



(In)Congruent Parent–Child Reports of Parental Behaviors and Later Child Outcomes

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Abstract

This study evaluated hypothesized relations of (in)congruent parent–child perceptions of parental warmth and hostility at age 7 with changes in child and parent reports of children’s depressive symptoms and rule-breaking behaviors from ages 7 to 10. Dyads consisted of 193 parents (93.3% biological mothers) and children (49.2% female; 46.1% Latinx) drawn from a longitudinal study of child development. Child and parent reports of parental warmth and hostility were collected using parallel measures at age 7. Child and parent reports of child depressive symptoms and rule-breaking behaviors were collected at ages 7 and 10. After controlling for children’s prior symptomatology and individual informant effects, polynomial regression analyses revealed a significant relation between (in)congruent perceptions of parental warmth and child-reported depressive symptoms. Specifically, congruent perceptions of high parental warmth at age 7 predicted decreased levels of child-reported depressive symptoms from ages 7 to 10, whereas congruent perceptions of low parental warmth predicted increased levels of child-reported depressive symptoms, especially among daughters. (In)congruent perceptions of parental hostility were related to child-reported rule-breaking behaviors. Specifically, congruent perceptions of high parental hostility predicted increased rates of child-reported rule-breaking behaviors, whereas incongruent perceptions of high parent-reported and low child-reported parental hostility predicted decreased rates of child-reported rule-breaking behaviors, especially among sons. This study documented the adaptive significance of parent–child (in)congruence in perceptions of parenting across middle childhood and revealed the potential specificity of relations by domain of adaptation and/or gender, thereby suggesting important implications for risk identification and treatment.

Keywords Informant (in)congruence · Parenting · Polynomial regression · Depression · Rule-breaking behavior

Highlights

- Polynomial regressions examined parent–child (in)congruence in perceived parenting.
- (In)congruence of warmth predicted child depressive symptoms, especially for girls.
- (In)congruence of hostility predicted child rule-breaking, especially for boys.
- (In)congruence effects varied by parenting domain, adaptive outcome, and gender.
- Parent–child (in)congruence can inform risk identification and treatment.

Despite a strong body of observational research on parent–child interactions in home and laboratory settings (e.g., Crowell and Feldman 1988; Hart and Risley 1992), parenting science and practice have been largely guided by

self-reported parenting data (e.g., Locke and Prinz 2002; Morsbach and Prinz 2006). In infancy and early childhood, the assessment of parenting relies heavily on parent reports, but child reports have gained prominence in later development and with increased appreciation of child effects in developmental science (Bell and Chapman 1986; Pardini 2008). Although “gold standard” research paradigms employ multiple informants and methods (e.g., Achenbach et al. 1987), they also raise concerns about how best to reconcile inevitable differences across reporters and measures. In contrast to conceptualizations of informant

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discrepancies as a byproduct of different perspectives/settings (De Los Reyes and Kazdin 2005; Turk and Bell 1972), a growing body of research suggests that the degree of congruence or incongruence across informants and measures has meaningful implications for child development and adaptation (De Los Reyes 2011).

With regard to child and parent reports, (in)congruence has been examined across a wide range of measures, including child and adolescent psychopathology (e.g., De Los Reyes et al. 2015; Ferdinand et al. 2004), family communication styles (e.g., De Los Reyes et al. 2016), and parent–child relationship quality (e.g., Pelton and Forehand 2001). In a seminal meta-analysis, Achenbach et al. (1987) documented a small correlation (0.25) between child and parent reports of children’s behavioral and emotional problems. Nearly 30 years later, De Los Reyes et al. (2015) reviewed cross-informant agreement on clinical child assessments and found similarly modest correlations of 0.26 and 0.32 between child and parent reports of internalizing problems and externalizing problems, respectively. Extending to research on parenting practices, a meta-analysis by Korelitz and Garber (2016) revealed modest levels of agreement across reports of parental acceptance (0.28 and 0.29 for mother– and father–child dyads, respectively), behavioral control (0.23 for both mother– and father–child dyads), and psychological control (0.27 and 0.25 for mother– and father–child dyads, respectively). Despite the prevalence of incongruence across child and parent informants, however, researchers have only begun to consider the developmental and adaptive implications of parent–child (in)congruence in perceptions of parenting. The current investigation addressed gaps in this young literature by evaluating the (in)congruence of child and parent reports of parental warmth and hostility during middle childhood using an advanced analytic approach to predict changes in child and parent reports of children’s emotional and behavioral problems over time.

Extant studies of parent–child (in)congruence typically focus on perceptions of parenting during the adolescent years using either difference scores or, less commonly, polynomial regression models. Studies utilizing the difference score approach (i.e., subtracting the score of one informant from another informant) and variations of it (e.g., standardized difference scores, absolute difference scores) point to significant links between parent–adolescent incongruence in parenting perceptions and youth maladjustment (Feinberg et al. 2000). For example, after controlling for prior adjustment, Guion et al. (2009) employed the absolute standardized difference score method and found that adolescents who reported higher rates of negative parenting behaviors (i.e., harsh discipline, inconsistent discipline, and low nurturance) than their parents endorsed more internalizing problems and lower social competence one year

later. With regard to positive parenting practices, studies using difference score approaches have not found significant relations between incongruent perceptions of parental warmth and adolescent mental or behavioral concerns (Spilt et al. 2015). In contrast, Laird and De Los Reyes (2013) investigated the question of (in)congruence utilizing polynomial regression to account for individual and interactive effects of informant reports and found that congruent parent–adolescent reports of parental acceptance were concurrently associated with fewer depressive symptoms. Studies examining perceptions of both positive and negative parenting aspects using difference score approaches point to both concurrent and prospective relations with internalizing and externalizing problems, as well as with social outcomes in adolescence (Feinberg et al. 2000; Guion et al. 2009; Leung and Shek 2014), but relations within childhood remain unclear.

Although the bulk of research on parent–child (in)congruence has employed adolescent samples, the degree to which child reports map onto parent perceptions may take on increased adaptive significance during middle childhood as children advance toward increased autonomy and independent mental representations of the parent and the parent–child relationship (e.g., Bosmans and Kerns 2015). Consistent with adolescent studies, child studies using cross-sectional data and difference score approaches suggest that greater levels of parent–child incongruence in perceptions of parenting are positively associated with concurrent socioemotional difficulties (Gaylord et al. 2003; Tein et al. 1994). For example, in a study of opiate-addicted mother–child dyads (ages 4–16), standardized difference scores indicating higher child ratings of maternal aggression compared to parent ratings were positively related to concurrent child-reported depressive symptoms, anxiety symptoms, and school maladjustment, as well as to mother-reported child aggression, hyperactivity, and inattention (Borelli et al. 2010). Importantly, some evidence from child studies points to differential effects of (in)congruence in positive versus negative parenting practices. For example, Gaylord et al. (2003) found that absolute differences in child and parent ratings of paternal control and maternal discipline were related to greater levels of child internalizing and externalizing problems, whereas parent–child incongruence in perceptions of parental support was not significantly associated with either facet of child maladjustment.

Multi-informant studies of child development have favored cross-sectional designs (e.g., Borelli et al. 2010; Feinberg et al. 2000; Gaylord et al. 2003). Moreover, even within longitudinal research designs, prior levels of child symptomatology have rarely been controlled (e.g., Ohanessian et al. 2000). Although a few studies have documented significant relations of parent–adolescent

incongruence with youth adaptation while controlling for prior adjustment (De Los Reyes et al. 2010; Guion et al. 2009; Human et al. 2016), others have not replicated these findings (e.g., Spilt et al. 2015), and no studies have examined these relations within childhood.

