Parents’ Feelings Towards Their Adoptive and Non-Adoptive Children

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In the current study, we examined parent gender differences in feelings (negativity and positivity) and perceptions of child behavioural and emotional problems in adoptive and biological parent–child dyads. In a sample of 85 families, we used a novel within-family adoption design in which one child was adopted and one child was a biological child of the couple, and tested whether the links between parent feelings and child maladjustment included effects of passive gene–environment correlation. Parents reported more negativity and less positivity as well as higher levels of externalizing behaviour for the adopted child compared to the non-adopted child, although effect sizes were small and no longer statistically significant after correcting for multiple comparisons. Fathers and mothers did not differ significantly in their reports of positive and negative feelings towards their children or in regard to child externalizing and internalizing behaviours. The correlations between parental negativity and positivity and child externalizing and internalizing were similar for fathers and mothers, and for adopted and non-adopted children. The findings suggest similar parent–child relationship processes for fathers and mothers, and that genetic transmission of behaviour from parent to child does not account for the association between parental warmth and hostility and child-adjustment problems. Copyright © 2009 John Wiley & Sons, Ltd.

Key words: parent–child relations; adoption; child adjustment; passive gene–environment correlation

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Parents' Feelings Towards Children

PARENTS’ FEELINGS TOWARDS THEIR ADOPTIVE AND BIOLOGICAL CHILDREN

Studies have found evidence for within-family variation in parent–child relationships indicating that parents differ in their relationships with children within the same family (O'Connor, Dunn, & Rasbash, 2006). Other studies report associations between parent–child relationship qualities and child emotional and behavioural adjustment problems (Asbury, Dunn, Pike, & Plomin, 2003; Conger, Ge, Elder, Lorenz, & Simons, 1994). What processes operate to account for these effects, and do they work similarly for fathers and mothers and for adoptive and non-adoptive (i.e. 'biological') parent–child dyads? Gaps in the literature include an emphasis on mothers at the expense of studying fathers, and on studies of one biological parent–child dyad per family, which does not permit distinguishing environmental and genetic influences. Therefore, the goals of the current study were to examine parent gender differences in the links between parental negativity and positivity, and child behavioural and emotional problems. We tested whether the links between parent feelings and child behaviour differed for fathers and mothers, and for adoptive and non-adoptive children within the same families.

Father and Mother Negativity and Positivity

Children who show higher levels of aggressive and delinquent behaviours (i.e. externalizing problems) as well as anxious or depression symptoms (i.e. internalizing problems) tend to have more problematic relationships with their parents, including more negativity and less warmth (Rohner, 2004; Sheeber, Hops, & Davis, 2001; Siqueland, Kendall, & Steinberg, 1996). Fathers’ and mothers’ levels of negativity and warmth within the same family are moderately correlated (in the 0.4 range; Richmond & Stocker, 2006; Stocker, Richmond, Low, Alexander, & Elias, 2003). Mothers and fathers also tend to agree (correlations in the 0.4–0.6 range) in their ratings of their children’s behavioural and emotional problems (Kurdek, 2004). With respect to parent gender differences in average levels of warmth and negativity, studies indicate similar parent feelings for women and men (for a review, see Deater-Deckard, 2004). However, little is known regarding parent gender differences in warmth and negativity with respect to potential differences for adoptive versus non-adoptive parent–child relationships. Our first aim was to extend the research literature by comparing fathers’ and mothers’ self-reported positivity and negativity towards an adopted child and a non-adoptive biological child within the same families.

Adoptive Status

In regard to adoption and children’s development, previous studies suggest that being adopted may convey risk for later psychological or behavioural problems (Iervolino, 2003; Sullivan, Wells, & Bushnell, 1995). A meta-analysis by Wierzbicki (1993) revealed an effect size of 0.72 across studies comparing maladjustment (i.e. internalizing, externalizing, academic, psychotic, and neurological problems) of non-adoptees and adoptees, leading to the conclusion that on average, adopted children had higher levels of maladjustment. More recently, Juffer and van IJzendoorn (2005) conducted a meta-analysis of studies of internationally adopted children and found a similar result. Adoptive status may
reflect environmental and genetic factors that contribute to a higher risk of maladjustment that accompanies adoption, such as poor prenatal conditions, low-quality institutionalization before placement, and genetic risks for maladjustment transmitted from biological parents (Cadoret, 1990; Verhulst, Althaus, & Versluis-Den Bieman, 1990). The effects of these risks may be amplified within families in which some children are adopted and some are the biological children of the adoptive parents (Sharma, McGue, & Benson, 1998).

