings of Parent–Child Interactions (Paley *et al.* 2001). The dimensions included Positive Regard, Negative Regard, Sensitivity, Disengaged, Intrusiveness and Flatness of Affect. Scoring of the scales involved ratings from 1 to 7 (with 7 indicating that the category was highly indicative of the observed parenting) on each of the six parenting dimensions for each of the three 10-min segments, for a total of 18 data points for each dyad. Inter-rater reliability was adequate; kappa coefficients for the six categories ranged from 0.76 to 0.92. Because of significant inter-segment consistency in ratings, a mean score of 1–7 was generated by averaging ratings across the three segments. Factor analysis supported further reduction to a score for ‘Sensitive Parenting’ (i.e. Disengaged and Flatness of Affect reverse coded, Sensitivity, and Positive Regard) and ‘Negative Parenting’ (i.e. Intrusiveness, Negative Regard).

Measures of children’s SIP

Intent attributions

The Home Interview with Child (HIWC; CPPRG 1991a) was designed to measure children’s intent attributions for peer problems. Eight vignettes accompanied by pictures depict a child who has experienced a negative peer interaction (e.g. being hit by a ball, being left out of a game). The peer’s behaviour is ambiguous with respect to intent. After each story, children are asked to tell why the peer acted the way he/she did, and the response is coded as Hostile or Benign. Number of items for which the child gave a hostile attribution response served as one indicator of SIP in the present study. Inter-rater agreement of coding was estimated using a second coder for approximately 30% of participants; the kappa coefficient was 0.92. In past research, scores on the HIWC differentiated normative samples from samples at high risk for aggression, and Cronbach’s alpha coefficients for normative and high-risk groups were above 0.70 (Rains 2002).

Response access

The Social Problem Solving Scale (SPSS; CPPRG 1991b) includes eight vignettes, presented verbally and accompanied by pictures that depict a peer conflict (i.e. a child is being teased or frustrated by another child). Children were asked to generate solutions to the problem and each solution was coded as one of 13 types. There were five types of negative solutions (e.g. attack, threaten) and eight types of non-negative solutions (e.g. ask, trade). Summary scores were (i) total number of solution types

generated, which represented the child’s brainstorming ability; (ii) number of negative solutions generated; and (iii) number of vignettes for which a negative solution was generated. Inter-rater reliability was above 0.90 for all scores. A summary of psychometric properties of the SPSS is provided by Corrigan (2003).

Measures of children’s social adjustment

Teacher report

The Social Behaviour Scale (SBS) is a 39-item teacher-report questionnaire compiled from several empirically supported measures. Prosocial Behaviour, Relational Aggression, Depressed and Overt Aggression subscales were drawn from the teacher-report forms of the Children’s Social Behaviour Scale (Crick 1996) and the Preschool Social Behaviour Scale (Crick *et al.* 1997). The Excluded and Victimized scales were taken from the Child Behaviour Scale (Ladd & Profilet 1996). Factor analysis of the SBS provided strong support for the 7-factor structure of the SBS, and internal consistency of subscales was high (range 0.78–0.93). Scales employed in the current study as indicators of social adjustment included Overt Aggression, Relational Aggression and Excluded.

Observed playground behaviour

Children were observed for 30 min on the school playground during recess. Using a 15-s interval recording system, the child was observed for 10 s and the occurrence of any of the four target behaviours displayed was recorded during the next 5 s. In each interval, a maximum of one notation was made (i.e. occurrence or non-occurrence). Undergraduate student observers who were uninformed regarding hypotheses of the study were trained to conduct reliable coding. ‘Engagement’ was behaviour directed to another peer or group of peers that had the purpose of engaging the peer in interaction or continuing the interaction initiated by a peer. ‘Negative Behaviour’ included negative verbal expressions or negative physical gestures directed to peers. ‘Rough Play’ included physical contact of a mildly negative, and ‘Aggression’ was behaviour with potential for harm or damage. Inter-rater reliability of coding was adequate; kappa coefficients ranged from 0.78 to 0.90. Percent of intervals in which each behaviour occurred was determined. A ratio of the rate of negative social behaviour (Negative Behaviour, Rough Play, Aggression) to total social behaviour served as an indicator of adjustment in the current study.