In addition to differences in research design, there is considerable debate as to how best to analyze relations of child- and parent-reports with child adaptation. Most research on multi-informant congruence has relied on either directional or absolute difference scores using either raw or standardized data (e.g., Berger et al. 2005; Ehrlich et al. 2011). However, amidst concerns that difference scores are difficult to interpret and do not directly test the (in)congruence hypothesis (see De Los Reyes and Ohannessian 2016; Rogers et al. 2018; Youngstrom et al. 2000 for discussion), researchers have advocated for the use of regression approaches, particularly polynomial regression models, to understand the adaptive implications of multi-informant (in)congruence (Edwards 1994, 2002; Korelitz and Garber 2016; Laird and Weems 2011). Advancing beyond linear regression approaches, polynomial regression models account for the possibility that the meaning of (in)congruence may vary across levels of the construct while evaluating both main and interactive effects of child and parent reports on a given outcome.

Given these limitations in research design and analytic approaches, the adaptive implications of (in)congruence in perceptions of parenting are poorly understood, especially in middle childhood. This gap in science is notable because a lack of correspondence in parent–child perceptions of the same parental behavior may reflect and/or contribute to family disorganization, communication difficulties, and conflicts (Guion et al. 2009; Minuchin 1985, 2002), which can increase children’s risk of psychopathology (e.g., Goodman et al. 2010). Thus, elucidating prospective relations between (in)congruence of perceived parenting practices and child (mal)adjustment has implications for whether and how researchers and practitioners can capitalize on the predictive value of parent–child (in)congruence to target and/or evaluate treatment efforts.

Theorists and researchers have employed the Operations Triad Model to evaluate and interpret the meaning of parent–child (in)congruence with regard to assessments of mental health (De Los Reyes et al. 2013) and family functioning (De Los Reyes and Ohannessian 2016; De Los Reyes et al. 2019). In particular, the Converging Operations within the Operations Triad Model conceptualizes parent–child convergence or congruence as a buffer against children’s psychosocial maladjustment when informants share overlapping perceptions of high levels of promotive factors (e.g., congruent reports of high levels of parental knowledge and acceptance; Laird and De Los Reyes 2013), and as a signifier of heightened risk for children’s

psychosocial maladjustment when informants share overlapping perceptions of high levels of risk factors (e.g., congruent reports of high levels of parent–adolescent conflict; De Los Reyes and Ohannessian 2016). In contrast, the Diverging Operations within the Operations Triad Model offers competing conceptualizations of parent–child divergence or incongruence as either an indicator of maladaptive family dynamics (e.g., the parent lacks awareness of the child’s activities; Goodman et al. 2010), or as an indicator of adaptive child adjustment (e.g., inconsistencies are developmentally normative as youth seek increased autonomy and emotional independence; De Los Reyes and Ohannessian 2016).

In addition to the aforementioned factors that may influence the meaning of parent–child (in)congruence (e.g., the valence of the parenting dimension, the nature of the adaptive outcomes under investigation), research has documented mixed evidence regarding gender differences in the adaptive significance of parent–child (in)congruence. For example, Ohannessian and De Los Reyes (2014) demonstrated that, at low levels of mother-reported communication and satisfaction, low adolescent-reported communication and satisfaction were related to higher levels of anxiety among daughters, but not among sons. In contrast, Feinberg et al. (2000) found that absolute differences in parents’ and adolescents’ perceptions of parental negativity (i.e., verbal aggression) were related to fewer depressive symptoms and antisocial behaviors for daughters, but with more of these same problems for sons. Still, an earlier study by Choudhury et al. (2003) did not find significant gender differences in parent–youth agreement regarding the presence of youth anxiety.

In light of the dearth of research on parent–child (in)congruence, as well as evidence suggesting there may be differential implications of (in)congruence across negative and positive parenting dimensions, and potentially among daughters versus sons, this investigation evaluated perceptions of both positive (i.e., warmth) and negative (i.e., hostility) parenting practices in a large and diverse sample of parent–child dyads at age 7 as predictive of changes in children’s and parents’ reports of child depressive symptoms and rule-breaking behaviors from ages 7 to 10. Moreover, the current study adhered to recent guidelines concerning research design and analytic methodologies that are best-equipped to model parent–child (in)congruence and its effects (i.e., longitudinal research designs using polynomial regression analyses; De Los Reyes et al. 2019; Laird and De Los Reyes 2013).

Following the Operations Triad Model, we hypothesized that parent–child congruence in perceptions of high levels of parental warmth (i.e., a promotive factor) at age 7 would predict reduced child and parent reports of child depressive symptoms and rule-breaking behaviors at age 10. In

addition, we expected that parent–child congruence in perceptions of high levels of parental hostility (i.e., a risk factor) at age 7 would predict increased child and parent reports of child depressive symptoms and rule-breaking behaviors at age 10. With regard to patterns of divergence, we hypothesized that incongruence in perceptions of both parental warmth and hostility would be related to greater symptoms of depression and increased rule-breaking behaviors, given the potential for maladaptive family functioning when children and parents share discrepant views. In light of the scarce literature on parent–child incongruence with regard to parenting perceptions during middle childhood, we did not have a-priori expectations regarding if and how the direction of incongruent patterns (i.e., high parent ratings/low child ratings vs. low parent ratings/high child ratings) might impact child development differentially, or as a function of positive (i.e., warm/supportive) versus negative (i.e., hostile) parenting dimensions. In addition, we also explored these hypotheses across and within gender groups in light of recent, albeit mixed, evidence that daughters and sons may show different adaptive outcomes in the context of parent–child (in) congruence (e.g., Choudhury et al. 2003; Feinberg et al. 2000; Ohannessian and De Los Reyes 2014).

Importantly, all analyses controlled for the influence of children’s ethnicity/race, family socioeconomic status (SES), and cognitive ability on the outcomes examined here. Previous research suggests that ethnicity/race may influence parenting practices (Bornstein and Cheah 2006), and both child and parent reports of child psychopathology (e.g., De Los Reyes and Kazdin 2005). Prior studies demonstrate consistent relations between socioeconomic disadvantage and children’s problem behaviors (e.g., Costello et al. 2001). Finally, child cognitive ability has been linked to expressions of depressive symptoms (Weeks et al. 2014) and child behavior problems (e.g., Dekker et al. 2002).

Method

Participants

Parent–child dyads were drawn from an ongoing study of child development. Families in these analyses consisted of 193 caregivers (93.3% biological mothers, 2.6% foster/adoptive mothers, and 4.1% other kin) and their children (49.2% female; $M_{\text{age}} = 7.13$ years, $SD = 0.23$) who completed a laboratory assessment at age 7. The children were ethnically/racially diverse (46.1% Latinx, 17.6% Black, 11.4% White, and 24.9% multiracial) and representative of the southern California community from which the sample

was drawn (U.S. Census Bureau 2011). About half the parents had attended college or technical school (46.1%), most were married or had a partner in the household (71.5%), and about half were employed (50.8%). When the children were 10 years old, 187 (96.89%) of the dyads returned for a follow-up assessment ($M_{\text{age}} = 9.60$ years, $SD = 0.27$). Dyads who returned at age 10 did not differ from those who did not across study variables.

