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# Parental differential treatment, child's externalizing behavior and sibling relationships: Bridging links with child's perception of favoritism and personality, and parents' self-efficacy

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Jean Christophe Meunier<sup>1</sup>,  
Isabelle Roskam<sup>1</sup>, Marie Stievenart<sup>1</sup>,  
Gaëlle Van De Moortele<sup>1</sup>,  
Dillon T. Browne<sup>2</sup>, and Mark Wade<sup>2</sup>

## Abstract

This study examined the associations between parental differential treatment (PDT), children's externalizing behavior (EB), and sibling relationships, as well as the intervening effects of children's perceptions of favoritism, personality, and parents' self-efficacy (SE). A total of 117 families having a child clinically referred for EB problems were studied. First, the role of PDT and perceived favoritism on EB and sibling relationships was examined. PDT was moderately related to both EB and sibling affection. Perception of

<sup>1</sup> Université Catholique de Louvain, Belgium

<sup>2</sup> University of Toronto, Canada

## Corresponding author:

Jean Christophe Meunier, Psychological Sciences Research Institute, Université Catholique de Louvain, Place Cardinal Mercier, 10, B-1348, Louvain-la-Neuve, Belgium

Email: jean-christophe.meunier@uclouvain.be

favoritism was only predictive of sibling hostility. Second, EB effects on PDT were examined and the mediating role of parents' SE within this relation was explored. EB predicted higher level PDT in parents and the link between PDT and EB was mediated by parental SE.

### **Keywords**

Externalizing behavior, parental differential treatment, parental self-efficacy, perceived favoritism, personality, sibling relationships.

In recent years, parental differential treatment (PDT) has been identified as a key component of siblings' non-shared experience within the family. Since the seminal work of Daniels and Plomin (1985), PDT has been extensively related to sibling relationships and child adjustment. Typically, PDT has been associated with worse sibling relationships and greater behavior problems in the less-favored sibling (Feinberg & Hetherington, 2001; McHale, Crouter, McGuire, & Updegraff, 1995). Conversely, theories and research emphasizing causal reciprocity processes between parent and child suggest that difficult child behavior may elicit excessive and unfair PDT (e.g., Patterson, 1982; Rueter & Conger, 1998). Thus, associations between PDT, sibling relationships, and child behavior have been well-documented. However, the relations between these variables are typically weak and inconsistent, suggesting that other family variables must be taken into account to gain a full understanding of the underlying processes. Moreover, while most studies have investigated the unidirectional relation from PDT to particular child outcomes, few studies have examined child behavior as a possible determinant of PDT (Shanahan, McHale, Crouter, & Osgood, 2008). The current study will contribute to this field by meeting three primary objectives: first, it will replicate previous findings on the relation between PDT, child behavioral adjustment, and sibling relationships; second, it will assess whether and how a child's externalizing behavior (EB) affects PDT; third, it will explore whether and how other personal features of the child and/or the parent contribute to these relations. More specifically, child personality and perception of parental favoritism, as well as parental self-efficacy (SE), are considered as possible intervening variables. These issues are explored using a cross-sectional and multi-informant approach with a sample of young children displaying EB and both their parents. Most previous studies of PDT have focused only on mothers (e.g., McGuire, Dunn, & Plomin, 1995). Although some investigators have shown that mothers and fathers are similar in the amount of differential treatment they exhibit (Brody, Stoneman, & McCoy, 1992b; Kowal, Krull, & Kramer, 2006), little is known about how PDT is differentially related to family outcomes as a function of which parent is displaying the differential treatment.

### *From PDT to child EB and sibling relationships: the role of children's perception of favoritism and personality*

Although the assumption that parents should treat their children equally is widely held, treating children differently may reflect appropriate, sensitive parenting that is adjusted

to each child's needs and characteristics (Kowal & Kramer, 1997). Within this context, PDT is likely seen as normative when it is equitable and related to the child's characteristics, such as age, gender, and temperament (Brody et al., 1992b). However, pronounced levels of differential parenting are likely to be pathogenic (Suitor, Sechrist, Plikuhn, Pillemer, & Pardo, 2008). Moreover, studies consistently show that PDT is a deleterious phenomenon for the disfavored child. Receiving less favorable treatment than a sibling (e.g., being the object of more parental control and less affection) is positively associated with externalizing behavior, aggression, depressed mood, anxiety, and low self-esteem (Feinberg & Hetherington, 2001; McHale et al., 1995; Shanahan et al., 2008; Singer & Weinstein, 2000). PDT is also related to greater conflict and less affection between siblings (Brody et al., 1992b; Richmond, Stocker, & Rienks, 2005).

Children's perceptions of favoritism have been shown to play an important role in the relationships between PDT, behavioral adjustment, and sibling relations. Two major conceptual frameworks have emphasized the importance of distinguishing between the extent to which siblings are treated differently and their subjective evaluation of their experiences: social comparison theory (Festinger, 1954) and distributive justice theory (Deutsch, 1985). According to *social comparison theory*, individuals develop self-appraisals on the basis of interpersonal evaluative comparisons (Festinger, 1954). Others who are physically proximate and similar in personal attributes are the most likely standards for social comparison (Wills, 1991). Given shared characteristics and proximity, siblings often engage in social comparisons with one another (Shebloski, Conger, & Widaman, 2005). Moreover, some empirical findings suggest that, from as young as two, children are acutely aware of, and compare, the behavior of their parents toward them and their siblings (Dunn & Munn, 1985). According to the *distributive justice framework* (Deutsch, 1985), individuals regularly form judgments about whether resources are fairly distributed among themselves and their counterparts. People are most likely to display negative behavioral reactions when they feel a disjunction between what they receive and what they feel they deserve. Given this, irrespective of whether the child is favored or disfavored, perceived unfair treatment from parents may lead to maladjustment because it represents a disadvantage or benefit that the child feels is unwarranted (Kowal, Kramer, Krull, & Crick, 2002). The concept of distributive justice emphasizes the importance of considering not only children's perceptions of differential treatment, but also the degree to which children feel the differential treatment is warranted. Accordingly, differential parenting practices perceived as fair and/or justified by siblings' specific needs and characteristics tend to be linked with more positive outcomes, even when levels of differential treatment are relatively high (Kowal & Kramer, 1997; Kowal et al., 2002; McHale & Pawletko, 1992; McHale, Updegraff, Jackson-Newsom, Tucker, & Crouter, 2000).

While both social comparison and distributive justice theories emphasize the importance of considering children's perceptions of differential parenting, the social comparison framework is considered more suitable for the present study, considering the young age of the children in our sample. Indeed, previous findings suggest that children are able to engage in social comparison processes from an early age (Dunn & Munn, 1985). On the contrary, distributive justice reasoning requires more complex cognitive processes (e.g., gauging reward to own/other's merit), which generally develop at a later

age. Specifically, previous research indicates that children over seven years old entertain a more complex social understanding regarding ideas of equity (Sigelman & Waitzman, 1991). This finding further suggests that, at a younger age, *equal* treatment – but not necessarily *equitable* treatment (i.e., adjusted to the idiosyncratic needs of children) – may be considered by children as the epitome of fairness (Kowal & Kramer, 1997). Moreover, younger children tend to use self-oriented forms of reasoning (Carlo, Eisenberg, & Knight, 1992), which suggests that they are less likely than older children to feel discomfort when favored by a parent. Accordingly, Fehr, Bernhard, and Rockenbach's study (2008) demonstrated that children under the age of six behave primarily based on selfish desires and not based on any knowledge or concern about fairness. This result provides the rationale to focus on perceived favoritism, and not on a distinct evaluation of differential parenting and fairness.

