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Perceived Parent–Child Relations, Conduct Problems, and Clinical Improvement Following the Treatment of Oppositional Defiant Disorder

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Abstract

Our objective in this study was to examine the moderating influence of parent-child relationship quality (as viewed by the child) on associations between conduct problems and treatment responses for children with oppositional defiant disorder (ODD). To date, few studies have considered children's perceptions of relationship quality with parents in clinical contexts even though extant studies show the importance of this factor in children's behavioral adjustment in non-clinical settings. In this study, 123 children (ages 7 – 14 years, 61.8% male, 83.7% white) who fulfilled DSM-IV criteria for ODD received one of two psychosocial treatments: Parent Management Training or Collaborative & Proactive Solutions. In an earlier study, both treatments were found to be effective and equivalent in treatment outcomes (Ollendick et al., in press). In the current study, pre-treatment maternal reports of conduct problems and pre-treatment child reports of relations with parents were used to predict outcomes in ODD symptoms and their severity following treatment. Elevated reports of children's conduct problems were associated with attenuated reductions in both ODD symptoms and their severity. Perceived relationship quality with parents moderated the ties between conduct problems and outcomes in ODD severity but not the number of symptoms. Mother reports of elevated conduct problems predicted attenuated treatment response only when children viewed relationship quality with their parents as poorer. When children viewed the relationship as higher quality, they did not show an attenuated treatment response, regardless of reported conduct problems. The current findings underscore the importance of children's perspectives in treatment response and reductions in externalizing child behaviors.

Keywords

Oppositional Defiant Disorder; Parent-Child Relationships; Antisocial Behavior

Introduction

Children with conduct problems engage in a broad array of problem behaviors ranging from defiance to physical aggression and stealing (Murrihy, Kidman, & Ollendick, 2010). Taken together, these behaviors are the most frequent bases for referrals to mental health clinics and residential treatment centers for children and are of great concern because they involve a high degree of impairment, may persist over time, and are associated with negative life outcomes. Children with conduct problems typically meet Diagnostic and Statistical Manual (DSM-IV, DSM-5; American Psychiatric Association, 1994, 2013) criteria for Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD). Although these disorders are viewed as separate in the DSM system, it is common for youth meeting diagnostic criteria for ODD to exhibit some of the behaviors characterizing CD (Rhodes & Dadds, 2010). Though the behaviors comprising ODD (e.g., defiance, argumentativeness, noncompliance) have been found to predict a variety of adverse outcomes independently of CD (Greene, Biederman, Zerwas, Monetaux, & Faraone, 2002), these behaviors are thought to represent the less severe end of the conduct problems spectrum compared with the behaviors characterizing CD (e.g., physical aggression, lying, stealing). In addition, the behaviors comprising ODD tend to occur earlier in development and, in some instances, serve as a precursor to the onset of the more severe behaviors comprising CD (Kimonis & Frick, 2010).

Irrespective of the specific diagnosis, conduct problems in children can negatively impact children's relationships with parents and peers, both concurrently (Epstein & Saltzman-Benaiah, 2010; Wolke & Samara, 2004) and predictively (Burt, McGue, Krueger, & Iacono, 2005; Dodge et al., 2003). Children with conduct problems generally display more hostile relations and negative forms of communication in their interactions with their parents (Edwards et al., 2001). Further, these children are more likely to misperceive social situations as threatening (Crick & Dodge, 1996) and are at risk for concurrent and long-term peer conflict and rejection, which may exacerbate later aggression and hostility (Dodge et al., 2003). In addition, children who display conduct problems are at greater risk for emotional maladjustment and poorer well-being, including comorbidity with other psychological disorders (e.g., anxiety, depression, substance use; Angold, Costello, & Erkanli, 1999; Greene et al., 2002) and difficulties with emotional instability and reactivity (e.g., Stringaris, Maughan, & Goodman, 2010). These behaviors can also coincide with stunted skills or callous and unemotional traits (Frick & Ellis, 1999) and predict poorer long-term outcomes (Fergusson, Horwood, & Ridder, 2005; Frick, Cornell, Barry, Bodin, & Dane, 2003; Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005), particularly when coupled with ineffective parenting strategies (Wootton, Frick, Shelton, & Silverthorn, 1997). As such, conduct problems are often associated with continued and ongoing externalizing problems over time (Frick & Loney, 1999; Frick et al., 2003; Frick et al., 2005).