Procedure

Parents were recruited through flyers distributed to community-based child development programs inviting participation in a longitudinal study of children’s early learning and development. Caregivers conducted a brief phone intake screening before committing to a 3-h laboratory assessment. Families were excluded if the child had been diagnosed with a developmental disability or delay ($n = 3$), was unable to complete the assessment in English ($n = 4$), and/or fell outside the target age range for the first wave of assessment in the broader study (i.e., 45–54 months, not tracked). At each data wave, dyads completed a 3-h laboratory assessment, including a range of child and parent questionnaires and tasks, most of which were designed to assess children’s representations of the parent–child relationship and self-regulation capacities. Caregivers were compensated with \$25/h of assessment, and children received a small gift at each time point. Informed consent and assent were collected from the child’s legal guardian and the child, respectively. All procedures were approved by the human research review board of the participating university.

Measures

Perceived parental warmth and hostility

At age 7, parents and children completed the Parental Acceptance–Rejection Questionnaire (PARQ; Rohner 1991). The PARQ contains 60 items that assess various aspects of parental behaviors (i.e., hostility/aggression, parental warmth/affection, indifference/neglect, and undifferentiated rejection). Children and parents each completed the PARQ items for the participating caregiver on a 4-point Likert scale from almost never true (1) to almost always true (4). Parental warmth was assessed with 20 items that capture the extent to which the parent is warm, loving, and affectionate toward the child (e.g., “My mother talks to me in a warm and loving way”; $\alpha_{\text{child}} = 0.872$; “I let my child know I love her/him”; $\alpha_{\text{parent}} = 0.758$). Parental hostility was assessed with 15 items that tap the extent to which the parent is hostile, uncaring, and aggressive toward the

child (e.g., “My mother ridicules and makes fun of me”; $\alpha_{\text{child}} = 0.839$; “I tell my child that s/he gets on my nerves”; $\alpha_{\text{parent}} = 0.819$). The PARQ has been used extensively across culturally diverse samples and evidences strong psychometric properties (Khaleque and Rohner 2002a, 2002b; Rohner 1991).

Child depressive symptoms

At age 10, children and parents completed the depression scale of the Behavior Assessment System for Children (BASC; Reynolds and Kamphaus 1992). Children rated the frequency of specific symptoms across 4 items (e.g., “I feel like my life is getting worse and worse”) from never (0), sometimes (1), often (2), and almost always (3), and the presence of symptoms across 9 true/false items (e.g., “Nothing is fun anymore”). Parents reported on the frequency of specific symptoms across 14 items (e.g., “My child is negative about things”) on a scale from never (0), sometimes (1), often (2), and almost always (3). The BASC has demonstrated convergent validity and reliability with diverse child and parent samples in prior research (Reynolds and Kamphaus 1992) and in the current sample ($\alpha_{\text{child}} = 0.778$; $\alpha_{\text{parent}} = 0.810$).

At age 7, children completed the 10-item short form of the Child Depression Inventory (CDI-S; Kovacs 1981). For each item, children were asked to select the sentence that best described how they had been feeling or thinking within the past two weeks out of a set of three sentences (e.g., “I am sad once in a while”, “I am sad many times”, or “I am sad all the time”). Responses ranged from 0 to 2, depending on the level of severity endorsed, and items were summed to generate a total index of current depressive symptoms. Although the CDI-S has been widely used and evidences good test-retest reliability in normative ($\alpha = 0.94$) and clinically-referred children ($\alpha = 0.94$; Saylor et al. 1984), the reliability in the current sample was modest ($\alpha = 0.576$). However, we retained this measure because it was the only available control for subsequent child reports of depressive symptomatology at age 10, with which CDI-S scores at age 7 were also positively correlated ($r = 0.267$, $p < 0.001$). Parents reported on their child’s depressive symptoms using the Child Behavior Checklist (CBCL; Achenbach and Rescorla 2001). Parents rated the presence of their child’s anxious/depressed (e.g., “feels too guilty”) and withdrawn/depressed (e.g., “would rather be alone”) symptoms on a scale from not true (0), somewhat or sometimes true (1), very true or often true (2) across 21 items. Scores from these subscales were averaged to obtain parent reports of child depressive symptoms at age 7. The CBCL is a reliable and well-validated measure in diverse community and clinical samples (Achenbach and Rescorla 2001), as well as in the current study ($\alpha = 0.793$).

Child rule-breaking behaviors

Given the dearth of self-report measures to assess rule-breaking in young children, we developed a 14-item Rule-Breaking Behavior Scale for use in this study, which we administered at ages 7 and 10. At each time point, children were asked to rate how often they had disobeyed or violated social (e.g., “besides your brothers and sisters, purposely made someone cry because you said something mean”), academic (e.g., “copied someone else’s homework or test when you were not supposed to”), or parental (e.g., “purposely did something your parent told you not to do”) expectations on a scale from never (0), once (1), or more than 1 time (2). Items were summed to compute a total index of rule-breaking behaviors, with higher scores connoting greater rule-breaking. This scale evidenced good reliability at ages 7 ($\alpha = 0.810$) and 10 ($\alpha = 0.837$), and significant stability over time ($r = 0.374$, $p < 0.01$). Moreover, child reports of rule-breaking behaviors at age 10 evidenced concurrent validity with parent reports of child rule-breaking behaviors on the CBCL at age 10 ($r = 0.195$, $p = 0.009$). Parents completed the rule-breaking subscale of the CBCL at ages 7 and 10 to indicate their children’s rule-breaking behaviors across 17 items (e.g., “breaks rules at home, school, or elsewhere”; $\alpha_{\text{age 7}} = 0.530$, $\alpha_{\text{age 10}} = 0.761$).

Child cognitive ability (IQ)

The Vocabulary and Block Design subtests from the Wechsler Preschool and Primary Scale of Intelligence-III (WPPSI-III; Wechsler 2002) assessed children’s cognitive skills when the study began at age 4. Verbal ability was evaluated using the receptive vocabulary subtest for children younger than 48 months (i.e., children pointed to pictures that corresponded with orally-presented words) and the expressive vocabulary subtest for children 48 months or older (i.e., children verbally indicated meanings of orally-presented words). Performance ability was assessed using the block design subtest, in which children were asked to construct red and white blocks to reproduce presented models. Using the published scoring guidelines, a pro-rated measure of full-scale IQ was computed by averaging the child’s verbal and performance IQ scores (Sattler 2008).

Family socioeconomic status (SES)

At age 7, family SES was evaluated based on parents’ education level and occupational status using the Hollingshead Four Factor Index of Social Status (Hollingshead 1975). Parental education was rated from *less than 7th grade* (1) to *graduate or professional training* (7). Occupational status was coded from *farm laborers/unskilled service*

workers (1) to higher executive/major professionals (9). Weighted scores for education $\times 3$ and occupation $\times 5$ were summed to yield a family SES score. In families with two caregivers, weighted composite scores were averaged. The range of SES scores in the current sample was from 11 (e.g., unemployed with an attained education below 7th grade) to 66 (e.g., a dentist with a professional/graduate degree), and the average rating of 33.29 ($SD = 11.73$) corresponded to semi-skilled worker (e.g., salesperson).

Data Analyses

All analyses were conducted in SPSS 24 and Mplus 6.12 (Muthén and Muthén 2010). Study variables were evaluated to ensure they met parametric statistics assumptions (Afifi et al. 2007). Mother-reported warmth was non-normal (skewness = -2.036 , kurtosis = 5.975) due to three outliers that were far below the mean. These data points were “brought in” to be three standard deviations below the mean to maintain rank order and prevent undue influence (skewness = -1.333 , kurtosis = 1.514 ; Raykov and Marcoulides 2008).