Both theoretical formulations and empirical findings support the idea that children's cognitions about favoritism are related to poorer child outcomes independently of actual parental behavior (Kowal & Kramer, 1997; McHale & Pawletko, 1992; McHale et al., 2000). Indeed, unique contributions of children's perceptions of differential parenting have been found for both externalizing and internalizing symptomatology, as well as for sibling relationships. Perception of unfavorable treatment may lead to negative self-evaluation which, in turn, may induce internalizing behavior manifestations (Shebloski et al., 2005). Similarly, unfavorable sibling comparisons may lead children to act out behaviorally in attempts to regain parental attention (Richmond et al., 2005), as well as to entertain less affectionate and more conflictual sibling relationships (Shanahan et al., 2008). A number of studies conducted in middle childhood, adolescence, and young adulthood have corroborated the importance of children's cognitions surrounding PDT, demonstrating that it could explain additional variance in child outcomes, over and above parental reports of PDT (Kowal et al., 2006; Shanahan et al., 2008). However, studies conducted in early childhood are scarce and their results are inconsistent (Coldwell, Pike, & Dunn, 2008).

Perceived favoritism was related to objective PDT, since children judge the legitimacy of their parents' behavior through their objective PDT (Kowal et al., 2006). However, discrepancies between the occurrence of PDT and perceived favoritism (Coldwell et al., 2008; Kowal & Kramer, 1997) suggest that the perception of favoritism may also be explained by children's personal characteristics, such as personality traits (Shebloski et al., 2005). Social comparison theory (Festinger, 1954) offers an interesting insight into the extent to which personality can affect the perception of favoritism. That is, personality may influence comparison processes by affecting the sort of information that individuals select from their environment, or through the frequency of upward and downward comparisons. Supporting this view, several authors have demonstrated links between personality traits (especially emotional stability and extraversion), social comparison processes, and their psychological consequences (e.g., VanderZee, Buunk, & Sanderman, 1996). Individuals high in emotional stability more effectively reduce psychological distress by engaging in self-enhancing comparisons. Similarly, extraverts seem to maintain a positive sense of self and the world around them by refraining from upward comparisons. To our knowledge, no study has investigated these issues within a parenting framework.

### *From children's EB to PDT: the role of parental self-efficacy*

While PDT is related to children's own characteristics (age, gender, and personality), other differences between siblings have also been shown to predict PDT (Brody et al., 1992b). For example, compared to their siblings, children's problematic behavior is particularly salient in exacerbating PDT. Recent research has shown that externalizing behaviors are more likely than internalizing symptoms to elicit differences in parenting behavior because they are more visible (Richmond et al., 2005). Indeed, it has been suggested that these symptoms, including oppositional and aggressive behaviors, are major influences on the use of ineffective parenting practices (Johnston, 1996). Children who are harder to manage than their siblings may elicit more hostility and less positivity from parents than their siblings. Moreover, longitudinal research has corroborated the role of EB in eliciting PDT from middle childhood to adolescence (Conger & Conger, 1994; McGuire et al., 1995; Richmond et al., 2005). Richmond and colleagues (2005) have suggested that children who act out behaviorally receive harsher and less affectionate treatment than their easier-to-manage siblings, and that these differences in parental treatment could in turn lead to increased EB, thereby forming a vicious circle. Consistent with this, parents of hard-to-manage children have been found to use more negative and controlling parenting practices (Boyle et al., 2004; Johnston, 1996) and to differentially treat their children over and above observable differences in child behavior (McGuire et al., 1995; Rueter & Conger, 1998).

As suggested above, disparities in treatment can be due to difficult child behavior, though such differences could also be related to, or a reflection of, parental psychological functioning (Altomare, Vondra, & Rubinstein, 2005). In line with this, parents' subjective experiences of parenting have been found to explain variation in their childrearing behavior (Ardelt & Eccles, 2001) and may be especially relevant in the study of PDT. More specifically, parental self-efficacy – which may be defined as the belief caregivers hold about their ability to parent successfully (Coleman & Karraker, 1998) – has been highlighted as a central correlate of parenting behavior. For example, parental self-efficacy is strongly associated with high parental support and low negative control (see Jones & Prinz, 2005, for a review). Originating from Bandura's self-efficacy theory (1977), parental SE has generated considerable attention over the past 20 years. SE is thought to be a multidimensional construct, encompassing a sense of competence across numerous dimensions of parenting (Coleman & Karraker, 2000). Bandura (1977) suggested that the most valid approach for determining domain-level SE of a multidimensional construct – such as parenting – is achieved by combining the efficacy information conveyed by several behaviorally specific assessments. Accordingly, while parents may feel differentially competent according to the specific parental activity (e.g., disciplining versus nurturing a child), theoretical and empirical evidence suggests that parents acquire a broader sense of SE in their parental role from information conveyed by several important parenting dimensions (Caprara, Regalia, Scabini, Barbaranelli, & Bandura, 2004; Meunier & Roskam, 2009). Accordingly, the measures of SE used in the present study were multidimensional, tapping into five parenting dimensions that are recognized as

particularly relevant to parental childrearing (Coleman & Karraker, 2000; Meunier & Roskam, 2009).

As parental SE includes both the level of specific knowledge pertaining to child development and rearing and the degree of confidence in one's own ability to confront the designated behaviors without feelings of frustration or incompetence (Coleman & Karraker, 1998), it has been shown to display strong associations with both children's behavior and positive parenting behavior (Hill & Bush, 2001; Meunier & Roskam, 2009). Furthermore, parental SE has been shown to mediate the effect of child behavior on parenting behavior, suggesting that difficult child behavior affects parenting by undermining parents' perceptions of their competency (Jones & Prinz, 2005). Consistent with this, research has suggested that possessing a sense of personal competence (i.e., inner strength based upon or fostered by parental counseling) can be a critical buffer against adversity, enabling parents to cope effectively even with 'hard to manage' children (Elder, Eccles, Ardel, & Lord, 1995; Sofronoff & Farbotko, 2002). A mediating role for parental SE has also been demonstrated for harsh and punitive styles of discipline. In a large sample of children referred for conduct problems, Day, Factor, and Szkiba-Day (1994) showed that parents scoring high on SE reported fewer child behavior problems and less use of aversive disciplinary techniques. Similarly, using a longitudinal design, Meunier, Roskam, and Browne (2011) demonstrated the mediating role of parental SE on the relation between child EB and parental negative control and support.

While many studies have established strong links between parental SE and the absolute level of parenting, no previous research has related parental SE to PDT. Thus, the current study may extend previous research by illuminating links between parents' SE and PDT in a population known to be at risk for excessive PDT. Since parental SE is known to mediate the relation between child EB and the absolute level of parenting, it is also expected to mediate the relation between EB and PDT. While self-perceived low-efficacious parents may display high levels of PDT (likely above that attributable to difficult child behavior), self-perceived high-efficacious parents are predicted to display relatively lower levels of PDT.