Research examining adoptive parents’ feelings of warmth and negativity suggest that adoptees may be regarded by their adoptive parents with more negativity and less warmth compared to non-adoptive parents’ feelings towards their biological children (Braungart, 1994). Thus, our second aim was to explore potential adoptive status mean differences in problem behaviour (externalizing and internalizing) and parental feelings (negativity and positivity). Research on the role of adoptive status on child adjustment and family processes has relied on comparisons of adoptees’ scores to the norms for standardized instruments or on between-family comparisons of children in adoptive versus biological families. Between-family designs may exaggerate mean differences, to the extent that the non-adoptive biological families in normative or comparison samples are systematically different from adoptive families.

To address this limitation, the current study involved a design in which biological and adoptive parent–child dyads were compared within the same family, rather than comparing families who have adopted to those who have not adopted. This within-family parent–child design has the advantage of not requiring an assumption about comparability of adoptive and biological families—in the within-family design, each parent serves as his or her own basis for comparison. This is not a new design; several past adoption studies have included some families that have adoptive as well as non-adoptive children who were growing up together in the same home (Horn, Loehlin, & Willerman, 1979, 1982; Plomin & DeFries, 1985; Segal, 1997, 2000; Sharma et al., 1998), but to our knowledge none of these studies reported within-family comparisons of parenting behaviour and its correlates.

**Similar or Different Relationship Processes?**

Although examination of potential mean differences for fathers versus mothers and adoptive versus non-adoptive children is important, consideration of potential differences in the correlations between parent and child behaviour also is critical. With regard to parent gender, a number of studies have found similar associations for fathers and mothers between parental warmth/negativity and child externalizing/internalizing problems (Deater-Deckard, 2004; Feinberg, Neiderhiser, Howe, & Hetherington, 2001; Herman & McHale, 1993), although some find evidence of parent gender differences in these correlations. For example, Brody, Stoneman, and McCoy (1992) found that fathers were more positive towards the more negatively emotional child, whereas mothers were more hostile and controlling towards the more behaviourally and emotionally difficult child. In a more recent study, Tamrouti-Makkink, Dubas, Gerris, and Aken (2004) found distinct patterns of associations between parental warmth and adolescent adjustment problems, though the findings depended in part on the gender of the child.

The mixed findings may be a result of studies using different methodologies—some are longitudinal, some use observational measures as well as...
questionnaires, and some examine within-family (i.e. sibling) as well as between-family (i.e. one child per family) differences. Alternately, the mixed results could reflect sample-specific effects that collectively point to the presence of transient small effects with respect to parent gender differences in correlations between parenting behaviour and child behaviour. In light of these mixed findings, our third aim was to estimate the correlations between self-reported paternal and maternal positivity and negativity, and each child’s parent-rated externalizing and internalizing problems—and to test for parent gender differences in the magnitude of these correlations. We anticipated that children with more externalizing and internalizing problems would also have parents who reported higher levels of negativity and lower levels of positivity (Patterson, 2002), although we did not have any hypothesis regarding whether these associations would differ for fathers and mothers.

**Passive Gene–Environment Correlation**

We also sought to address the possible effect of passive gene–environment correlation on the estimation of the association between parental warmth/hostility and child problem behaviours. Passive gene–environment correlation can be present in data in which genetically related parents and children are being examined (Plomin, DeFries, McClearn, & Rutter, 1997). When passive gene–environment correlation is present, estimated correlations between parent behaviours and child behaviours arise not from an environmental socialization process, but simply reflect cross-generational genetic transmission of behaviour. In the current study, our fourth and final aim was to test whether parental negativity and child behavioural problems are associated not because they are linked through parent–child interaction and relationship processes, but simply because the parents and children have in common some of the genes that influence hostile behaviour in both generations. Testing for passive gene–environment correlation is essential, because behavioural genetic studies indicate moderate to substantial genetic variance in externalizing and internalizing problems, as well as parental warmth and negativity (for a review see Reiss, Neiderhiser, Hetherington, & Plomin, 2000).