Data were missing for child reports of depressive symptoms at ages 7 and 10 ($n = 1$ and 14 , respectively) and rule-breaking behaviors at ages 7 and 10 ($n = 1$ and 15 , respectively), parent reports of child depressive symptoms at ages 7 and 10 ($n = 1$ and 10 , respectively) and rule-breaking behaviors at ages 7 and 10 ($n = 1$ and 6 , respectively), as well as family SES at age 7 ($n = 12$). Missing data were handled using full-information maximum-likelihood (FIML) as supported by Little’s (1988) missing completely at random (MCAR) test, $\chi^2(111) = 129.03$, $p = 0.116$.

Following descriptive and bivariate analyses, we evaluated the primary research hypotheses using four polynomial regression analyses. We tested (in)congruence effects using both linear and quadratic interactions (Edwards 1994; Laird and De Los Reyes 2013; Laird and Weems 2011). As advised by Laird and De Los Reyes (2013), a set of coefficients one order higher in magnitude (e.g., quadratic main effects in the case of a linear interaction, and cubic main effects in the case of a quadratic interaction) was included in each regression to ensure that the model properly captured non-linear associations. Interactions between higher order values of child and parent reports of parental warmth or hostility (i.e., parent report \times child report, parent report \times child report², parent report² \times child report) tested if and how the relation between parent-reported parental behaviors and child outcomes differed depending on child reports of parental behavior. If interactions with quadratic terms were not significant, we removed both the cubic terms and the quadratic interactions to test the linear interaction term (Laird and De Los Reyes

2013). Significant interaction effects were evaluated using simple slopes with predicted values at high ($+1 SD$) and low ($-1 SD$) levels of child-reported perceptions of parental behavior as recommended by Cohen et al. (2003). To minimize the risk that interpreting simple slopes at specific values may limit our ability to appreciate the pattern of change across levels of the moderator, we also probed for confidence bands associated with simple slope estimates by using response surface plots for quadratic interactions (Johnson and Neyman 1936; Miller et al. 2013) and regions of significance graphs for linear interactions (Carden et al. 2017). All predictors were mean-centered to reduce collinearity and divided by a constant to minimize variances for processing in Mplus. Multiple group comparisons tested for gender differences in significant effects. All analyses controlled for variables with previously documented associations with child adjustment outcomes, including ethnicity/race, family SES, child cognitive ability, and prior symptomatology.

Results

Descriptive and Bivariate Analyses

Descriptive statistics and bivariate correlations among study variables are presented in Table 1. Parents reported higher levels of warmth provision than their children reported, $t(192) = -12.9$, $p < 0.001$, $d = 1.304$, and children reported greater parental hostility than their parents reported, $t(192) = 5.56$, $p < 0.001$, $d = 0.518$. A multivariate analysis of variance (MANOVA) revealed no significant mean differences among study variables as a function of child gender, ethnicity/race, or their interaction.

Overall, cross-informant associations between child and parent reports were modest. For example, child and parent reports of parental warmth were not significantly correlated, though child and parent reports of parental hostility were significantly correlated. With regard to adjustment outcomes, child-reported depressive symptoms at age 7 were positively correlated with concurrent child and parent reports of rule-breaking behaviors at age 7, as well as with later child and parent reports of depressive symptoms and child reports of rule-breaking behaviors at age 10. Child-reported rule-breaking behaviors at age 7 were positively related to concurrent parent reports of rule-breaking behaviors, as well as to child and parent reports of depressive symptoms and to child reports of rule-breaking behaviors at age 10. Parent-reported child depressive symptoms at age 7 were positively correlated with concurrent child- and parent-reported rule-breaking behaviors, as well as with later child and parent reports of depressive symptoms and with parent reports of children’s rule-breaking behaviors at

Table 1 Descriptive statistics and bivariate correlations among study variables ($N = 193$)

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Child IQ (age 4)	96.46 (14.42)	–													
2. Family SES (age 7)	33.23 (12.05)	0.210**	–												
3. C Parental warmth (age 7)	65.14 (11.14)	0.182*	0.010	–											
4. P Parental warmth (age 7)	75.95 (3.64)	0.049	0.033	0.049	–										
5. C Parental hostility (age 7)	25.48 (8.85)	-0.128	0.051	-0.264**	-0.039	–									
6. P Parental hostility (age 7)	21.73 (5.12)	0.141	0.226**	0.062	-0.272**	0.187**	–								
7. C Depressive symptoms (age 7)	2.65 (2.62)	-0.125	-0.006	-0.155*	-0.031	0.264**	0.071	–							
8. P Depressive symptoms (age 7)	1.90 (1.93)	-0.031	-0.045	0.002	-0.212**	0.258**	0.418**	0.132	–						
9. C Rule-breaking behaviors (age 7)	5.43 (5.25)	-0.154*	0.010	-0.118	-0.129	0.481**	0.144*	0.290**	0.237**	–					
10. P Rule-breaking behaviors (age 7)	1.91 (1.99)	-0.101	-0.062	0.001	-0.217**	0.246**	0.366**	0.148*	0.551**	0.152*	–				
11. C Depressive symptoms (age 10)	3.15 (4.01)	-0.240**	-0.052	-0.237**	-0.119	0.306**	0.022	0.267**	0.216**	0.238**	0.228**	–			
12. P Depressive symptoms (age 10)	6.39 (4.65)	-0.058	0.031	-0.004	-0.160*	0.126	0.359**	0.232**	0.411**	0.154*	0.329**	0.187*	–		
13. C Rule-breaking behaviors (age 10)	3.50 (4.34)	-0.058	0.138	-0.051	0.013	0.293**	0.080	0.149*	0.048	0.387**	0.225**	0.374**	0.020	–	
14. P Rule-breaking behaviors (age 10)	1.60 (2.34)	-0.077	-0.066	-0.051	-0.157*	0.221**	0.220**	0.130	0.339**	0.121	0.472**	0.133	0.275**	0.189*	–

SES socioeconomic status, P parent report, C child report

* $p < 0.05$

** $p < 0.01$

age 10. Parent-reported rule-breaking behaviors at age 7 were positively associated with both child and parent reports of child depressive symptoms and rule-breaking behaviors at age 10.

Regarding relations between parenting perceptions and adjustment outcomes, perceptions were strongly related to both child-reported and parent-reported outcomes. Child reports of parental warmth at age 7 were negatively related to child-reported depressive symptoms at ages 7 and 10, whereas child reports of parental hostility at age 7 were positively correlated with both child-reported depressive symptoms and rule-breaking behaviors at ages 7 and 10, as well as with parent-reported depressive symptoms at age 7 and parent-reported rule-breaking behaviors at ages 7 and 10. Parent-reported warmth at age 7 was negatively correlated with parent-reported child depressive symptoms and rule-breaking behaviors at ages 7 and 10. Parent-reported hostility at age 7 was positively related to parent reports of children’s depressive symptoms and both child and parent reports of rule-breaking behaviors at age 7, as well as with parent-reported child depressive symptoms and rule-breaking behaviors at age 10.

Finally, with regard to covariates, child IQ at age 4 was positively correlated with family SES and child reports of parental warmth at age 7, but negatively correlated with child reports of rule-breaking behaviors at age 7 and with child reports of depressive symptoms at age 10. Family SES at age 7 was significantly associated with parent-reported hostility at age 7, but was not related to child or parent reports of depressive symptoms and rule-breaking behaviors at either time point.