### *Current research*

This study comprises two sets of analyses using hierarchical multiple regression (HMR) separately for mothers and fathers. The first set of analyses investigated the effects of both PDT and children's perceptions of parental favoritism on their EB and sibling relationships. Perceived favoritism was expected to contribute over and above the effect of PDT in predicting outcome variables. Prior to conducting this first set of analyses, we explored the roles of PDT and child personality as plausible determinants of perceptions of favoritism. The second set of analyses investigated the influence of child EB on PDT. Following Baron and Kenny's (1986) mediational model, SE was expected to mediate the relation between EB and PDT. Since this mediation hypothesis was more specifically related to the magnitude of PDT than to its direction (i.e., which child is being favored/disfavored), this last set of analysis used absolute values of PDT instead of raw scores<sup>1</sup>.



## Method

### Samples

This study was part of a larger research program – carried out in the French-speaking part of Belgium – which attempts to identify early predictors of EB in children (the ‘H2M-children’ research program). Data were collected from a group of 167 children aged between four and six who had been referred to the clinic because of their EB (arousal, opposition, agitation, aggressiveness, non-compliance). The referral was made by a physician after a diagnosis of EB, which was the immediate and principal reason for the referral. Parents were informed about the study and were assured that the data would remain confidential. Informed consent was obtained from all adult participants. Some 134 children came from two-parent families with two children or more. PDT, perceived favoritism, and sibling relationship measures were considered for the target child and the sibling closest in age (older or younger). In line with other studies (e.g., Tamrouti-Makkink, Dubas, Gerris, & van Aken, 2004), only sibling dyads with less than four years between them (87.5% of the sibling dyads) were considered in order to control for sibling age spacing, which is recognized as a strong correlate of differential parenting. Also, an anamnestic interview was conducted to ensure that the target child was the only one referred for EB within the family. In the end, 117 two-parent families with a child referred for EB were included in the present study. Both mothers and fathers were seen with their child in 111 of these families (94.8%). In the remaining six families, the fathers declined to participate. The mean age of the children was 5.27 ( $SD = .82$ ). There were 72 boys ( $M = 5.10$ ;  $SD = .93$ ) and 45 girls ( $M = 5.32$ ;  $SD = .75$ ). Of the families who took part in the study, 53.0% had two children, 34.2% had three children, and 12.8% had four or more children. Among the 117 children considered in the present study, 44.4% were compared with a younger sibling, 8.5% with a twin, and 47.1% with an older sibling. The educational level of the parents was taken as the number of years of education they had completed from first grade onward. Some 23.1% of mothers had completed 12 or fewer years (corresponding to the end of secondary school in Belgium); 62.4% had completed three or more years (corresponding to undergraduate study); and 14.5% had achieved a four-year degree or higher. Among fathers, 28.6% had completed 12 or fewer years of education, 52.7% had achieved an undergraduate degree, and 18.9% had four or more years of university education.

For the data collection, mothers and fathers were asked to complete a set of five questionnaires assessing their behavior towards the target child and towards the sibling closest in age, as well as their SE and their child’s personality and behavior. The children were also asked to complete two sets of questions relating to their relationship with their closest-in-age sibling and their perception of their treatment by their parents in comparison with this sibling. The questions were read to the children, who responded verbally. The children’s questions were completed in the presence of a clinician trained in data mining. Eight children’s answers were excluded from the analyses because they gave stereotypical responses (e.g., all ‘always’ or ‘never’ responses). There were several data issues to consider. First, the present study partially controlled for shared-method variance. All the analyses were conducted separately for the mothers and the fathers.



When the parental variables were measured for the two parents separately, the same ratings of the children's personal features (personality and behavior) were used in the two sets of analyses, based on the average of the mothers' and fathers' responses. To this extent, shared-method variance between parent and child variables was partially controlled. We acknowledge that crossing ratings supplied by different informants for the child measures (e.g., mothers' rating of personality vs. fathers' rating of behavior) would have controlled for shared-method variance to a greater extent. However, we prefer to use mother-father average ratings of child variables for several reasons. First, since a major purpose of this study was to investigate the role of mothers' and fathers' differential parenting – both as predictor and as outcome – crossing parents' ratings on child variables would prevent comparisons across parents. Moreover, our cross-rater strategy allowed us to limit the potential number of analyses, given that ratings were provided by both mothers and fathers (Van Leeuwen, Mervielde, Braet, & Bosmans, 2004), and to reduce measurement error (Chaplin, 1991). Furthermore, the risk of shared-method variance was limited by relying on conceptually and psychometrically sound measures that have shown adequate convergent validity with external criteria (Chaplin, 1991).

## Measures

*Parental Differential Treatment (PDT).* Within-family differences in parenting were measured using the simple difference model (Feinberg & Hetherington, 2001) on a questionnaire in which parents assessed their own parenting behavior toward the two children under consideration. The simple difference model creates PDT variables by subtracting the sibling's score from the target child's score on the same measure. The parenting behavior scale used to create the PDT score was the *Evaluation des Pratiques Educatives Parentales* (EPEP; Meunier & Roskam, 2007), which is based on previous studies (Patterson, 1982; Van Leeuwen & Vermulst, 2004) and was recently validated on 493 French-speaking mothers and fathers of normally developing children (Meunier & Roskam, 2007). The EPEP contained 35 items relating to nine factors: positive parenting, monitoring, rules, discipline, inconsistent discipline, harsh punishment, ignoring, material rewarding, and autonomy. Subsequent confirmatory factor analyses (CFA) showed that two second-order factors relating to *Supportive* and *Negative Control* parenting dimensions reported in the literature (Aunola & Nurmi, 2005; Baumrind, 1971) emerged from the initial factor solution. The *Supportive* factor was composed of Positive Parenting, Autonomy, Monitoring, and Rules, whereas the *Negative Control* factor included Discipline, Harsh Punishment, Material Rewarding, Inconsistent Discipline, and Ignoring. Aggregated scores for the Supportive and the Negative Control factors were obtained by averaging the scores of the underlying subscales. The EPEP scale displayed good psychometric properties: moderate to high internal consistency with Cronbach's  $\alpha$  ranging from .65 to .89; 64.3% of total variance explained by the nine first-order factors and moderate to high test/retest correlations ( $r$  from .51 to .84). With regard to criterion validity, the EPEP displayed non-significant correlations with Crowne and Marlowe's (1960) social desirability measure, and moderate to good convergence with other parenting measures as assessed by children's report (Meunier & Roskam, 2007) or through semi-structured interview (Roskam, Meunier, Mouton, & Vassart, 2009). For

our analyses, PDT scores were calculated based on the two second order factors. Relative (i.e. +/-) differences which convey information about magnitude and direction of difference were used in the first set of analyses investigating PDT as a predictor. In the second set of analyses, where PDT was investigated as an outcome, absolute differences were used because the SE mediational hypothesis was more specifically related to the magnitude of PDT, not its direction.