Quasi-experimental genetic designs are useful for identifying potential passive gene–environment correlation effects (Plomin *et al.*, 1997). Some research has examined passive gene–environment correlations between family environment measures and child adjustment (DeFries, Plomin, & Fulker, 1994; Petrill, Plomin, DeFries, & Hewitt, 2003). However, to our knowledge only one previous study specifically examined parent–child warmth and negativity and child-adjustment problems, while testing for passive gene–environment correlation effects (Neiderhiser *et al.*, 2004). That study employed traditional behavioural genetic family designs in two samples, one of adolescent twins and non-twin siblings, and another of adult twins and their adolescent offspring. These are distinct from the design of the current study, in which the sole focus was on comparison of adoptive and non-adoptive children within the same family.

To test for passive gene–environment correlation, we compared the biological parent–child dyads (who share 50% of their segregating genes, on average) to the genetically unrelated adoptive parent–child dyads, with respect to the correlations between parent negativity/warmth and child externalizing/internalizing problems. If passive gene–environment correlation is present, then the correlations for genetically related parent–child dyads will be greater than those for the
adoptive dyads. If passive gene–environment correlation is not present, then the correlations for adoptive and biological parent–child dyads will be the same. It is important to test for passive gene–environment correlations because evidence for or against such effects has implications for socialization theories of child maladjustment. If passive gene–environment correlation is negligible, then associations between parenting behaviours and children’s behavioural and emotional problems are not arising simply due to parent–child genetic similarity, and instead probably reflect the effects of social relationship processes within families. However, if passive gene–environment correlation is present, it means that genetic transmission of behaviour across generations may explain the correlations between parenting behaviour and child behaviour, therefore raising questions about the veracity of social relationship processes as an explanation.

METHOD

Participants

The Northeast–Northwest Collaborative Adoption Project is a national volunteer sample of adoptive families. The current analysis includes families who had one biological and one adopted child living together in the home, and for whom we also had complete fathers’ and mothers’ questionnaire data (N = 85). Nearly all of the parents were married or cohabiting, and were European American. The parents were highly educated, with about 75% having a 4-year degree or higher. Fathers’ mean age was 43.30 years (SD = 5.07) and mothers’ mean age was 41.94 (SD = 4.89). Most of the adopted children (84%) were born outside of the United States (mostly from Asia and Eastern Europe) and adopted in their first year of life. The children’s ages ranged from 4 to 16-years old with the mean age for the adopted children being 5.59 (SD = 2.69) and the mean age for the non-adopted children being 8.02 (SD = 3.61).

Procedures

Families were recruited through parent contact letters sent anonymously through private adoption agencies. Parents returned a postcard of interest to the project office and were contacted and sent a demographic questionnaire, which included information regarding household structure, parental education and occupation, marital status, and details regarding all of the children (i.e. adopted, biological, step-child, international or domestic adoption, country of origin, ethnicity, birth date, adoption date). Parents provided informed consent at this time. Those who returned the questionnaire were enrolled in the study. Parents then completed the survey materials through the mail or by using the Internet.

Measures

Parental positivity and negativity

Mothers and fathers reported on their feelings separately for the two children in the study, using the Parent Feelings Questionnaire or PFQ (Deater-Deckard, 2000), a 31-item questionnaire that assesses parents’ perceptions about their relationship with each child. It includes statements about feelings of negativity and positivity towards a specific child in the family (e.g. sometimes I am not
happy about my relationship with this child; when I think about this child, it usually gives me warm feelings) that are rated on a 5-point Likert-type scale (1 = definitely untrue, 5 = definitely true). There also is a list of negative (sad, angry, hostile, frustrated, furious) and positive (happy, excited, joyful, proud, amused) emotions that parents report experiencing when they think about or are with that particular child, rated on a 10-point frequency scale (1 = never, 10 = all the time). These items are standardized and averaged to yield a negativity score and a positivity score (warmth \( \alpha = 0.84 \) and negativity \( \alpha = 0.90 \)). These scales were shown to be valid indicators compared to other informants’ reports of parenting in a pilot validation study (Deater-Deckard, 2000).