Results

Data analytic strategy

Preliminary analyses were conducted to determine whether combining abuse and comparison samples in the structural equation modelling (SEM) models was justified; covariance matrices of indicators for the latent variables were equated across abuse and comparison samples. Collectively, results of these analyses indicated that a single set of parameter estimates adequately represented the observed data for both groups. Thus, the combination of samples was justified (for a full report, contact the first author). SEM techniques were then utilized to test the plausibility of the model depicted in Fig. 1. The SEM process centres around two steps: validating the measurement model and fitting the structural model. Each variable in the model is conceptualized as a 'latent' one, measured by multiple indicators; when using SEM, one must establish that indicators reasonably measure the corresponding latent variables. The researcher proceeds to test the hypothesized model only when the measurement model has been validated. Therefore, we estimated a series of measurement models to insure that our constructs were adequately measured, and results of those analyses are described below. The second step in SEM is to test the hypothesized model to determine if the pattern of variances and covariances in the data is consistent with the structural model specified by the researcher. We proceeded to this step, and results are described in detail below.

Measurement Models

To determine whether constructs were adequately measured, a series of measurement models were estimated (see Table 1). Given the small number of indicators available for emotional health, parents' child-related beliefs and parenting quality constructs, a single model was estimated for all three constructs

simultaneously. The fit was adequate, $\chi^2(12) = 20$, $P = 0.06$, Comparative Fit Index (CFI) = 0.96, root mean squared error of approximation (RMSEA) = 0.06, test of close fit, $P = 0.29$. Given the availability of four indicators each for child SIP and social adjustment, we consider the fit of those constructs separately. SIP was measured well, $\chi^2(3) = 5.5$, $P = 0.14$, CFI = 0.99, RMSEA = 0.07, test of close fit, $P = 0.27$, as was child social adjustment, $\chi^2(3) = 3.4$, $P = 0.33$, CFI = 1.0, RMSEA = 0.03, test of close fit, $P = 0.50$. A final measurement model that included all constructs simultaneously was estimated; the overall measurement model fit the data extremely well, $\chi^2(82) = 84.4$, $P = 0.41$, CFI = 0.99, RMSEA = 0.01, test of close fit, $P = 0.97$. Collectively, results indicated that the constructs of interest were measured well.

Structural model

Our research questions were addressed by evaluating overall model fit, as well as the significance and direction of regression parameters. Structural equation models were estimated using full information maximum likelihood methods (to accommodate missing data, which resulted in improved statistical power) as implemented in the AMOS software package (version 4.0; Arbuckle & Wothke 1999). Non-significant chi-squared test statistics and fit indices (CFI, 1-RMSEA) exceeding values of 0.95 were interpreted as indicating good model fit (Hu & Bentler 1999). The structural model depicted in Fig. 2 was estimated and was found to fit the data well (see Table 1), $\chi^2(86) = 93.5$, $P = 0.27$, CFI = 0.99, RMSEA = 0.02, test of close fit, $P = 0.95$. However, neither parental emotional health ($\beta = 0.21$; $z = 1.4$, $P = 0.15$) nor parents' child-related beliefs ($\beta = 0.21$; $z = 1.3$, $P = 0.18$) significantly predicted parenting quality. In contrast, poorer parenting significantly and positively predicted both impaired child SIP ($\beta = 0.23$; $z = 2.0$, $P = 0.04$) and poorer social adjustment ($\beta = 0.30$; $z = 2.4$, $P = 0.02$). Children's SIP did not significantly predict their social adjustment ($\beta = 0.05$;

Table 1. Summary of model fit

Model	Type	Constructs	Fit statistics						
			χ^2	d.f.	<i>P</i>	CFI	RMSEA	90% CI	pclose
1	M	Emotional health, social cognition and parenting quality	20.0	12	0.06	0.96	0.06	0.00–0.11	0.29
2	M	Child social information processing	5.5	3	0.14	0.99	0.07	0.00–0.16	0.27
3	M	Child social adjustment	3.4	3	0.33	1.00	0.03	0.00–0.14	0.50
4	M	All	84.4	82	0.41	0.99	0.01	0.00–0.05	0.97
5	S	All	93.5	86	0.27	0.99	0.02	0.00–0.05	0.95
6	S	All (with modified emotional health)	87.8	74	0.13	0.98	0.03	0.00–0.06	0.85

CFI, Comparative Fit Index; CI, confidence interval; d.f., degrees of freedom; M, Measurement model; pclose, test of close fit (RMSEA < 0.05); RMSEA, root mean squared error of approximation; S, Structural model.