*Children's perception of favoritism.* Two items derived from the rivalry scale of the *Sibling Relationship Inventory* (SRI; Boer, Westenberg, McHale, Updegraff, & Stocker, 1997) were used to assess perceived favoritism. As suggested by Kowal & Kramer (1997), some rivalry scales (such as the SRI) which intended to measure the quality of sibling relationships actually targeted children's perception of favoritism. This was confirmed by inspection of the specific items: for example, *Many kids complain that their mothers/fathers aren't fair about how they treat them compared to how their mothers/fathers treat their brothers or sisters. How is it for you? How often do you feel that your mother/father treats [target sibling] better than she/he treats you?* These items were therefore used as a measure of perceived favoritism, and not as a distinct facet of sibling relationships. As suggested by the example, this measure taps feelings of being (or not being) *disfavored* compared to a sibling. Feelings about being *favored* were not taken into account in the present study. Children chose responses from a five point Likert scale ranging from one (*never disfavored*) to five (*always disfavored*). Internal consistency for the perception of maternal favoritism and paternal favoritism was  $\alpha = .53$  and  $\alpha = .55$ , respectively. Since the scale only comprised two items, this level of internal consistency was judged to be sufficient.

*Parental Self-efficacy (SE).* Parental SE was assessed by the *Echelle Globale du Sentiment de Compétence Parentale* (EGSCP; Meunier & Roskam, 2009). Based on Bandura's self-efficacy theory (1977) and subsequent work on parenting (see Jones & Prinz, 2005, for a review), the EGSCP is a 25-item scale related to five domain-specific self-efficacy factors: Discipline, Nurturance, Playing, Instrumental Care, and Teaching. It has been validated with a sample of 705 French-speaking parents in non-clinical settings. Cronbach's  $\alpha$  varied from .60 to .84, and the total amount of variance explained by the factors was 53.07%. Positive correlations were reported with marital support, parental well-being, and supportive parental behavior; negative correlations were reported with child behavioral problems and controlling CRB. In order to achieve readily interpretable total scores, an aggregated score for parental SE was obtained by averaging the scores for the five EGSCP factors. This procedure is in line with theoretical and empirical formulations suggesting that the multidimensionality of the SE construct is more validly considered by combining the efficacy information conveyed by several behaviorally specific assessments (Bandura, 1977; Coleman & Karraker, 2000). Corroborating this assumption, the internal consistency of the whole scale including the five factors was high, with Cronbach's  $\alpha$  yielding .70 and .80 for mothers and fathers, respectively. Regarding the criterion validity, the EGSCP displayed positive correlations with parents' reports of marital and social support and parental wellbeing. Negative correlations were observed with parental reports of children's behavioral problems and negative parental control

(Meunier & Roskam, 2009). Finally, a negative correlation was found with child disruptive behavior as assessed by external observers ( $r = -.19$  for the domain general factor: Meunier, Roskam, Stievenart, et al., 2011).

*Child's personality.* The child's personality was assessed by completing the Bipolar Rating Scales based on the Big Five model (EBMCF: Roskam, de Maere-Gaudissart, & Vandendras-Holper, 2000), which includes 25 items (five for each of the five factors): Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. A nine-point Likert-type scale was provided under each item, with the best-adjusted personality trait at the top of the scale. This scale has been validated on a sample of 1196 mothers of children in non-clinical settings. Cronbach's  $\alpha$  varied from .67 to .90, test-retest correlations varied between .80 and .89, and the total amount of variance explained by the factors was 60.5%. The scales were not correlated with social desirability.

*Child's externalizing behavior (EB).* The child's behavior was assessed by parents by completing the four subscales of the *Profil Socio-Affectif* (PSA : Dumas, LaFrenière, Capuano, & Durning, 1997) related to externalizing behavior (EB): angry, aggressive, egoistical, and oppositional. The PSA is a French version of the Social Competence and Behavior Evaluation (SCBE: LaFrenière & Dumas, 1995), which is used for assessing child behavior based on a developmental background that emphasizes the functional meaning of affect in regulating social interactions (Bowlby, 1980; Ekman, 1984). The PSA has been widely validated across different cultures and different samples (e.g., LaFrenière et al., 2002).

*Sibling relationships.* The remaining two scales of the SRI (Boer et al., 1997), namely the hostility and affection scales, were used to assess the children's perceptions of sibling relationship quality. There were eight items on the affection scale – for example, *How much do you admire [name of target child], I mean, do you think she/he is pretty special or neat?* – and five on the hostility scale. The initial validation on 206 American and 452 Dutch siblings demonstrated good psychometric properties (Boer et al., 1997). For the French version of the SRI that was employed in the present study, the total percentage of variance explained by the two factors was 41.94%, and Cronbach's  $\alpha$ s were .78 for affection and .70 for hostility.

## Results

Before addressing our research questions, we checked for mean differences between mothers and fathers on PDT and the child's perception of favoritism. As shown in Table 1, the correlation of PDT between parents in the same family was very high, which suggested some consistency between mothers and fathers in the way they differentially treat their children. To put it another way: if one mother reports more (or less) PDT than other mothers, her spouse is likely to report more (or less) PDT than other fathers. Beside association in PDT magnitude, this also means that mothers and fathers will be likely to favor/disfavor the same child within the sibling dyad (as correlations were computed on

**Table 1.** Comparison between mothers and fathers on differential treatment and the child's perception of favoritism

	Mothers		Fathers		Correlation	t-test	df
	M	SD	M	SD			
Differential support	-.11	.31	-.10	.30	.80***	-.57	110
Differential control	.08	.38	.06	.34	.77***	.83	110
Perceived favoritism	2.03	1.25	1.91	1.17	.37***	1.18	108

\*\*\* $p < .001$

relative values of PDT, which include directionality). Similarly to PDT, moderate correlations were shown between maternal and paternal favoritism as perceived by the child. Finally, no significant differences were found between the mothers and the fathers on the PDT and perceived favoritism measures, which corroborates previous findings demonstrating similar amounts of PDT by mothers and fathers (Brody et al., 1992b; McHale et al., 1995).

In order to explore associations between the constructs, Pearson correlations were performed; these are displayed in Table 2. On the child variables, EB was significantly associated with less well-adapted personality traits in agreeableness, conscientiousness, and emotional stability, and to a lesser extent with the perception of being disfavored by both the mother and the father. EB was also associated with less supportive PDT and with lower SE from the two parents. Associations between child's EB and parental SE were fairly high ( $r = -.50, p < .001$  for the mothers and  $r = -.38, p < .001$  for fathers), suggesting that even if a difficult child is primarily recognized to foil parents' attempts to manage challenging behavior (e.g., discipline: Patterson, DeBaryshe, & Ramsey, 1989) he/she may also undermine other spheres of parental SE (e.g., nurturance). No significant associations were found between the child's personality and behavior and sibling relationships. Sibling relationships were differentially associated with perceived favoritism and PDT. While sibling hostility was significantly associated with the perception of being disfavored by the two parents, sibling affection was associated with more supportive PDT by fathers (but not mothers). Surprisingly, perception of favoritism was only weakly associated with the child's personality traits (agreeableness for the mother and emotional stability for the father) and with PDT (for support). However, the associations were in the expected direction. Finally, parental SE was significantly associated with more supportive PDT, as well as with a lower perception of being disfavored.