**Child behavioural and emotional problems**

For each child, mothers and fathers completed the Child Behavior Checklist or CBCL (Achenbach, 1991), a widely used and validated instrument that includes items rated on a 3-point scale with higher scores indicating more problems (0 = not true in the past six months, 1 = somewhat or sometimes true, 2 = very true or often true). We used the Externalizing syndrome score (the sum of the Delinquent and Aggressive subscales) and the Internalizing syndrome score (the sum of Withdrawn, Somatic Complaints, and Anxious/Depressed subscales). CBCL alphas for fathers’ and mothers’ externalizing and internalizing scores were \( \alpha = 0.88 \) and \( \alpha = 0.87 \), respectively. A number of studies using clinically referred youth as well as large community samples of children have supported the validity of this instrument and its scales (Achenbach, 1991).

**RESULTS**

Descriptive statistics are presented in Table 1. Scores for parental negativity and positivity were widely and normally distributed, showing only modest kurtosis or skew. Children’s externalizing and internalizing problems were typical for children of this age. Fathers’ and mothers’ mean ratings of externalizing and internalizing problems for adopted and non-adopted children were similar to the means reported for school-age adopted children (externalizing \( M = 7.98, SD = 5.75 \); internalizing \( M = 5.89, SD = 4.68 \)) and non-adopted children (externalizing \( M = 6.40, SD = 4.58 \); internalizing \( M = 5.88, SD = 4.67 \)) in the Colorado Adoption Project (Iervolino, 2003, p. 109). The externalizing and internalizing

<table>
<thead>
<tr>
<th>Table 1. Descriptive statistics for fathers’ and mothers’ ratings of adoptive and non-adoptive children</th>
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<tr>
<td><strong>Adopted child</strong></td>
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<tr>
<td><strong>Mean (SD)</strong></td>
</tr>
<tr>
<td>Father Positivity z-score</td>
</tr>
<tr>
<td>Mother Positivity z-score</td>
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<tr>
<td>Father Negativity z-score</td>
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<tr>
<td>Mother Negativity z-score</td>
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<tr>
<td>Father Internalizing</td>
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<tr>
<td>Mother Internalizing</td>
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<tr>
<td>Father Externalizing</td>
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<tr>
<td>Mother Externalizing</td>
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</table>

problem scores in the current sample also were similar to those reported in a large and diverse community sample of school-age children (from Kindergarten through 7th grade, externalizing $M = 7.1$, and internalizing $M = 4.4$; Keiley, Bates, Dodge, & Pettit, 2000).

**Aims 1 and 2: Parent Gender and Adoptive Status Mean Differences**

The first aim was to explore potential gender differences in the average level of fathers’ and mothers’ self-reported feelings of warmth and hostility towards each of two children in the family. Our second aim was to investigate adoptive status mean differences in children’s behavioural and emotional problems. Given the within-family parent and sibling design, we utilized a $2 \times 2$ repeated measures ANOVA, with parent gender (mother versus father) and child adoptive status (adoptive versus biological) as within-subject factors. The results are presented in Table 2. There was a significant main effect of adoptive status for positivity, $F(1, 84) = 3.99, p < 0.05$, and negativity, $F(1, 84) = 4.96, p < 0.05$; in contrast, the main effects for parent gender were non-significant.