Family relationships marked by hostility and conflict are common for many children with conduct problems (e.g., Edwards et al., 2001; Wootton et al., 1997), though some children, to the surprise of their parents and clinicians, view the relationship with their parents in a positive light. Such patterns were found in Edens, Cavell, and Hughes' (1999) comparisons of referred children's reports of relationship quality with reports from close partners (peers, teachers, parents) with whom the children were interacting. Although reports of relationship

quality by many of these children matched those of their relationship partner, approximately one-third of children held discrepant views of relationship quality that were notably more positive than the views of their interaction partners. These children were also more aggressive than other referred youth.

It should be noted that such discrepancies in views of the self and others are not unique to oppositional children. Concepts of the self and one's relationships are partly grounded in how individuals believe others perceive and will interact with them (Cooley, 1902; Mead, 1934) and it is not uncommon to see moderate-to-large discrepancies between individuals and observers of varying intimacy levels (i.e., friends, parents, teachers, strangers, independent raters; e.g., Rapee & Lim, 1992; Shrauger & Schoeneman, 1979; South, Oltmanns, Johnson, & Turkeimer, 2011). Furthermore, with typically developing youth, perceptions of positive relationships with parents are related to self-reports of adjustment, academic competence, and behavioral conduct (Laursen & Mooney, 2008).

Hence, we believe it is valuable to consider children's perceptions of relationship quality with their parents to address an understudied perspective among clinical samples and further understand implications for treatment. Although multiple treatments already aim to improve interaction styles between parents and their children (e.g., Barkley, 1997; Greene, 1998; Reid, Webster-Stratton, & Hammond, 2003; Urquiza & Timmer, 2012), these studies frequently examine parental reports of stress due to children's dysfunctional behaviors or perceptions of parenting efficacy (e.g., Nixon, Sweeney, Erickson, & Touyz, 2003), leaving a gap in the views of treated children. We sought to address this gap by considering the direct and moderating roles of children's views regarding the parent-child relationship on treatment response for treated oppositional children.

This study aimed to address whether reports of children's conduct problems and perceived parent-child relationship quality (as reported by youth) predicted improvements in ODD symptoms and whether the effect of conduct problems on treatment response was moderated by children's perceptions of relationship quality with parents. To address these aims, we conducted a re-analysis of youth meeting full DSM-IV (APA, 2004) criteria for ODD (Ollendick et al., in press). These children did not meet clinical criteria for conduct disorder, though nearly all showed subclinical CD problems. Youth received one of two psychosocial treatments: Parent Management Training (PMT, Barkley, 1997) or Collaborative & Proactive Solutions (CPS, Greene, 1998). Previous research has documented the efficacy of PMT (see Brestan & Eyberg, 1998; Eyberg, Nelson, & Boggs, 2008), which focuses on improved child compliance as the primary treatment goal. Based on research pointing toward lagging cognitive skills as a major factor contributing to challenging behaviors in youth, Greene proposed CPS as an alternative model to PMT for the treatment of ODD, focusing on helping parents and children learn to solve problems collaboratively and proactively (Greene, 1998, 2010).

We expected children with elevated initial conduct problems to show greater stability of ODD symptoms and an attenuated treatment response. We also expected children who had more positive views of the relationship with their parents to show greater responses to treatment through decreases in ODD severity and symptom count. Because both treatment

conditions rely heavily on guidance from and cooperation with parents, we expected children's positive views of the relationship with their parents to elevate their receptivity across both treatments. Lastly, we hypothesized perceived relations with parents would moderate the effect of reported conduct problems. We expected that when children saw their relationship with parents as poorer, higher levels of conduct problems would negatively impact treatment response, whereas when children saw their relationship with parents as more positive, conduct problems would not be associated with treatment responses. In other words, children's perceptions of more positive relations with parents might buffer them from the negative impact of conduct problems on treatment response.

Method

Participants

Participating families included parents and children who entered a larger study providing treatment for children's oppositional problems (Ollendick et al., in press). Families were referred by school personnel, mental health professionals, and family physicians. Families were also recruited through local advertisements in newspapers and television programs. Parents with children who were likely eligible for participation based on a phone screen ($n = 164$) received additional information regarding the study intent and procedures. Parents and children then completed an initial assessment to confirm the ODD diagnosis and determine secondary and tertiary diagnoses. Parents and children provided written informed consent and assent, as approved by the Institutional Review Board at our university. Children between 7 to 14 years of age who met full diagnostic criteria for ODD were included in the study. Nearly all (99%) participating children presented with one secondary disorder, and a majority (83%) presented with a tertiary disorder (see below).