The main statistical analyses were conducted through two sets of hierarchical multiple regressions (HMR) conducted separately for mothers and fathers. The first set of analyses investigated the effects of both PDT and the children's perception of parental favoritism on the child's EB and sibling relationships. The second set of analyses investigated the influence of children's EB on PDT as well as the potential mediational role of SE on this association. In carrying out these analyses, we accounted for some recognized covariates of the considered outcomes. Child age and gender were accounted for in the model predicting EB (Campbell, Breaux, Ewing, & Szumowski, 1986), while sibling age and gender composition were considered in models predicting sibling

**Table 2.** Correlations between study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
<i>Child variables</i>																
1. Extraversion			.35***	-.03	.32***	.03	-.02	.02	-.03	.01	-.13	.13	-.15 <sup>†</sup>	.21*	-.09	.03
2. Agreeableness			.26**	.35***	.35***	-.56***	.03	.01	-.16 <sup>†</sup>	-.10	.09	.15	.10	.22*	.25**	.25**
3. Conscientiousness			.54***	.36***	.36***	-.47***	-.08	.10	.05	.00	.24*	.03	.25**	-.09	.28***	.26**
4. Emotional stability				.06	.06	-.64***	-.12	.12	.01	-.18 <sup>†</sup>	.26**	-.15	.30**	-.20*	.38***	.29***
5. Openness						-.16*	-.01	.03	.01	.03	.11	.20*	.04	.11	.14 <sup>†</sup>	.15 <sup>†</sup>
6. Child's externalizing behavior							-.02	-.02	.16 <sup>†</sup>	.18*	-.32***	.08	-.33***	.04	-.50***	-.38***
<i>Sibling relationships variables</i>																
7. Sibling affection								-.27**	-.01	-.05	.09	.14	.19*	.08	-.08	.02
8. Sibling hostility									.25**	.26**	-.12	-.12	-.16	-.08	.03	-.05
<i>Parental variables</i>																
9. Perceived maternal favoritism										.50***	-.15 <sup>†</sup>	.03	-.12	-.01	-.16 <sup>†</sup>	-.13
10. Perceived paternal favoritism											-.21*	.01	-.16 <sup>†</sup>	-.01	-.17*	-.21**
11. Maternal differential support												-.06	.85***	-.21*	.30***	.19*
12. Maternal differential control													-.03	.79***	-.07	-.06
13. Paternal differential support														-.15 <sup>†</sup>	.27**	.27**
14. Paternal differential control															-.13	-.12
15. Maternal self-efficacy																.56***
16. Paternal self-efficacy																

<sup>†</sup>p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001

**Table 3.** Hierarchical regression analyses predicting perceived favoritism

		Perceived favoritism	
		Mother	Father
Step 1	Differential support	-.16 <sup>†</sup>	-.18 <sup>†</sup>
	Differential control	.05	-.01
$R^2$ (adjusted $R^2$ )		.03 (.01)	.03b (.01)
Step 2	Differential support	-.22*	-.13
	Differential control	.10	-.05
	Extraversion	-.03	-.05
	Agreeableness	-.27*	.06
	Conscientiousness	.03	.16
	Emotional stability	.19	-.26*
	Openness	.10	.02
$R^2$ (adjusted $R^2$ )		.09 (.03)	.07 (.02)
$\Delta R^2$		.06, ns	.04, ns

<sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

relationships and PDT (Brody et al., 1992b). Additionally, child personality was introduced as a covariate in each model since it is recognized to be associated with EB (Prinz et al., 2003), sibling relationships (Furman & Lanthier, 1996), and PDT (Meunier, Roskam, Stievenart, et al., 2011).

### Predicting child EB and sibling relationships

Prior to predicting child EB and sibling relationships, the contributions of both PDT and child personality to perceptions of favoritism were explored (Table 3). At Stage 1, the PDT measures only explained 3% of the variance in perceived maternal and paternal favoritism. Only differential support was predictive, with marginally significant betas ( $\beta = -.16$ ,  $p < .10$  for the mothers and  $\beta = -.18$ ,  $p < .10$  for the fathers). Although the betas were not high, the results suggest that being treated unfavorably in terms of support – as reported by the parents – was related to the children's perception of being disfavored. In the second stage, personality traits were entered into the model. Agreeableness was found to predict perceived maternal favoritism ( $\beta = -.27$ ,  $p < .05$ ), while emotional stability predicted perceived paternal favoritism ( $\beta = -.26$ ,  $p < .05$ ); the better adjusted the personality traits, the less disfavored the child felt. Paternal differential support was no longer significant once personality traits were entered into the model. Altogether, personality traits explained an additional 6% of variance for the maternal model and 4% for the paternal model. Although not negligible, this additional variance was found to be non-significant, likely because perception of favoritism was only significantly predicted by one of the five personality traits in each of the two models.

HMR analyses on the child's EB were conducted in three steps. In the first step, the child's age, gender, and personality traits were entered. After accounting for these variables, PDT was entered in the second step. Finally, the contribution of the perception

**Table 4.** Hierarchical regression analyses predicting child's externalizing behavior

		Child's externalizing behavior	
		Mother	Father
Step 1	Age	-.08	-.08
	Gender	-.00	-.00
	Extraversion	.09	.09
	Agreeableness	-.39***	-.39***
	Conscientiousness	-.16*	-.16*
	Emotional stability	-.41***	-.41***
	Openness	.03	.03
	$R^2$ (adjusted $R^2$ )	.59 (.56)	.59 (.56)
Step 2	Age	-.06	-.06
	Gender	-.01	-.03
	Extraversion	.08	.08
	Agreeableness	-.44***	-.42***
	Conscientiousness	-.18*	-.17*
	Emotional stability	-.35***	-.34**
	Openness	.05	.05
	Differential support	-.14*	-.14*
	Differential control	.12 <sup>†</sup>	.04
	$R^2$ (adjusted $R^2$ )	.62 (.58)	.61 (.57)
$\Delta R^2$	.03 <sup>†</sup>	.02, ns	
Step 3	Age	-.06	-.06
	Gender	-.01	-.03
	Extraversion	.08	.08
	Agreeableness	-.41***	-.42***
	Conscientiousness	-.18*	-.18*
	Emotional stability	-.35***	-.33***
	Openness	.04	.05
	Differential support	-.12 <sup>†</sup>	-.14*
	Differential control	.11	.04
	Perceived favoritism	.09	.04
	$R^2$ (adjusted $R^2$ )	.63 (.59)	.61 (.57)
$\Delta R^2$	.01, ns	.00, ns	

<sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

of favoritism, over and above PDT, was explored in the third step. As can be seen in Table 4 (Step 1), three personality traits were predictive of the child's EB (agreeableness,  $\beta = -.39$ ,  $p < .05$ ; conscientiousness,  $\beta = -.16$ ,  $p < .05$ ; and emotional stability  $\beta = -.41$ ,  $p < .05$ ), but age and gender were not. Follow-up analyses revealed that age (but not gender) was a significant predictor of EB ( $\beta = -.20$ ,  $p < .05$ ) when personality was not introduced in the models and that age and gender only explained 6% of the variance in the child's EB, while the child's personality traits explained an additional 53% of the variance. After accounting for the child's age, gender, and personality, PDT in terms of support and control were also predictive of child EB (Step 2). Maternal PDT explained 3% more



variance ( $\Delta R^2$  significant at  $p < .10$ ;  $\beta = -.14, p < .05$  for support;  $\beta = -.12, p < .10$  for control). Paternal PDT explained 2% of additional variance ( $\Delta R^2$  non significant), with only differential support being predictive ( $\beta = -.14, p < .05$ ). Finally, perceived favoritism did not make any significant additional contribution to explaining the child's EB, over and above that of PDT (Step 3).