Parents reported less positive feelings towards their adopted child (father $M = -0.18$ and mother $M = -0.11$) compared to their non-adopted child (father $M = -0.01$ and mother $M = 0.03$). They also reported more negative feelings towards their adopted child (father $M = 0.20$ and mother $M = -0.03$) than towards their non-adopted child (father $M = -0.15$ and mother $M = -0.14$). However, for parental negativity, the two-way interaction between adoptive status and parent gender was significant, $F(1, 84) = 4.32, p < .05$—there was a significant adoptive status mean difference of about one-third of a standard deviation in fathers’ negativity, whereas for mothers the adoptive status mean difference was non-significant and only about one-tenth of a standard deviation.

With respect to child externalizing behaviour problems, there was a significant main effect of adoptive status, $F(1, 84) = 4.46, p < 0.05$, but the main effect of parent gender was not significant. Parents reported higher levels of externalizing

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>$F$</th>
<th>$p^a$</th>
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</thead>
<tbody>
<tr>
<td><strong>Positivity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adoptive status (S)</td>
<td>1</td>
<td>2.15</td>
<td>3.96</td>
<td>0.05</td>
</tr>
<tr>
<td>Parent gender (G)</td>
<td>1</td>
<td>0.27</td>
<td>0.47</td>
<td>0.50</td>
</tr>
<tr>
<td>$S \times G$</td>
<td>1</td>
<td>0.31</td>
<td>0.06</td>
<td>0.81</td>
</tr>
<tr>
<td><strong>Negativity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adoptive status (S)</td>
<td>1</td>
<td>4.38</td>
<td>4.96</td>
<td>0.03</td>
</tr>
<tr>
<td>Parent gender (G)</td>
<td>1</td>
<td>1.23</td>
<td>2.53</td>
<td>0.12</td>
</tr>
<tr>
<td>$S \times G$</td>
<td>1</td>
<td>1.09</td>
<td>4.32</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Externalizing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adoptive status (S)</td>
<td>1</td>
<td>244.88</td>
<td>4.46</td>
<td>0.04</td>
</tr>
<tr>
<td>Parent gender (G)</td>
<td>1</td>
<td>0.03</td>
<td>0.00</td>
<td>0.97</td>
</tr>
<tr>
<td>$S \times G$</td>
<td>1</td>
<td>23.99</td>
<td>1.03</td>
<td>0.31</td>
</tr>
<tr>
<td><strong>Internalizing</strong></td>
<td></td>
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</tr>
<tr>
<td>Adoptive status (S)</td>
<td>1</td>
<td>0.30</td>
<td>0.01</td>
<td>0.92</td>
</tr>
<tr>
<td>Parent gender (G)</td>
<td>1</td>
<td>47.90</td>
<td>1.81</td>
<td>0.18</td>
</tr>
<tr>
<td>$S \times G$</td>
<td>1</td>
<td>17.77</td>
<td>2.28</td>
<td>0.14</td>
</tr>
</tbody>
</table>

$p^a$-values are not adjusted for multiple comparisons.
behaviour for their adopted child (father $M = 8.66$ and mother $M = 8.38$) compared to their non-adopted child (father $M = 6.67$ and mother $M = 6.98$). For child internalizing problems, there were no significant effects. In sum, adoptees were regarded with less positivity and more negativity, and rated as higher in externalizing problems. However, there were no parent gender differences on average in self-reported feelings or ratings of child problem behaviours.

The analyses described above and shown in Table 2 did not include any adjustment for multiple comparisons. It is important to report these unadjusted estimates of the $p$-values. However, when we made adjustments using the Bonferroni correction (a very conservative correction) and the Benjamini–Hochberg correction of false-discovery rate (a comparatively less conservative correction), none of the effects in Table 2 was statistically significant.

Aim 3: Parent Gender Differences in Correlations

The third aim was to examine the association between parents’ feelings towards their children and their child’s behaviour, and test for potential parent gender differences. Bivariate correlations between fathers’ and mothers’ feelings and their adopted and biological child’s adjustment behaviours were computed and are reported in Table 3. To minimize potential effects of rater bias, we only examined cross-informant correlations, whereby a given parent’s self-reported feelings towards a child was examined in relation to the other parent’s perception of that child’s behavioural and emotional problems. For example, correlations were estimated between fathers’ self-reported negativity and mothers’ reported child externalizing, and between mothers’ self-reported negativity and fathers’ ratings of child externalizing.