Children were excluded from further participation if they met diagnostic criteria for disorders such as CD, autism spectrum disorder, a psychotic disorder, intellectual impairment, or current suicidal or homicidal ideation. Overall, 134 of the 164 children met criteria for further participation. However, 11 children were placed on a waitlist and did not follow the treatment procedures described below. These children were excluded from current considerations, leaving a final sample of 123 treated children (76 boys, 47 girls, $M = 9.56$ years, $SD = 1.81$). The most common comorbid disorders were ADHD (68%) and an anxiety disorder (56%), as defined by generalized anxiety disorder, social anxiety, or separation anxiety. No differences in age, gender, race, family structure, parental education, family income, or comorbid conditions were observed between the two treatment conditions (Ollendick et al., in press).

Procedure

Children and parents initially participated in two pre-treatment assessment sessions. Due to limited participation by fathers, only mother and child reports were considered further. Following pre-treatment assessments, families were randomly assigned to one of the two treatment groups described above. Each treatment was designed for 12 weekly 75-minute sessions. The two treatment programs are further detailed by Ollendick and colleagues (in press).

Children and parents participated in a post-treatment assessment 1–2 weeks after completion of the final treatment session. Families were reimbursed \$50 for participation in the pre- and post-treatment assessments (for a total of \$100). At each assessment, parents and children completed questionnaires and clinicians blinded to treatment status provided global assessments of children's functioning and adjustment.

Attrition—Following the pre-treatment assessment, 63 participants were randomly assigned to PMT and 60 to CPS. Over the course of treatment, 13 participants dropped out of PMT (20.6%) and 15 participants dropped out of CPS (25.0%). Treatment dropout out was defined as completing 6 or fewer of the 12 treatment sessions. From the end of treatment to the post-treatment assessment, an additional 4 participants from the PMT condition and 4 participants from the CPS condition became unavailable for post-treatment assessment due to a variety of complications (e.g., time constraints, moved from area, not interested).

Measures

Child conduct problems—Mothers completed the Behavior Assessment System for Children-2nd Edition (BASC-2; Reynolds & Kamphaus, 2000) at pre-treatment. Mothers' reports on the 17-item *Conduct Problems* subscale (sample items, "Breaks the rules just to see what will happen", "Lies to get out of trouble," "Steals") were examined. The items on this subscale reflect symptoms pertinent to both ODD and CD, and are completed on a 4-point Likert scale (0 = *Never*, 3 = *Always*). While associated with ODD, these conduct problems differ from the predominantly reactive problem behaviors frequently associated with ODD in that children who receive high scores on this subscale tend to use these behaviors to achieve negative goals, be emotionally callous, and incorporate lying and manipulation in their relationships (e.g., White, Jarrett, & Ollendick, 2013; Wolke, Woods, Bloomfield, & Karstadt, 2000; Woodworth & Waschbusch, 2007). The subscale is *T*-scored. Within this clinical sample there were minimal threats to normality (skewness = $-.21$ (.23); kurtosis = $-.44$ (.45)). A majority of responses (49.1%) indicated clinically-significant levels of conduct problems (> 70), whereas smaller portions of responses indicated at-risk (60 – 69; 28.2%) and average (41 – 59; 22.7%) levels of conduct problems. BASC rating scales have been endorsed as evidence-based instruments for assessment of conduct problems and for monitoring and evaluation of treatment outcomes (Frick & McMahon, 2008; Kamphaus & Frick, 2005). Internal consistency of this scale was acceptable ($\alpha = .84$) in the current sample.

Child disruptive behaviors—Mothers also completed the Disruptive Behavior Disorders Rating Scale (DBDRS; Pelham, Gnagy, Greensalde, & Milich, 1992) at pre- and post-treatment assessments. This scale includes the DSM-IV symptom list for ODD. Items were completed on a 4-point Likert scale ranging from 0 (not at all) to 3 (very much) for symptom occurrence. For the eight ODD symptoms, ratings of a "2" (much) or "3" (very much) were treated as meeting criteria for the symptom (see Barkley, 1997). Total scores for the ODD inventory range from 0 – 8, and a score of 4 or above indicates clinical levels of ODD. Internal consistency was acceptable at each assessment ($\alpha = .90$) in the current study.

Child perceived relationship quality with parents—Children completed the child version of the BASC (Reynolds & Kamphaus, 2000) at pre-treatment. For the present study, we examined the 11-item *Relations with Parents* subscale. This subscale considers children's views of positive behavior and relationship quality with their parents (sample items, "I like to be close with my parents", "I get along well with my parents," "My parents trust me"). Items were completed on a 4-point Likert scale (0 = *Never*, 3 = *Always*). This scale was *T*-scored. Within this clinical sample there were minimal threats to normality (skewness = .32 (.23); kurtosis = −.47 (.46)). Children reported a range of responses, with 16.7% of children reporting considerably low (< 30) levels of relations with parents, 29.8% reporting at-risk (31 – 40) levels of relations with parents, 48.2% reporting average (41 – 59) levels of relations with parents, and 5.5% reporting high (> 60) relations with parents (5.3%). When children required assistance in reading/completing items, the assessor read items aloud and marked child responses. Internal consistency of this scale in the current study was acceptable ($\alpha = .85$). The Relations with Parents subscale has been shown to be related to other adaptive reports of well-being among youth (e.g., Gilman, Huebner, & Laughlin, 2000).