Regression Analyses

Polynomial regression analyses evaluated predicted relations of child and parent reports of parental warmth (see Table 2) and hostility (see Table 3) with changes in child and parent reports of children’s depressive symptoms and rule-breaking behaviors from ages 7 to 10. All analyses were conducted using the total sample, with follow-up multiple group comparisons by child gender.

Parental warmth

A significant interaction between the quadratic effect of parent-reported parental warmth and child-reported parental warmth predicted later child reports of depressive symptoms. Specifically, the quadratic effect of parent-reported parental warmth was negative when children reported high levels of parental warmth, $b = -0.17$, $SE = 0.08$, $p = 0.04$, but positive when children reported low levels of parental warmth, $b = 0.13$, $SE = 0.08$, $p = 0.18$ (see Fig. 1). Thus, congruence between high parent-reported and high

Table 2 Child and parent reports of perceived parental warmth at age 7 as predictors of changes in child and parent reports of child depressive symptoms and rule-breaking behaviors at age 10

Parameter	Child reports						Parent reports							
	Depressive symptoms			Rule-breaking behaviors			Depressive symptoms			Rule-breaking behaviors				
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>		
Child IQ	-0.038	0.019	0.040	-0.011	-0.048	0.020	0.590	0.015	0.409	-0.008	-0.038	0.012	0.477	
Child Eth/Race (Latinx = 1)	-0.071	-0.506	0.613	-0.188	-0.095	0.151	0.213	-0.165	0.009	-0.094	0.047	0.140	0.502	
Family SES	-0.015	-0.058	0.396	0.032	0.131	0.020	0.101	0.016	0.828	-0.006	-0.023	0.013	0.654	
Prior child symptoms	0.211	0.071	0.003	0.366	0.68	0.099	<0.001	0.407	0.089	0.454	0.076	<0.001	<0.001	
Child report	-0.019	-0.069	0.606	0.016	0.061	0.034	0.628	-0.044	0.177	-0.051	-0.191	0.030	0.088	
Parent report	-0.039	-0.047	0.756	-0.026	-0.031	0.119	0.830	0.003	0.980	0.047	0.057	0.088	0.596	
Parent × Child	-0.009	-0.040	0.746	-0.001	-0.002	0.028	0.984	0.023	0.331	-0.014	-0.060	0.034	0.679	
Child report ²	-0.012	-0.250	0.006	-0.007	-0.126	0.006	0.245	-0.006	0.364	0.002	0.036	0.006	0.785	
Parent report ²	-0.019	-0.050	0.822	0.127	0.462	0.081	0.117	-0.099	0.199	0.048	0.130	0.094	0.613	
Parent × Child ²	0.005	0.141	0.004	<0.001	<0.001	0.004	0.997	0.004	0.151	-0.005	-0.157	0.004	0.196	
Parent ² × Child	-0.040	-0.372	0.010	-0.008	-0.078	0.009	0.329	-0.007	0.529	0.022	0.207	0.012	0.062	
Child report ³	<0.001	-0.037	0.001	-0.001	-0.126	0.001	0.329	0.001	0.482	<0.001	0.088	0.001	0.493	
Parent report ³	-0.020	-0.197	0.024	0.045	0.462	0.023	0.049	-0.036	0.104	0.005	0.048	0.026	0.854	
Model R ²	0.273, <i>p</i> < 0.001, <i>f</i>² = 0.376						0.257, <i>p</i> < 0.001, <i>f</i>² = 0.346						0.259, <i>p</i> < 0.001, <i>f</i>² = 0.350	

Eth/Race ethnicity/race, SES socioeconomic status

Bold values indicates statistical significant (*p* < 0.05) values

child-reported parental warmth at age 7 predicted the lowest levels of child-reported depressive symptoms at age 10. In addition, age 10 depressive symptoms were most elevated when both children and parents reported low levels of parental warmth, though the simple slope did not attain significance. Among daughters, the interaction between the quadratic effect of parent-reported parental warmth and child-reported parental warmth was significantly associated with later child-reported depressive symptoms, *b* = -0.20, *SE* = 0.05, *p* < 0.001, and followed the same pattern as the total sample with a significant negative quadratic effect of parent-reported parental warmth when daughters endorsed high levels of parental warmth, *b* = -0.25, *SE* = 0.11, *p* = 0.01, but a non-significant positive quadratic effect when daughters indicated low levels of parental warmth, *b* = 0.08, *SE* = 0.14, *p* = 0.53. None of the interactions in the model for sons were significant. Regarding child reports of rule-breaking behavior, the interaction terms between parent-reported and child-reported parental warmth at age 7 did not significantly predict age 10 child-reported rule-breaking behaviors. Parent-child (in)congruence in perceptions of parental warmth at age 7 did not predict significant changes in parent reports of child depressive symptoms or rule-breaking behaviors from ages 7 to 10.

Parental hostility

(In)congruent parent-child reports of parental hostility at age 7 did not significantly predict age 10 child-reported depressive symptoms. However, a linear interaction between parent-reported parental hostility and child-reported parental hostility predicted changes in child reports of rule-breaking behaviors from ages 7 to 10. Specifically, high levels of parent-reported parental hostility were associated with increases in child-reported rule-breaking behaviors when children indicated high levels of parental hostility, *b* = 0.08, *SE* = 0.07, *p* = 0.22, but were related to decreases in child rule-breaking behaviors when children reported low levels of parental hostility, *b* = -0.08, *SE* = 0.07, *p* = 0.196 (see Fig. 2). Although the simple slopes did not attain significance, congruent parent-child reports of high parental hostility at age 7 were associated with the highest levels of child rule-breaking behaviors at age 10, and the lowest levels of rule-breaking behaviors were observed when there was incongruence between low child reports of parental hostility and high parent reports of parental hostility. Among sons, the linear interaction between parent-reported and child-reported parental hostility predicted later child rule-breaking behaviors, *b* = 0.05, *SE* = 0.02, *p* = 0.007, and followed the same pattern as the total sample with parent-reported hostility predicting increased rule-breaking behaviors at

Table 3 Child and parent reports of perceived parental hostility at age 7 as predictors of changes in child and parent reports of child depressive symptoms and rule-breaking behaviors at age 10

Parameter	Child reports						Parent reports											
	Depressive symptoms			Rule-breaking behaviors			Depressive symptoms			Rule-breaking behaviors								
	<i>b</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>B</i>	<i>SE</i>	<i>p</i>							
Child IQ	-0.043	-0.195	0.016	0.008	-0.003	-0.015	0.019	0.863	-0.022	-0.101	0.015	0.140	-0.007	-0.030	0.015	0.669		
Child Eth/Race (Latinx = 1)	-0.111	-0.057	0.144	0.439	-0.217	-0.111	0.153	0.157	-0.260	-0.132	0.137	0.059	-0.111	-0.057	0.140	0.426		
Family SES	-0.010	0.040	0.019	0.605	0.033	0.137	0.020	0.093	-0.006	-0.025	0.018	0.735	-0.010	-0.041	0.017	0.568		
Prior child symptoms	0.155	0.158	0.071	0.030	0.323	0.331	0.106	0.002	0.337	0.342	0.075	<0.001	0.396	0.406	0.073	<0.001		
Child report	0.077	0.232	0.030	0.012	0.047	0.142	0.028	0.088	0.053	0.158	0.041	0.204	-0.001	-0.002	0.042	0.990		
Parent report	0.052	0.090	0.054	0.341	-0.001	-0.001	0.055	0.992	0.105	0.182	0.064	0.102	0.019	0.034	0.064	0.765		
Parent × Child	0.013	0.083	0.014	0.327	0.028	0.178	0.013	0.024	-0.010	-0.062	0.020	0.610	0.001	0.006	0.019	0.963		
Child report ²	0.001	0.011	0.008	0.911	-0.003	-0.032	0.008	0.748	0.014	0.176	0.013	0.261	-0.001	-0.014	0.013	0.930		
Parent report ²	-0.029	-0.180	0.015	0.054	-0.020	-0.129	0.013	0.113	-0.037	-0.234	0.033	0.259	-0.018	-0.115	0.033	0.586		
Parent × Child ²									0.005	0.236	0.004	0.203	0.002	0.068	0.004	0.706		
Parent ² × Child									-0.008	-0.281	0.005	0.081	<0.001	-0.007	0.005	0.966		
Child report ³									-0.003	0.250	0.002	0.256	0.002	0.178	0.002	0.425		
Parent report ³									0.007	0.279	0.006	0.228	0.001	0.036	0.006	0.877		
Model R ²	0.154, <i>p</i> = 0.001, <i>f</i>² = 0.182						0.253, <i>p</i> < 0.001, <i>f</i>² = 0.339						0.217, <i>p</i> = 0.004, <i>f</i>² = 0.217					