Overall, the correlations in Table 3 show a clear pattern of significant bivariate associations between higher levels of child externalizing problems, and less parental positivity or more parental negativity. Although the same overall pattern was found for correlates of child internalizing, the correlations were modest and typically not significant.

To test whether the correlations differed for fathers and mothers, we compared correlations using the $Z_r$-based version of the Pearson–Filon or ZPF test statistic (Raghunathan, Rosenthal, & Rubin, 1996). These are reported as ‘parent gender ZPF’ in Table 3. Of the eight comparisons made for parent gender, only one was statistically significant.

Table 3. Bivariate correlations between parental negativity/positivity and child externalizing/internalizing problems: $Z_r$-based version of the Pearson–Filon (ZPF) test of differences in correlations

<table>
<thead>
<tr>
<th></th>
<th>Externalizing</th>
<th>Internalizing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adopted</td>
<td>Non-adoptive</td>
</tr>
<tr>
<td>Father Negativity</td>
<td>0.47***</td>
<td>0.44***</td>
</tr>
<tr>
<td>Mother Negativity</td>
<td>0.32**</td>
<td>0.33**</td>
</tr>
<tr>
<td>Parent Gender ZPF</td>
<td>1.33</td>
<td>0.95</td>
</tr>
<tr>
<td>Father Positivity</td>
<td>−0.38***</td>
<td>0.01</td>
</tr>
<tr>
<td>Mother Positivity</td>
<td>−0.29**</td>
<td>−0.28**</td>
</tr>
<tr>
<td>Parent Gender ZPF</td>
<td>−0.74</td>
<td>2.09*</td>
</tr>
</tbody>
</table>

Note: Two-tailed $p$-values, $+ < 0.10$, $* < 0.05$, $** < 0.01$, $*** < 0.001$; cross-informant ratings were used for externalizing/internalizing behaviours.
significant (ZPF = 2.09)—for non-adoptive children, less parental positivity was associated with more externalizing problems for mothers, but not for fathers.

**Aim 4: Passive Gene–Environment Correlation**

The fourth and final aim was to test for potential passive gene–environment correlation effects that might account for the correlations between parents’ negativity/positivity and children’s externalizing/internalizing problems. We again estimated ZPF test statistics, reported as ‘adoptive status ZPF’ in Table 3. Of the eight comparisons made, only one was significant (ZPF = −2.62)—for fathers, less positivity was associated with more externalizing problems for adopted children, but not non-adopted children. It is worth emphasizing that although significant, this difference in correlations was not indicative of passive gene–environment correlation, because the correlation was greater for the adoptive father–child dyads than for the non-adoptive father–child dyads.

**DISCUSSION**

In the current study, we addressed several gaps in the literature on the link between parents’ feelings towards their children and their children’s adjustment problems. We examined parent gender differences, child adoptive status differences, and potential passive gene–environment correlation effects, using a novel within-family adoptive and non-adoptive parent–child and sibling design. The results from this exploratory study provide some insights into the family processes that are reflected in the link between parental feelings of warmth and hostility and their children’s behavioural and emotional problems. Overall, the results suggest similarities rather than differences in mean levels and correlations, for fathers versus mothers and adoptive versus non-adoptive children.

**Parent Gender Differences**

The results of the current study revealed that fathers and mothers reported similar levels of positivity and negativity towards their children. This pattern of results for parents’ self-reported feelings of positivity and negativity towards their children builds on a literature that suggests fathers and mothers, on average, are more alike than different in their average levels of negativity and positivity that they feel towards their children (Deater-Deckard, 2004). Nevertheless, the lack of differences in means does not rule out the possibility that fathers’ and mothers’ negativity and positivity, as well as their perceptions of their children’s behavioural problems, is not influenced by factors that are distinct for men and women. For instance, there is some evidence that children’s cognitive skills and behaviour problems are more strongly related to fathers’ self-reported parenting, whereas marital discord and their own mental health status is more strongly related to mothers’ self-reported parenting (Hay, Pawlby, Sharp, & Schmucker, 1999). We were not able to address this possibility in the current study, but it remains an important question for future research.