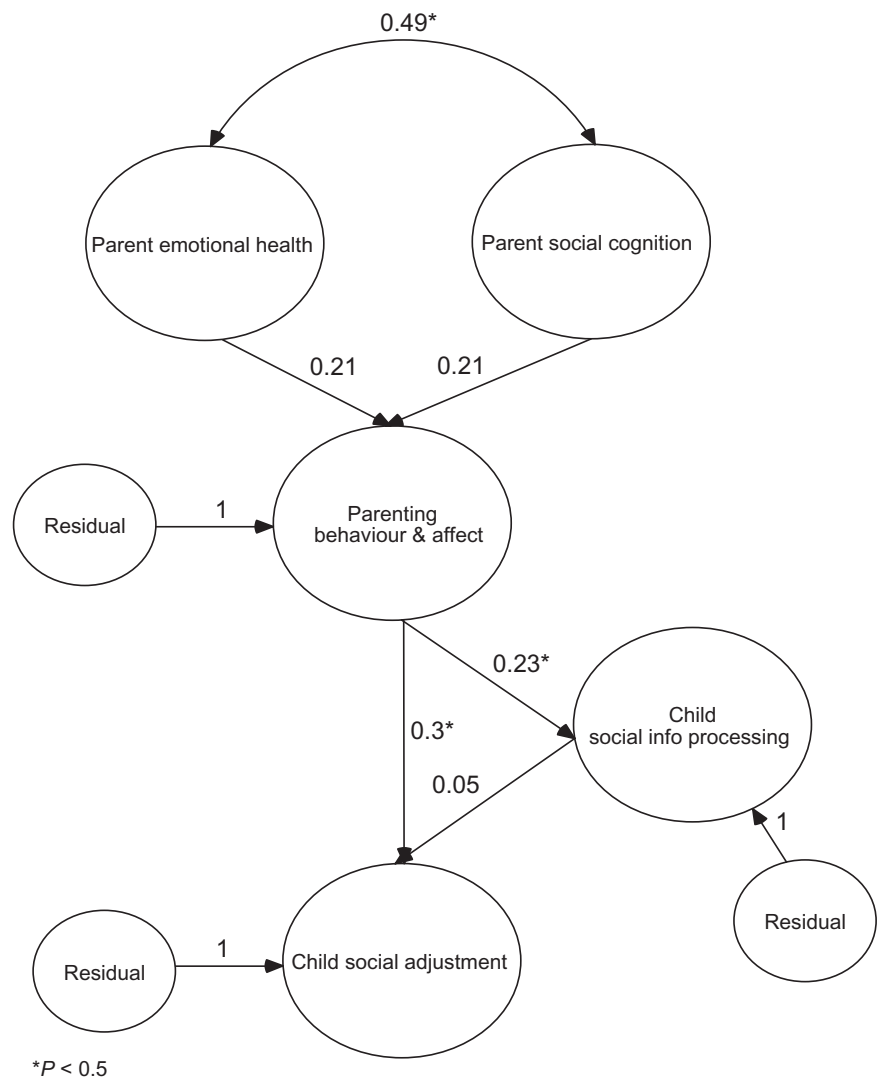
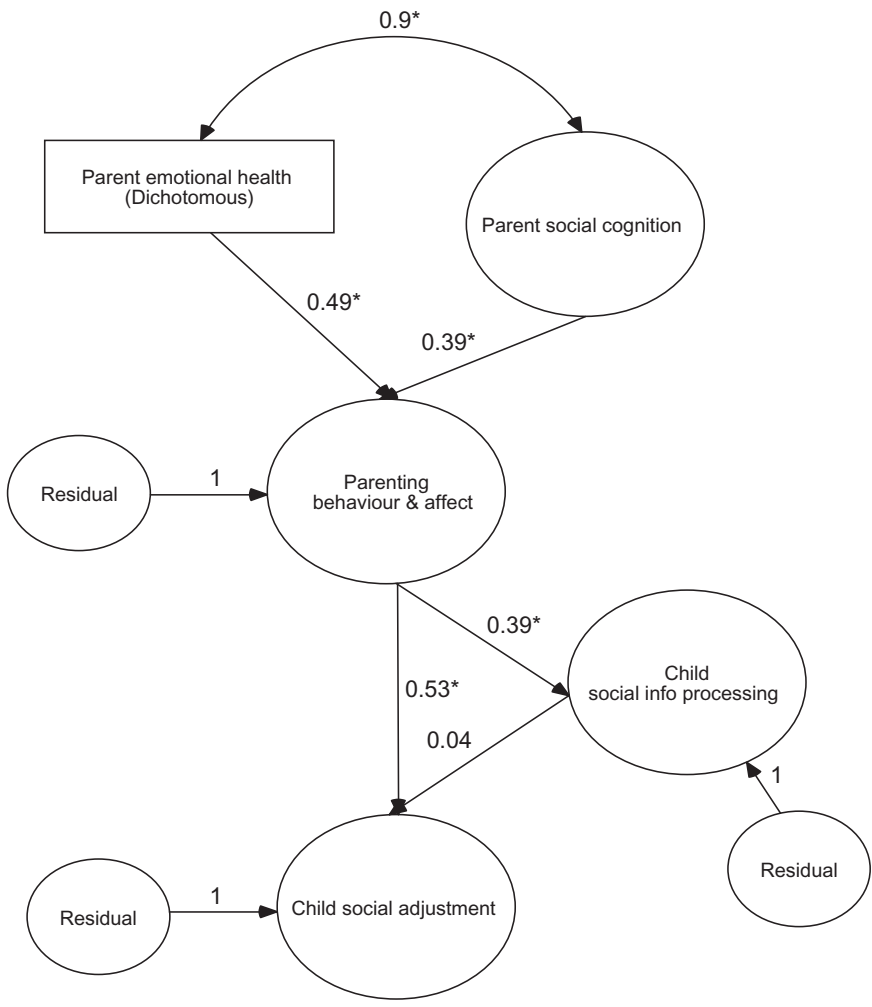