Eth/Race ethnicity/race, SES socioeconomic status

Bold values indicates statistical significant (*p* < 0.05) values

high levels of child-reported parental hostility, *b* = 0.20, *SE* = 0.12, *p* = 0.076, but decreased rule-breaking behaviors at low levels of child-reported parental hostility, *b* = -0.11, *SE* = 0.12, *p* = 0.33. None of the interactions in the model for daughters were significant. (In)congruent parent–child reports of parental hostility at age 7 did not significantly predict changes in parent reports of child depressive symptoms and rule-breaking behaviors from ages 7 to 10.

Discussion

This study built on prior evidence suggesting that incongruent parent–child reports of parental behaviors are associated with concurrent adjustment difficulties (e.g., Borelli et al. 2010), to examine whether this linkage persists longitudinally across middle childhood. Using the recommended polynomial regression approach for evaluating informant discrepancies (Edwards 1994; Laird and Weems 2011), and as summarized in Table 4, we found that (in)congruent parent–child perceptions of parental warmth predicted changes in child-reported depressive symptoms, but not rule-breaking behaviors, from ages 7 to 10, whereas (in)congruent parent–child perceptions of parental hostility predicted changes in child-reported rule-breaking behaviors, but not depressive symptoms. Moreover, relations between (in)congruent perceptions of parental warmth and child-reported depressive symptoms were particularly salient for daughters, whereas relations between (in)congruent perceptions of parental hostility and child-reported rule-breaking behaviors were particularly salient for sons. Interestingly, parent–child (in)congruence in perceptions of parental warmth and hostility were not significantly related to changes in parent reports of child depressive symptoms or rule-breaking behaviors across middle childhood. The obtained findings highlight the complexities and adaptive significance of parent–child differences in perceptions of parenting across middle childhood with regard to multiple adaptive domains.

In line with prior studies (e.g., Korelitz and Garber 2016), child and parent reports of parenting behaviors were only modestly related with no significant correlations between child and parent reports of parental warmth, but a positive association between child and parent reports of parental hostility. Children and parents may diverge in perceptions of parenting because each member of the dyad bases their ratings on different sources of available information. For example, children rely heavily on parenting practices that directly affect them or siblings, whereas parents can access additional elements of their parenting, such as their intentions, motivations, and deliberations. Moreover, relative to parental warmth, parental hostility may be more readily detected by social partners via overt verbal and

Fig. 1 Child reports of depressive symptoms as a function of child-reported and parent-reported parental warmth

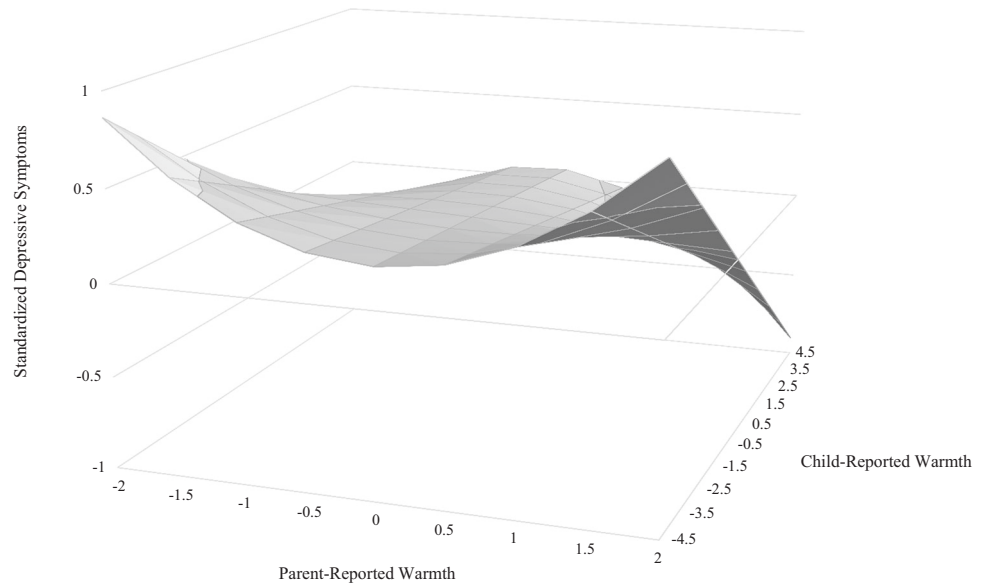
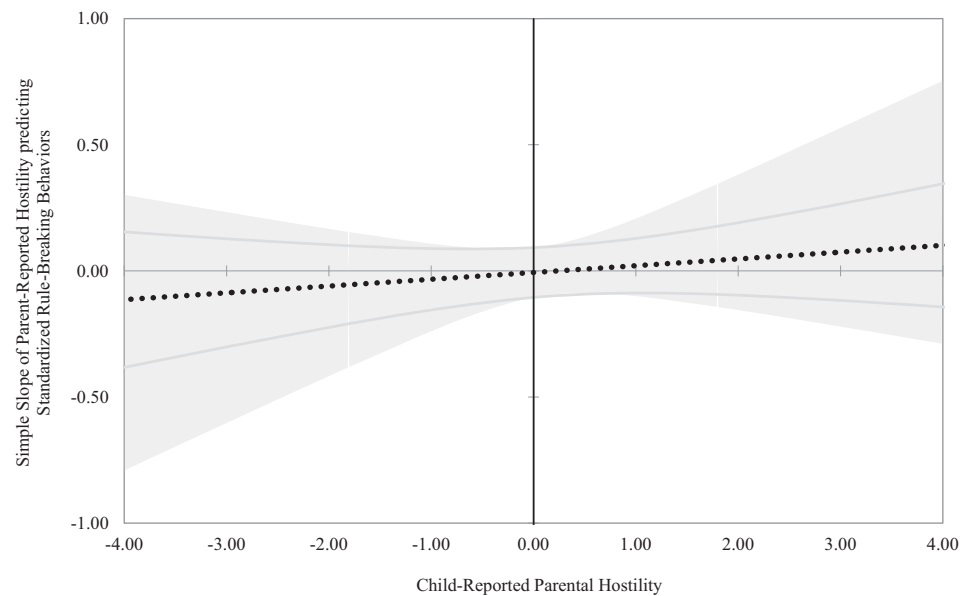


Fig. 2 Child reports of rule-breaking behaviors as a function of child-reported and parent-reported parental hostility



behavioral acts (e.g., the parent verbally reprimanding the child or displaying anger through behavioral intrusion), resulting in comparatively higher levels of parent–child congruence.