**Adoption Status Within Families**

In regard to our second aim, we found that adopted children tended to show higher rates of externalizing problems—a pattern of results that is consistent with
previous research (Iervolino, 2003; Juffer & van Ijzendoorn, 2005; Rhea & Corley, 1994; Sullivan et al., 1995; Wierzbicki, 1993). In the current study, this effect was small (about one-quarter to one-third of a SD difference) and no longer significant once we adjusted for multiple comparisons. This pattern of results is very consistent with the only prior study that we found in which adoptive and non-adoptive children within the same families were compared (Sharma et al., 1998). Also in that prior study as well as the current one, a non-significant effect size near 0 was found for internalizing problems. We would echo Sharma et al.’s conclusion that these effect sizes tend to be modest, and this should be taken into account when adoptive status is being considered as a ‘risk factor’ for aggressive and delinquent behaviour problems.

Parents reported higher levels of negativity and lower levels of positivity towards their adoptive child compared to their non-adoptive child, with effect sizes from one-tenth to one-third of a standard deviation. This replicates previous research based on between-family comparisons of adoptive and non-adoptive parents (Braungart, 1994). Thus, parents may regard their adopted child less favourably than their non-adopted child, although again it is important to note that the effects were very small and no longer significant after adjustment for multiple comparisons.

Putting aside potential small average differences for adoptive and non-adoptive children, the negativity and warmth that is expressed towards adoptees, and their levels of externalizing behaviour problems, probably arise from a combination of psychosocial and biological influences. Brodzinsky (1993) proposed a social cognitive theory whereby adopted children’s appraisals of the adoption process are associated with their adjustment following adoption. Children who view the adoption process or their adoptive status negatively are more likely to show maladjustment ranging from internalized anger or sadness to externalizing hostility or aggression. It is also plausible that on average, adopted children have biological parents with higher levels of psychopathology themselves. This risk can be transmitted genetically and may be reflected in higher levels of behavioural maladjustment (Cadoret, 1990)—problem behaviours that elicit more negativity and less positivity in the adoptive parents through evo-


Parents’ Feelings and Child Adjustment: Parent Gender Differences

Turning from mean differences to correlations between parent and child behaviour, our third aim was to identify potential parent gender differences in the associations between parental positivity and negativity, and child behaviour problems. To our knowledge, the current study is the first to compare directly the correlates of mothers’ and fathers’ feelings of negativity and warmth towards their adoptive and non-adoptive children within the same family. Overall, the correlations for fathers and mothers were very similar. The average correlation (see Table 3) for fathers—across negativity/positivity, externalizing/internalizing, and adoptive and non-adoptive children—was ±0.25, compared to an average correlation for mothers of ±0.24.

More specifically, few of the associations between internalizing problems and parents’ warmth and negativity were significant. In contrast, nearly all of the correlations between externalizing behaviours and more parental negativity and less positivity were significant, but these did not vary as a function of parent
gender. This pattern for externalizing problems is consistent with previous research on non-adoptive families (Deater-Deckard, 2004; Feinberg et al., 2001; Herman & McHale, 1993). More recently, Richmond and Stocker (2006) reported similar correlations for fathers and mothers in the association between parents' feelings of hostility and their adolescent children's externalizing problems. However, not all studies find the same correlations for fathers and mothers (e.g. Brody et al., 1992; Tamrouti-Makkink et al., 2004). The mixed findings in the literature may be due to a combination of methodological factors, including sample-specific effects, distinct measures and designs, and low statistical power. Despite these sometimes conflicting findings, it is clear that when father–mother differences in correlations are found, the magnitude of the effect is small. Thus, on balance the findings suggest that the underlying processes linking parental warmth and hostility with child externalizing behavioural problems (and perhaps internalizing problems) are more similar than they are different for father–child and mother–child relationships.