Figure 2. Structural model with standardized path coefficients.

$z = 0.6, P = 0.57$), above and beyond the quality of parenting provided to them. Structural relations are summarized in Fig. 2.

The non-significant prediction of parenting by parents' child-related beliefs and emotional health was unexpected and inconsistent with previous studies. Although both constructs were related to parenting at the bivariate level, neither construct was *uniquely* associated with parenting in the presence of the other. To better understand these relations, a *post hoc* model was estimated in which the emotional health variable was replaced by a single dichotomous variable indicating whether parents were in the clinical range for either of the indicators (i.e. depression, hostility). This revised model (Fig. 3) continued to fit the data well, $\chi^2(74) = 87.8, P = 0.13, CFI = 0.98, RMSEA = 0.03$, test of close fit, $P = 0.85$. The dichotomous indicator of ele-

vated/not elevated distress significantly and positively predicted poorer quality parenting ($\beta = 0.49; z = 2.7, P < 0.001$). Moreover, distorted parents' child-related beliefs also now significantly and positively predicted poorer parenting ($\beta = 0.39; z = 2.1, P = 0.04$). In addition, parenting more strongly predicted both child SIP ($\beta = 0.39; z = 4.6, P < 0.001$) and child social adjustment ($\beta = 0.53; z = 5.2, P < 0.001$) than in the previous model. In contrast, child SIP was still unrelated to social adjustment in the presence of parenting ($\beta = 0.04; z = 0.5, P = 0.60$). Additional support for representing emotional health as a dichotomous variable came from a comparison of the R^2 values for latent variables. More variation was explained in parenting quality (74% vs. 13%), child SIP (15% vs. 5%) and social adjustment (30% vs. 10%) when emotional health was



* $P < 0.5$

Figure 3. Modified structural model with standardized path coefficients.

represented as a dichotomous (elevated/not elevated) vs. continuous variable. Collectively, these results supported a *post hoc* hypothesis that *clinically significant* levels of emotional distress were *uniquely* related to parent–child interaction quality.

Discussion

Overall, the data supported our proposed model moderately well. When examining individual linkages in the model, however, there were some unexpected findings. First, even though parents’ child-related beliefs were associated with parenting behaviour and affect, child-related beliefs did not make an incremental contribution to prediction of parenting above and beyond the contribution of parents’ emotional health. In addition, parents’ emotional health functioning did not initially appear to be predictive of their parenting behaviour. However,

we tested a *post hoc* hypothesis that clinically significant levels of emotional distress would be uniquely related to parenting, and results supported the hypothesis. Our results suggest that the link between emotional health and parenting may be non-linear, such that parenting is significantly impaired when poor emotional health exceeds a clinical threshold.