Interestingly, child and parent reports of child adjustment evidenced weaker associations than in prior studies, even more so than those suggested by prior meta-analytic studies (Achenbach et al. 1987; De Los Reyes et al. 2015; Korelitz and Garber 2016). As with perceptions of parenting, children and parents base their reports on child adjustment on different sources of information. For example, child reports capture children’s behaviors across a wide range of environments, whereas parent reports are limited to direct exchanges between the child and parent (as well as reports from other caregivers). In addition to differences in the

scope of behavior being rated, particularly modest parent–child concordance across reports of child adjustment outcomes in the current study may be attributed to our use of developmentally appropriate, but nevertheless distinct, measures of child depressive symptoms and rule-breaking behaviors, whereas prior studies have used developmentally adapted measures across child and parent reports of children’s behavioral and emotional problems (e.g., Thurber and Osborn 1993, used the Youth Self-Report and Child Behavior Checklist variants of Achenbach’s scales in a study of adolescents and parents). Children and parents may also bring different cognitive capacities or cognitive biases to the task at hand, such that children may be limited in their cognitive capacities to accurately evaluate their own adjustment difficulties, while parents may be tempted to

Table 4 Summary of study results

	Perceived warmth (child report)	Perceived warmth (parent report)	
		Low	High
Low		↑Depressive symptoms Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>	↑Depressive symptoms Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>
High		↓Depressive symptoms Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>	↓Depressive symptoms Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>
	Perceived hostility (child report)	Perceived hostility (parent report)	
		Low	High
Low		Depressive symptoms Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>	Depressive symptoms ↓Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>
High		Depressive symptoms Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>	Depressive symptoms ↑Rule-breaking behaviors <i>Depressive symptoms</i> <i>Rule-breaking behaviors</i>

Normal font reflects child reports of child adjustment outcomes. Italicized font reflects parent reports of child adjustment outcomes

report fewer child symptoms in accord with social desirability effects (e.g., De Los Reyes et al. 2015). Finally, congruence rates tend to be higher within clinical samples (e.g., Korelitz and Garber 2016), whereas the current investigation examined a community sample of families with relatively less extreme adjustment problems that may be open to greater (mis)interpretation across informants.

Compared to prior studies of (in)congruence in parenting perceptions (e.g., Borelli et al. 2010), and following recent effect size guidelines for examining individual differences (Gignac and Szodorai 2016), the size of (in)congruence effects on child adaptation in the current investigation were modest, but relatively comparable to past research. That said, despite the relatively modest magnitude of parent–child (in)congruence effects on children’s adaptation, the ubiquity of parent–child perceptual dynamics in all families, as well as their apparent contribution to child adjustment outcomes over and above prior adjustment in this study, magnify the practical impact of the obtained findings, particularly as relevant to elucidating sites for future therapeutic attention to optimize parent–child intervention efforts.

Consistent with our hypothesis and with prior cross-sectional findings regarding parent–adolescent (in)congruence in perceptions of parental acceptance (Laird and De Los Reyes 2013), rates of child depressive symptoms declined from ages to 7 to 10 when both children and parents reported high levels of parental warmth at age 7, but child depressive symptoms increased the most when both children and parents endorsed low parental warmth at age 7. These findings are consistent with the Converging

Operations within the Triad Operations Model (De Los Reyes et al. 2013), as well as with Minuchin’s (2002) family systems theory, both of which suggest that parent–child congruence is beneficial for child adjustment when there are consistent reports of high levels of a promotive factor (i.e., high parental warmth) in family functioning, whereas convergence on high levels a risk factor (i.e., low parental warmth) may reflect family disorganization, and increased risk for child psychopathology.

Interestingly, (in)congruent perceptions of parental warmth were uniquely related to changes in child reports of depressive symptoms, but not to child-reported rule-breaking behaviors. These findings align with research in adolescence, which supports a unique negative link between perceived parental warmth and youth-reported depressive symptoms, and between parental rejection and youth-reported aggressive problems (Sijtsema et al. 2014). Furthermore, these relations were significant for daughters, but not for sons. In the absence of prior longitudinal studies examining multiple facets of parenting and multiple domains of adaptation during middle childhood, further research is needed to ascertain whether these patterns reflect a unique association between parental warmth and depression and/or daughters’ heightened vulnerability for depressive symptoms (see Cicchetti and Toth 1998 for review; Twenge and Nolen-Hoeksema 2002).

Finally, in contrast to cross-sectional associations between parent–child incongruence and child adjustment problems (Borelli et al. 2010), parent–child patterns of (in)congruence in perceptions of parental warmth were not significantly related to *changes* in parent-reported child

adjustment outcomes across middle childhood. (In)congruence may be more strongly related to child, rather than parent, reports of adjustment for two reasons. First, children experience and report on their symptoms across varied settings, whereas parents report only on snapshots of what they have observed in the context of direct interactions with their child or what they have been told by other caregivers (e.g., teachers). Thus, robust relations between incongruence and child-reported outcomes may follow from the relatively greater validity of children's reports across ecological settings as compared to parent reports in more circumscribed settings. Second, it may be that parents who are not in tune with how their parental behaviors are experienced by their child also struggle to recognize their child's psychological problems. To test this interpretation, we conducted a post-hoc analysis using a mean split of the absolute difference scores between child and parent reports of parental warmth to indicate congruence versus incongruence. As expected, parent–child dyads who were congruent on parental warmth evidenced a positive correlation between child- and parent-reported depressive symptoms at age 10 ($r = 0.235$; $p = 0.015$), whereas incongruent dyads did not ($r = 0.131$, $p = 0.284$).

In contrast to perceptions of parental warmth, parent–child (in)congruence in perceptions of parental hostility predicted changes in child reports of rule-breaking behaviors, but not in depressive symptoms. As expected, congruent parent–child perceptions of parental hostility predicted increases in child rule-breaking behaviors across middle childhood. However, incongruent patterns wherein the parent reported high parental hostility, but child reported low parental hostility predicted decreased child-reported rule-breaking behaviors. Consistent with prior research pointing to higher levels of concurrent externalizing behavior as children's perceptions of parental aggression surpass those of their parents (Borelli et al. 2010), the current data showed that child reports of rule-breaking behaviors declined when the child's perception of hostility was lower than that of their parents, even more than when both child and parent reported low hostility. Again, given the dearth of research on parent–child incongruence, particularly within a longitudinal design, it is difficult to interpret the meaning of these findings. However, it may be that parents who report higher levels of hostility than their children are overly sensitive and/or hypercritical of their own behaviors and/or that children who report low levels of hostility in the context of high parent reports may have an overly optimistic view of the parent and the parent–child relationship that may be protective. In support of this latter interpretation, the self-enhancement bias suggests that inflated views of the self and self-other relationships may buffer individuals from negative adaptive outcomes (Ohan and Johnston 2011). Future research studies that include objective or

observational measures of parenting are needed to tease apart these competing interpretations of a self-recriminating parent and/or an overly positive child.