HMR analyses of the two measures of sibling relationships were conducted in three steps. As in the previous analyses, control variables (age spacing, sex composition, and child personality) were entered first in the model, followed by PDT (Step 2) and perceived favoritism (Step 3). Table 5 shows that the composition of the sibling dyad (age and gender) and the target child's personality were not predictive of sibling relationships, explaining only a modest amount of the variance (4% for Affection; 3% for Hostility). When the PDT measures were entered into the models (Step 2), only differential support was predictive of sibling affection ( $\beta = .24, p < .05$  for mothers;  $\beta = .33, p < .01$  for fathers), suggesting that the more support the target children received in comparison with their siblings, the more affection they displayed towards them. This was especially true for paternal differential support. PDT explained 4% extra variance in the maternal model ( $\Delta R^2$  significant at  $p < .10$ ) and 10% in the paternal model ( $\Delta R^2$  significant at  $p < .05$ ). Finally (Step 3), perceived favoritism improved the prediction of sibling hostility ( $\beta = .31, p < .05$  for mothers;  $\beta = .24, p < .05$  for fathers), explaining 8% more variance in the maternal model and 5% in the paternal model ( $\Delta R^2$  significant at  $p < .05$ ).

### **Statistical predictions of PDT**

A second set of HMR analyses was conducted to test the prediction of PDT as well as to explore the possible mediating role of parental SE. The models for predicting PDT were tested after accounting for the characteristics of the sibling dyads and the target child's personality (Step 1). The child's EB (Step 2) and the parents' SE (Step 3) were then entered into the models. Following Baron and Kenny's mediational model (1986), mothers' and fathers' SE were first predicted, in separate analyses, by the child's EB, before the prediction of PDT itself was explored. If mediation occurs, the correlations between the predictor (child's EB) and criterion variable (PDT), as well as between the predictor and the mediator (SE), should both be significant. In a multiple regression analysis using both the predictor and the mediator together, the mediator should be a significant predictor. Once the mediator has been entered into the model, the predictor should no longer correlate significantly with the criterion variable (complete mediation) or the correlation should be significantly lower (partial mediation).

As expected, the child's EB was a highly significant predictor of the possible mediator (parental SE) for both parents ( $\beta = .52, p < .001$  for mothers;  $\beta = .41, p < .001$  for fathers). The child's EB explained 27% of the variance in the mothers' SE and 17% of the fathers'. After testing for predictor/mediator relations, the control variables (Step 1), child EB (Step 2) and parental SE (Step 3) were regressed on PDT. As shown in Table 6 for the first model including the control variables (Step 1), only openness predicted father differential support ( $\beta = .19, p < .05$ ), and only emotional stability predicted father differential control ( $\beta = -.26, p < .05$ ). Follow-up analyses revealed that sibling age spacing ( $\beta = .26, p < .01$ ) and gender composition ( $\beta = .15, p < .10$ ) also predicted

**Table 5.** Hierarchical regression analyses predicting sibling affection and hostility

		Sibling relationships			
		Affection		Hostility	
		Mother	Father	Mother	Father
Step 1	Age spacing	-.08	-.08	.08	.08
	Sex dyad	.08	.08	-.03	-.03
	Extraversion	-.03	-.03	-.03	-.03
	Agreeableness	.06	.06	-.05	-.05
	Conscientiousness	.05	.05	.15	.15
	Emotional stability	-.18	-.18	.01	.01
	Openness	-.08	-.08	-.01	-.01
	$R^2$ (adjusted $R^2$ )	.04 (-.08)	.04 (-.08)	.03 (-.09)	.03 (-.09)
Step 2	Age spacing	-.01	-.09	.08	.08
	Sex dyad	.08	.09	-.03	-.02
	Extraversion	-.03	-.01	-.03	-.04
	Agreeableness	.08	.06	-.04	-.04
	Conscientiousness	.07	.04	.15	.15
	Emotional stability	-.19	-.18	.01	.01
	Openness	-.15	-.05	.01	-.01
	Differential support	.24*	.33**	.01	-.07
	Differential control	.06	.07	-.05	-.07
	$R^2$ (adjusted $R^2$ )	.09 (-.06)	.14 (.00)	.03 (-.12)	.04 (-.12)
$\Delta R^2$	.05 <sup>†</sup>	.10*	.00, <i>ns</i>	.01, <i>ns</i>	
Step 3	Age spacing	-.01	-.09	.05	.07
	Sex dyad	.08	.09	-.07	-.02
	Extraversion	-.03	-.01	-.01	-.01
	Agreeableness	.09	.06	.03	-.07
	Conscientiousness	.06	.04	.10	.12
	Emotional stability	-.19	-.19	-.04	.08
	Openness	-.15	-.05	.02	-.01
	Differential support	.25*	.33**	.07	-.07
	Differential control	.06	.07	-.07	-.07
	Perceived favoritism	.03	-.01	.31*	.24*
	$R^2$ (adjusted $R^2$ )	.09 (-.08)	.14 (-.02)	.11 (-.06)	.09 (-.07)
$\Delta R^2$	.00, <i>ns</i>	.00, <i>ns</i>	.08*	.05*	

<sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

mother differential support, but only when personality was not considered in the model. The percentage of variance explained by the controlling variables was moderate for all models (from 7% to 11%). The child's EB (Step 2) significantly predicted levels of differential support for both mothers ( $\beta = .24, p < .05$ ) and fathers ( $\beta = .18, p < .10$ ), but was not significantly related to differential control for either parent. In Step 3, the predictive power of parental SE was verified for differential support ( $\beta = -.24, p < .05$  for mothers;  $\beta = -.36, p < .01$  for fathers) but not differential control. Parental SE explained

**Table 6.** Hierarchical regression analyses predicting absolute parental differential treatment

		Absolute parental differential treatment			
		Support		Control	
		Mother	Father	Mother	Father
Step 1	Age spacing	.15	-.10	-.02	.09
	Sex dyad	.16	.05	.16	.11
	Extraversion	.10	-.06	.01	-.16
	Agreeableness	.15	.14	.14	.08
	Conscientiousness	-.03	-.05	-.03	-.01
	Emotional stability	-.09	-.17	.06	-.26*
	Openness	-.03	.19 <sup>†</sup>	-.03	.05
$R^2$ (adjusted $R^2$ )		.11 (.03)	.08 (.00)	.07 (-.02)	.09 (.01)
Step 2	Age spacing	.11	-.11	-.01	.10
	Sex dyad	.17	.06	.15	.11
	Extraversion	.11	-.06	.01	-.16
	Agreeableness	.13	.13	.13	.09
	Conscientiousness	-.02	-.05	-.03	-.02
	Emotional stability	.06	-.10	.02	-.24*
	Openness	-.01	.20*	-.04	.05
	Child's EB	.24*	.18 <sup>†</sup>	.06	.04
$R^2$ (adjusted $R^2$ ); $\Delta R^2$		.18 (.09) .07*	.12 (.01) .04 <sup>†</sup>	.08 (-.03) .01, <i>ns</i>	.12 (.04) .03, <i>ns</i>
Step 3	Age spacing	.10	-.17	-.01	.09
	Sex dyad	.17	.02	.15	.10
	Extraversion	.07	-.06	.01	-.16
	Agreeableness	.13	.14	.13	.08
	Conscientiousness	-.06	-.04	-.04	-.02
	Emotional stability	.10	-.11	.03	-.24*
	Openness	.03	.21*	-.03	.05
	Child's EB	-.16	-.02	.07	.06
	Parental SE	.24*	.36**	.04	.07
$R^2$ (adjusted $R^2$ ); $\Delta R^2$		.22 (.12) .04*	.24 (.14) .12**	.08 (-.04) .00, <i>ns</i>	.14 (.03) .02, <i>ns</i>

<sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

EB: externalizing behavior; SE: self-efficacy

substantially more of the variance in PDT for support (4–12%), but not for control. The effect of the child's EB on mother's and father's support were no longer significant once parental SE had been entered into the model, which suggests that SE completely mediated this relationship.