Passive Gene–Environment Correlation

Our fourth and final aim was to use a novel within-family adoptive status design to test whether there was passive gene–environment correlation in the link between parental positivity/negativity and child externalizing/internalizing problems. Although rarely studied, there is some evidence in previous research that passive gene–environment correlation may explain some of the covariation between parenting and children's adjustment (Neiderhiser et al., 2004). In the current study, there was no such effect. The average correlation (see Table 3) between parental self-reported feelings and child behavioural/emotional problems was very similar for adopted (±0.24) and non-adopted (±0.25) children. The correlation between fathers' self-reported positivity and mother-rated child externalizing was the only one that differed significantly for adoptive (r = 0.38, p < 0.001) and non-adoptive (r = 0.01, n.s.) children—a pattern that is contrary to a passive gene–environment correlation effect, which requires that the association between parent and child behaviour be present for non-adoptive but not adoptive parent–child dyads.

In the current study, the within-family comparison of adoptive and non-adoptive children showed that the correlation between parental negativity/positivity and child maladjustment is not simply a by-product of common genes between parent and child. We found the same thing when we examined maternal harsh discipline practices in which we utilized data from a different sub-set of families in the current N2CAP study and compared their data to those from a group of non-adoptive biological families (Deater-Deckard, Ivy, & Petrill, 2006). Although there is little question that genetic influences are present for parenting behaviours and children's externalizing and internalizing problems (Reiss et al., 2000), the moderate correlations that we found between parents' negativity/warmth and children's behaviour problems do not appear to arise from overlapping genes across generations.

Several developmental theories provide useful explanations for these kinds of effects. Rohner's (1986) acceptance/rejection theory emphasizes that parental acceptance is manifested physically and verbally through hugging and praising, while rejection is manifested as the absence of significant withdrawal of warmth. In the current analysis, negativity is associated with more internalizing and externalizing behaviours in children, reflecting in part children's reactions to
their parents’ behaviour towards them. Children’s and parents’ behaviours are likely influenced through learning processes operating as reinforcement contingencies that are causally linked to the development of childhood externalizing problems (Patterson, 2002). However, the child’s behaviour also may be influencing parents’ feelings of negativity and positivity given that child effects have been demonstrated in quasi-experimental behavioural genetic studies (O’Connor et al., 1998; O’Connor et al., 2006).

Caveats and Conclusions

Several limitations of the current study should be considered. First, sample size limited statistical power for detecting small effects, but sufficient power was present to test moderate effect sizes. A more important limitation of the sample is that it probably is not representative, so the results may not generalize to the broader population of adoptive and non-adoptive families. The results may be specific to families that have a biological child and choose to adopt—little is known about the varied reasons for adoption of the parents in the current study, yet those reasons may matter with respect to family processes. For example, results pertaining to adoptees might differ depending on whether the adoption is motivated by parents’ medical difficulties (e.g. infertility) or by a desire to give a home to a child in need. Finally, although we strived to minimize the effects of rater biases by only estimating correlations across informants, reliance on parents’ reports is a limitation; the results might not generalize to other informants’ reports (e.g. teachers, observers) or to child behaviour outside of the home context.

In conclusion, a within-family sibling design was used to compare adoptive and biological children on parenting and behavioural adjustment measures. Regardless of whether tests were adjusted for multiple comparisons, there were no noteworthy (in terms of magnitude of effect size) parent gender differences in means or correlations, suggesting that the developmental processes linking parental negativity and warmth, and child externalizing problems, probably involve the same mechanisms for mothers and fathers. Although there was some evidence pointing to child adoptive status mean differences in parents’ ratings of more negativity, less positivity, and more externalizing behaviour, none of these remained significant after controlling for multiple comparisons, and all of the effect sizes were small. Furthermore, correlations between parental feelings and child behavioural problems were consistent for adoptive and non-adoptive children, suggesting that there was very little passive gene–environment correlation present. This does not mean that other forms of gene–environment correlation effects are not present—for example, ‘evocative’ gene–environment correlation influences, whereby genetically influenced child behaviours causally influence parental negativity and positivity. Examination of these other kinds of gene–environment processes requires integrating quasi-experimental genetic studies with experimental family interaction designs—a worthwhile goal in future research examining parenting of fathers and mothers and their children’s developmental outcomes.

REFERENCES