A second component in our model was a direct link between parenting and children’s SIP such that nurturing, non-harsh parenting was expected to foster more adaptive social cognitive processes for peer conflicts. Results provided support for that path. This finding is important, as it adds to a relatively small literature that documents an association between parenting practices and children’s SIP patterns. Open for further study are the *processes* that support the link between parenting practices and SIP. There are numerous theoretical models that provide viable explanations for the processes that link parenting to chil-

dren's SIP. Biological dispositions (e.g. temperament, self-regulating structures) or genetic factors shared by parents and children might account for the link. According to social learning theory, parents might serve as models or even direct coaches for biased attributions and deficient problem-solving skills. From an attachment framework, we could assume that insecure attachment history and associated working models of unsatisfactory peer relationships contribute to knowledge structures of negative peer relations, which then influence online processing of social information (e.g. Cassidy *et al.* 1996; Wood *et al.* 2004). Of course, these potential processes are not mutually exclusive, and all could be operational.

Results supported the proposed link between parenting and subsequent child social adjustment. Specifically, parenting characterized by insensitivity and use of harsh discipline was predictive of child social maladjustment 6 months later. Our test of that linkage was quite rigorous, as parenting was assessed during a relatively brief parent-child interaction in a laboratory setting and by parents' self-report of discipline; measures of child outcomes involved social relations with peers measured 6 months later. Significant findings attest to the robustness of the association between parenting and children's peer social adjustment.

Contrary to expectations, children's SIP for peer interactions was not predictive of subsequent social adjustment at school beyond the effects of parenting on adjustment. First, recent literature reviews indicate that although SIP is a fairly consistent predictor of adjustment, the magnitude of the effect is *not* large and varies substantially across studies (de Castro *et al.* 2002). Second, the relation between SIP and adjustment is weaker when the indicator of adjustment is an aggregate score that encompasses a wide range of behaviours (see Pettit *et al.* 2001). Our use of a relatively broad social adjustment composite might have attenuated the strength of the association. Third, the link between SIP and behaviour is sensitive to a number of contextual factors such as type of situation represented in the measure of SIP. Our measures of SIP included conflicts in which children were provoked by peers and denied entry to peer groups. We did not code for type of conflict situation that occurred on the playground, nor did the teacher-report measure of adjustment distinguish between aggressive acts that occurred in the context of group entry or provocation. Fourth, children ranged from 5 to 10 years, with the large majority between the ages of 6 and 9 years. That is the age range for which effect sizes for the link between attributions of hostile intent and behavioural outcomes are the smallest. Finally, our test of the SIP-adjustment link was highly rigorous; children's social adjustment was measured in the school

setting 6 months after measures of SIP were administered in the laboratory. Moreover, as our model was constructed, we examined the degree to which SIP made an *incremental* contribution to prediction of child adjustment beyond the contribution of parenting. A challenge for future research is to articulate the conditions under which children's processing of social information in peer conflict situations relates to their social adjustment.

Cautions in interpretation and recommendations for future research

Although SEM methods facilitated the simultaneous testing of a set of directional hypotheses among latent variables, two limitations are noteworthy. Most of the relations posited in our model are based on cross-sectional data. As such, the temporal ordering of relations (i.e. causality) cannot be established. Our model obviously was not inclusive of all potential influences on children's social adjustment. In addition, a unidirectional link from parenting to child adjustment was posited in our model, yet most current theories of child adjustment acknowledge transactional processes whereby parents and children influence one another. Finally, our sample did not allow a test of the model separately for fathers and mothers. Gender differences should be explored in future models, as the potential value of those studies for designing targeted parenting interventions for mothers and fathers is substantial.

Although caution must be used in interpretation of cross-sectional data, findings have several broad implications for clinical practice. Our results document a central role of parenting in the prediction of children's outcomes. One implication, which will require longitudinal data and/or intervention studies to evaluate, is that interventions for children with peer relationship problems that focus exclusively on SIP deficits of those children might not be sufficient for substantial or long-lasting positive effects. Improving parenting quality might need to be an additional treatment goal. Indeed, our findings reinforce other investigators' recommendations to address potential ineffective or harmful parenting practices within interventions for children at risk for social maladjustment (e.g. Henggeler *et al.* 1998; Haugaard & Feerick 2002; Larson & Lochman 2002). Furthermore, our results support those who recommend that intervention efforts directed towards the improvement of parenting skills should incorporate assessment and direct intervention of parents' negative child-related beliefs and elevations in parenting stress or psychopathology in addition to the focus on parents' child-rearing skills (Sanders & McFarland 2000; Kolko & Swenson 2002).

Acknowledgements

The authors extend appreciation to the families who participated in this project and gratefully acknowledge the contribution of the Parents and Children Together (PACT) research team.

This research was supported by a grant awarded to the first author from the National Institutes of Mental Health.

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