## Discussion

As expected, several associations were found between the three core constructs in the present study (PDT, child's EB, and sibling relationships). As a general conclusion, the

less favorable parental treatment was, the more EB the children displayed, and the poorer the quality of the relationships they had with their siblings was. More specifically, our results suggest that the mothers' and fathers' reports of PDT, and how PDT was perceived by their children, were differentially associated with both child and family outcomes. The results demonstrate the distinct contributions that mothers and fathers make to their children's development (Stright & Bales, 2003), and illustrated how parents and children may perceive similar events differently. Furthermore, several relationships between the core constructs and intervening variables (for example, between the child's personality and EB, or between parental SE and PDT) highlight the importance of moving beyond main effect-type studies to depict the broad and complex network of interconnected systems in which parents and children are nested (Belsky, 1984; Bronfenbrenner, 1986). The results of this study confirm the importance of considering intervening variables in the assessment of the links between PDT, child adjustment, and sibling relationships. Previous findings had already suggested that simple and direct effects between these variables were unlikely (Kowal et al., 2006). Indeed, considering only bivariate relationships might hide associations that were conditional and not universal (O'Connor & Dvorak, 2001). By investigating the complex processes underlying these relations, the present study also emphasizes the importance of considering bidirectional relations between parent and child factors. Through reciprocal causality, parents and children were seen to influence the developing character of each other's behavior (Rueter & Conger, 1998). However, most previous studies of reciprocal causality have focused on parent-child relationships (Belsky, Jaffee, Cicchetti, & Cohen, 2006) without considering siblings and differential parenting toward siblings, as was done in the present study. We will discuss these results and their implications, limitations, and future directions below.

The preliminary analyses compared the two parents on PDT and perceived favoritism, and also explored the relationships between child and parental factors separately for mothers and fathers. Like those of previous research, our results support the idea that mothers and fathers are generally similar in their differential treatment of their children (Brody et al., 1992b; McHale et al., 1995). The high correlation coefficients between mothers' and fathers' reports of PDT suggest that PDT could be less related to parental characteristics and more to child characteristics, especially when the child's behavior is challenging. Regarding the perceptions of children about their mothers' and fathers' preferential treatment, our results corroborated the general assumption that children and parents often developed distinct perceptions of parental behaviors (Kowal et al., 2006). Larson and Richards (1994) have demonstrated that children and parents routinely perceive the same family life events in different ways. Furthermore, Furman, Jones, Buhrmester and Adler (1989) suggested that intra-familial concordance would not be high, even with perfectly valid instruments, because discrepant views truly do exist. In addition to the low level of agreement between children and parents on differential parenting, our results suggest that children do not perceive mothers' and fathers' preferential treatment in the same way as their parents. Taken together, these findings suggest that perception of favoritism can partly be explained by children's personal characteristics, and that children may perceive similar parenting behaviors in different ways than their parents.

In an attempt to explain the discrepancy between parents' reports of PDT and its perception by children, we explored how children's personality traits predicted their perception of favoritism, over and above objective PDT (as reported by parents). This exploration was based on social comparison theory (Festinger, 1954), which suggests that social comparison processes, although oriented to external events, are partly driven by personal factors (VanderZee et al., 1996). In this context, Shebloski and colleagues (2005) proposed that "siblings' perception of parental treatment as partial or impartial is likely to reflect not only their relative family status but also their temperament, personality, and self concept" (p. 634). Two findings emerged from our analysis. First, we found that children, in their perception of favoritism, were only sensitive to differential support from their parents and not to differential control. This is in line with a previous study (Kowal et al., 2006) which reported higher parent-child agreement for parental affection than for parental control. However, the prediction from PDT to children's perception of favoritism was quite low and explained only a small amount of variance (about 3%). Our second finding reinforced the importance of personality traits in explaining children's perception of favoritism by showing that they explained additional variance in perceived favoritism. Moreover, the contribution of personality traits to explain perceived favoritism was substantially higher than that of objective PDT. While the expected relationship between emotional stability and perceived paternal favoritism (VanderZee et al., 1996) was found, agreeableness was not expected to predict children's perceptions of maternal favoritism. This was a bit surprising, and is difficult to interpret in light of social comparison theory. A possible explanation could be that children high in agreeableness are more sensitive to social desirability, especially when they have to disclose maternal partiality. Further studies are needed to understand the relation between agreeableness and the perception of parental favoritism, and to provide some evidence for or against this new hypothesis.

The present study supports previous findings suggesting that differences in parental treatment of siblings are predictive of children's EB (Conger & Conger, 1994; Feinberg & Hetherington, 2001). PDT predicted children's EB after the effects of age, gender, and personality had been controlled for. Since personality is a strong predictor of children's EB (Eisenberg, Fabes, Guthrie, & Reiser, 2000), controlling for its effect brings us closer to establishing truly predictive models (Rueter & Conger, 1998). For both parents, differential support made a significant contribution to explaining the child's EB. However, differential control was only a significant predictor when displayed by mothers. This suggests that children's EB is more sensitive to differential support than to differential control, and that mothers' PDT may be more influential than fathers'.

When considering the effect of differential support on the child's perception of favoritism, it was hypothesized that children displaying EB tended to experience more control than their siblings because their 'hard-to-manage' behavior evokes more coercive control from their parents. As differential support was associated with a perception of favoritism, its deleterious effects on children's EB may seem logical. However, perceived favoritism was not predictive of EB, over and above PDT and the child's personality. Although surprising, this result was in accordance with previous findings (Kowal et al., 2006) which demonstrated that PDT was related to EB, while children's

perceptions of the fairness of preferential treatment were more likely to be associated with their internalizing problems and feelings of global self-worth.

As with EB, the present study suggests that children are more sensitive to differential support than to differential control when they report their relationships with siblings. However, differential support was only predictive of sibling affection. While PDT in support and control were both expected to be related to both sibling affection and hostility (e.g., Brody et al., 1992b), the only one relation found in present study – from supportive PDT to sibling affection – was somewhat surprising. Nevertheless, this finding is in accordance with attachment and social learning theories (Parke & Buriel, 1998). These theories suggest that positive parenting contributes to the development of pro-social orientations among siblings. In our study, perceived favoritism was strongly related to sibling hostility. While evaluations of the justice of PDT have been shown to be systematically related to both hostility and affection between siblings in middle childhood and adolescence (cf. Kowal & Kramer, 1997), it could be that younger children cope with the feeling of being disfavored in a more purely hostile way.