It is noteworthy that (in)congruent perceptions of parental hostility were uniquely related to child reports of rule-breaking behaviors, but not to depressive symptoms. Likewise, these relations were significant for sons, but not daughters. Prior research with both child and adolescent samples has tended to focus on one specific aspect of parenting and/or on one particular facet of adaptation, which occludes the potential specificity of relations revealed in this study. The current patterns are consistent with social information processing theory (Crick and Dodge 1996), which suggests that harsh parenting confers elevated risk for children's later aggressive behavior, but not for internalizing problems (Weiss et al. 1992). Likewise, sons may be more likely than daughters to display heightened rule-breaking behaviors in the wake of parental hostility because sons may be particularly sensitive to dominance cues as compared to daughters (see Crick and Zahn-Waxler 2003; Zahn-Waxler et al. 2008, for reviews).

As with perceptions of warmth and parent-reports of child adjustment outcomes, (in)congruence in perceptions of parental hostility did not predict significant changes in parent reports of child depressive symptoms or rule-breaking behaviors across middle childhood. As mentioned earlier, findings with child-reported adjustment outcomes may be more robust than with parent-reported outcomes given their differential access to varied contexts of observation and/or parents who are less attuned to their child's experiences may not accurately recognize their child's behavior problems. Here again, a post-hoc analysis using the mean split of the absolute difference scores between child and parent reports of parental hostility to identify congruent versus incongruent dyads indicated that parent–child dyads who were congruent on parental hostility evidenced a positive association between child and parent reports of rule-breaking at age 10 ($r = 0.279$, $p = 0.003$), but incongruent dyads did not ($r = 0.109$, $p = 0.374$).

This longitudinal, multi-informant study elucidated prospective relations of parent–child (in)congruence in perceptions of both positive and negative parenting practices with changes in both child and parent reports of children's depressive symptoms and rule-breaking behaviors across middle childhood. Despite the strengths conferred by drawing on a large, longitudinal study using advanced analytic procedures to account for individual informant reports in reference to multiple parenting practices and adaptive outcomes, a number of limitations must be considered when interpreting the current findings.

First, although our results are consistent with prior studies that have documented prospective links between

parent–adolescent discrepancies and youth outcomes (De Los Reyes et al. 2010; Guion et al. 2009; Human et al. 2016), additional waves and measures are needed to model the likely reciprocal relations between (in)congruence and adjustment fully. In particular, given known relations between depression and negative cognitive biases (Rude et al. 2003), children’s depressive symptoms may have influenced their reports of parent–child relationship quality, as well as of child adjustment problems. Although our capacity to control for prior symptomatology offered some support for the directionality of the obtained findings, bidirectional processes likely remained wherein children at risk for developing socioemotional problems may have distorted biases. Future research using cross-lagged research designs are needed to capture these reciprocal effects fully.

Second, although our consideration of both child- and parent-reported child adjustment outcomes represents an advantage over single informant reports, using child and parent reports to assess both predictor and outcome variables may have contributed to criterion contamination in this study (see De Los Reyes et al. 2015; Garb 2003 for discussion). Thus, the significant changes in child depressive symptoms and rule-breaking behaviors in the current study may have been influenced by individual characteristics that were not related to child and parent perceptions of parenting. For example, children’s relationship quality with peers, rather than their relationship with parents, may have influenced child ratings of depressive symptoms and rule-breaking behaviors in ways that could not be assessed in the current study. Clinician or observer ratings of parental behaviors and/or children’s socioemotional functioning may reduce this concern in future studies (Kraemer et al. 2003).

Third, the current study focused exclusively on mothers, even though fathers and fathering are important influences on child development (e.g., Ryan et al. 2006). For example, Gaylord et al. (2003) found that absolute differences in fathers’ and children’s reports of paternal control were positively associated with concurrent teacher reports of child internalizing behavior. Although studies have shown that rates of parent–child (in)congruence are comparable across mothers and fathers (Korelitz and Garber 2016), the degree to which the developmental effects of (in)congruent perceptions may vary between mother–child and father–child dyads remains an open question that could not be examined in the current study.

Finally, future studies are needed to evaluate specific developmental processes (e.g., parent–child communication, expectations, conflicts) that may account for the relations obtained in this and other studies. For example, parent–child incongruence may exacerbate or reflect family conflict, which, in turn, may fuel child behavior problems. Likewise, although the current study offered a unique examination of both positive and negative parenting facets,

additional parenting practices warrant consideration in middle childhood. For example, some research suggests that discrepancies in perceptions of parental control and discipline are associated with concurrent elevations in child internalizing and externalizing problems (Gaylord et al. 2003).

Our findings document the enduring adaptive significance of (in)congruence in perceptions of the parent–child relationship and illuminate several key directions for future research and practice. First, we illustrate how polynomial regression analysis offers a rigorous, comprehensive tool to examine children’s and parents’ (in)congruent views of multifaceted parenting practices and child adaptive outcomes while controlling for individual informant effects and evaluating nonlinear associations. Second, our prospective design in concert with prior controls for child adjustment demonstrates that (in)congruent perceptions of parenting have important implications, not only for understanding children’s concurrent adjustment as shown in prior work (e.g., Borelli et al. 2010), but also for identifying children who may be at risk for psychopathology over time. Third, the specific nature of incongruence (e.g., with respect to positive versus negative parenting practices) may have distinct implications for understanding children’s adaptation in specific domains (e.g., depressive symptoms versus rule-breaking behaviors). Fourth, these obtained relations varied by child gender, such that daughters appeared particularly sensitive to perceptual differences in parental warmth as related to later depressive symptoms, whereas sons appeared particularly sensitive to perceptual difference in parental hostility as related to later rule-breaking behaviors. Finally, the current findings support the special significance of child-reported adjustment outcome data for understanding the adaptive implications of parent–child (in)congruence in perceptions of parenting while highlighting the need for future studies using objective observer or clinician ratings of child adjustment outcomes.

Perceptions of the parent, child, and parent–child relationship have long been emphasized in clinical practice with children and families. However, relatively less consideration has been given to the potential role of parent–child (in)congruence in such perceptions for understanding child adaptation. The present study suggests that clinicians should consider the direction and form of parent–child (in)congruence as a tool for risk identification and treatment evaluation. Although parent–child disagreement has been identified as a dilemma for clinicians seeking to identify target issues for treatment (Hawley and Weisz 2003), this study suggests these discrepancies may also provide clinically meaningful information and therapeutic direction. Specifically, given the positive effects of convergence on high levels of promotive factors, such as parental warmth,

interventions should seek to maximize family members' awareness of experiences and agreement in perceptions of parental warmth to decrease child depressive symptoms, especially for daughters. Similarly, given the negative effects of convergence on high levels of risk factors, such as parental hostility, interventions should aim to reduce expressions and perceptions of parental hostility to decrease child rule-breaking behaviors, particularly for sons. Finally, joining extant efforts to improve parents' perceptions of their children's motivations and intentions (Lieberman et al. 2000), this investigation emphasizes the likely benefit of helping children to appreciate their parents' intentions and behaviors accurately and objectively. How children and parents (mis)perceive parenting and the parent–child relationship has significant implications for children's adaptation in multiple domains, perhaps as result of the family processes (e.g., cohesion, communication) that undergird such (in)congruence. This study illustrated the application of polynomial regression as an empirical tool and the Triad Operations Model as a theoretical framework for harnessing these implications in future research and practice for the benefit of all children and families.

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Author Contributions D.T.T. identified the research question, conducted the analyses, and drafted the manuscript; T.M.Y. oversaw the design and execution of the larger study, assisted with conceptualizing the research question, and collaborated in editing and preparing the manuscript.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee, as well as with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. All procedures in this study received approval from the Institutional Review Board of the University of California, Riverside.

Informed Consent Informed consent and assent were obtained from adult and child participants in this study, respectively.

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