Our results support previous findings that children's challenging behavior can be particularly salient in exacerbating PDT (Boyle et al., 2004; Johnston, 1996). However, while children's challenging behavior has previously been shown to elicit more coercive and controlling parenting (Patterson, 1982), our results only provided support for the child's behavior affecting differential support. This could be due to the specificity of our sample (where all the children displayed EB). Since differential control probably applied to all the children in our sample, differences in the gravity of EB seemed to be more closely related to differential affection.

Finally, the influence of parents' SE in diminishing PDT has been demonstrated for both support and control (especially for the fathers). While many studies have shown that SE is strongly associated with positive parenting behavior (Hill & Bush, 2001; Meunier & Roskam, 2009), a relation between SE and the amount of PDT has not previously been established. Our results corroborate the hypothesis that parental SE mediates the relationship between the child's EB and PDT, although this is only true for differential control. As parental SE includes knowledge pertaining to the behaviors involved in child development (Coleman & Karraker, 1998), it could be that self-efficacious parents are less sensitive to children's difficult behavior and display lower (or more normative) levels of PDT than parents who perceive themselves as less efficacious.

Our results encourage researchers to consider the complex and multivariate processes underlying parent-child interactions. As well as promoting these future research endeavors, this study has important implications for intervention and counseling. For example, this study suggests that PDT may not only influence children directly but also indirectly, via the way it is cognitively appraised by the children. In such a context, Kowal and Kramer (1997) proposed that "open discussion between parents and children may be helpful for clarifying, and perhaps modifying, children's attribution and parental intention and goals" (p. 124). The mediating role of parental SE also seems to be of primary importance. Previous studies have demonstrated that interventions aimed at fostering parental SE have improved parental competence and decreased child behavior problems (e.g., Sofronoff & Farbotko, 2002). Our results suggest that they could also have an impact on sibling relationships by lowering differentiated or partial parental treatment of siblings.

The present study has painted a nuanced picture of the associations between PDT, child adjustment, and the quality of sibling relationships. Three issues that are often neglected in the existing literature have been taken into account in this study: 1) the potential role of intervening variables within these associations; 2) the differential contribution of mothers and fathers; and 3) the plausible bidirectional association between child and parent behaviours. Collectively, our results highlight the relevance of considering children's EB within a family-wide approach. An implicit assumption conveyed throughout this study is that characteristics related only to the child displaying EB, compared to a non-referred sibling, were sufficient to explain variation at a broader family level. This is in line with family systems theory (Minuchin, 1985), which suggests that the family is composed of interconnecting subsystems that influence each other. However, we must acknowledge that sole reliance on characteristics of the target child (personality, EB, and parental SE toward him/her) probably underestimates the results of the present study. Indeed, Brody and colleagues (1992) found that sibling differences in temperamental and behavioral characteristics were more strongly linked with PDT than each child's absolute level of these characteristics (Atzaba-Poria & Pike, 2008; Brody, Stoneman, & McCoy, 1992a). Thus, additional data on the personality and EB of siblings would permit a more nuanced approach to examining the relationship between parenting difference and differences in child characteristics. As for parental SE, a vast body of literature provides strong evidence for the salience of parental cognition in rearing a child displaying challenging behavior (Elder et al., 1995; Meunier, Roskam, & Browne, 2011). Consistent with previous research (Meunier & Roskam, 2009), the strong association found between EB and our broad measure of parental SE shows that challenging behavior may undermine the competency perceptions of parents across a range of parenting activities. However, while studies suggest that parental SE may be strongly child-driven (Jones & Prinz, 2005), many questions remain unanswered about parental SE. More specifically, the process by which parental SE is strictly 'tailored' to each child, versus driven by a more general perception of competency in rearing all children, is not understood. For example, it may be the case that experiences of failure in managing a child's challenging behavior may undermine parental SE for all siblings. Conversely, experiences of success with the normally developing sibling(s) may help to preserve or restore parental SE toward the more difficult child. To our knowledge, no previous study has investigated parental SE toward multiple children within the same family. Also completely absent from the literature is the sense of competence that parents have in managing sibling relationships or in resolving sibling conflict. Considering the promising results of the present study, future research would benefit from considering parental SE within the sibling context.

Although this study extended existing research in several ways, there remain limitations and important suggestions for future research. First, although emphasizing causal linkages between PDT and the child's outcomes, the cross-sectional nature of our study was limited in unraveling the direction-of-effect issue. Therefore, research that takes a longitudinal perspective would be helpful in elucidating the directionality of associations. Second, due to the specificity of our samples (children referred for EB), the limited sample size made it difficult to control for some characteristics of the sibling dyads. While we limited age-spacing within the sibling dyad – a strategy recognized



as helping to detect PDT effects (Tamrouti-Makkink et al., 2004) – the difference score used in the present study remains intrinsically related to age-spacing. This makes it difficult to distinguish between less harmful PDT that is adjusted to each child's developmental stage and unwarranted or excessive PDT that is deleterious. This issue is also important as the characteristics of the sibling dyads (age and gender composition, birth order) may moderate PDT-outcome relations (Shanahan et al., 2008). Several studies have employed alternative strategies that involve separate analyses for older and younger siblings and/or for same-sex and opposite-sex dyads (e.g., Coldwell et al., 2008; Tamrouti-Makkink et al., 2004). However, with each analysis based on half (or less) of available cases, Kowal and colleagues (2006) suggested that these strategies may also be problematic in that they reduce the power to detect significant differences, thereby leading to inconsistent patterns of results. Third, despite evidence suggesting that children's perceptions and understanding of PDT are at least as important as the objective level of PDT (Kowal & Kramer, 1997), our perceived favoritism measure did not predict the child's EB once other variables had been taken into account. As suggested by Coldwell and colleagues (2008), this lack of association may be due to social desirability pressure, which may be especially strong in young children. One way to address the issue of social desirability in future research would be to assess children's general tendencies to respond in a socially desirable fashion and to subsequently control for this factor in a multivariate or covariate analysis. Fifth, this study investigated only two dimension of PDT (support and control) and the child's perception of favoritism as a whole. There may be other important ways in which parents treat their children differentially, such as spending more time with one child than with his or her sibling. Finally, since our data were collected from a specific population of middle-class Belgian families, we cannot generalize our results to families from different contexts and cultures.

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## Note

1. Contrarily to child-specific factors – such as child's personality or behavior – which are recognized to be linked to both the magnitude and the direction of PDT (McGuire et al., 1995), parents' SE is, by definition, a parent-related factor and therefore may not explain per se which child will be favored or disfavored (i.e., direction of PDT). Conceptually, the hypothesized mediational role of parents' SE suggests that parents' childrearing behavior will be more or less triggered by the child's affect – as a function of their amount of SE – had the child been easy-going or hard to manage. Similarly, the various studies that have linked parent-related factors to PDT have all used absolute difference scores when considering PDT as an outcome (e.g., Atzaba-Poria & Pike, 2008; Richmond & Stocker, 2008; Meunier, Boyle, O'Connor, & Jenkins, 2012; Meunier, Wade, & Jenkins, 2012). In the present study, although the mediational regression models (see Table 6) contain some child-specific factors (behavior and personality), using a relative score of PDT when examining the main effect of parents' SE would have led to conceptually incorrect and, therefore, spurious results (as it would have been considered as explaining PDT direction).

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