Child ODD severity—The *Anxiety Disorders Interview Schedule, Child and Parent Versions* (ADIS-C/P; Silverman & Albano, 1996) are semi-structured diagnostic interviews for a number of psychiatric disorders that occur in childhood and adolescence. Clinicians were trained for administration of the ADIS-C/P through a 3-hour workshop, two practice interviews with a trainer, and two live observations by supervising administrators (blinded for review). All clinicians were graduate students in clinical psychology in an APA-approved clinical scientist doctoral program or postdoctoral fellows who were trained to requisite levels of competence to ensure reliability and validity of collected data. Separate clinicians met with parents and children to administer appropriate interviews at pre-treatment and post-treatment assessments. During interviews, clinicians assessed symptom characteristics of frequency, intensity, duration, and interference rating. Assessment clinicians were blinded to treatment condition.

These symptom ratings were used to identify diagnostic criteria and form a clinician's severity rating (CSR) with a CSR of 4 or greater (on a 0 to 8 scale) indicating clinical diagnosis. For the ADIS-C/P, CD and ODD are assessed only in the parent interview. The ADIS-C/P has been found to be reliable and valid for the diagnosis of ODD, in addition to the anxiety and affective disorders (Anderson & Ollendick, 2012). Agreement between clinicians regarding children's primary, secondary, and tertiary diagnoses were $\kappa = .77$, .85, and .86 respectively ($\kappa = .89$ for diagnoses of ODD).

Following each assessment, consensus diagnoses were formed based on the outcomes of the ADIS-C and ADIS-P. These diagnoses were formed during weekly staff meetings involving the two ADIS clinicians and a supervising doctoral-level clinical psychologist. Both the parent and child clinician provided a report of their assessment observations and justification for suggested diagnostic codes. Discrepancies were resolved through a dialogue overseen by the supervising doctoral-level clinical psychologist.

Data Analyses

T-tests and Little's test addressed whether families who dropped out differed on study variables and whether data was missing completely at random, respectively. *T*-tests also addressed whether retained children showed significant changes in ODD symptoms from pre- to post-treatment and whether these changes were significantly different between treatments. Bivariate and partial correlations indicated the direct associations between study variables before and after accounting for pre-treatment reports of ODD symptoms. Pre-treatment reports were controlled to account for the fact that individuals varied in their "starting points" of ODD symptomatology and the severity associated with their symptoms. This strategy is suggested by Vickers and Altman (2001) to control for pretreatment measures when assessing treatment outcomes.

Stepwise hierarchical regressions tested for two-way interactions between children's conduct problems and children's perceived relationship quality with parents, using both ordinary least squares and then full information maximum likelihood (FIML) estimation. Regressions were conducted in three steps: demographic factors, pre-treatment scores, and treatment type (CPS, PMT) were entered on the first step; main effects of conduct problems and perceived relationship quality were entered on the second step; and the interaction term between conduct problems and relationship quality was entered on the third step. Variables were centered to control for possible collinearity in forming the interaction term. FIML was used to address missing data in regression models and is appropriate when data is missing completely at random. This approach does not impute missing data, but provides estimates based on all available model data (Arbuckle, 1996). FIML has been shown to provide minimally biased results that are comparable to other popular missing data techniques, such as estimation maximization and multiple imputation strategies (Enders & Bandalos, 2001; Olinski, Chen, & Harlow, 2003). The *lavaan* latent variable modeling program was used for FIML-based regression models (Rosseel, 2012). Results between ordinary least squares and FIML approaches were comparable and FIML results were shown below. For significant moderation effects, simple slopes were calculated and a region of significance was determined (see Preacher, Curran, & Bauer, 2006).

Results

See Table 1 for descriptive statistics and the original counts available for each variable. No differences were noted between retained families and those who dropped out before completing treatment (all *ps* > .097). Using Little's test, there was no evidence of study variables being disproportionately associated with missing data ($\chi^2(102) = 108.03, p = .322$).

In considering mean-level change in treatment outcomes, both ODD symptom count (*M* reduction = 2.85, *t*(67) = 8.01, *p* < .001) and ODD severity (*M* reduction = 2.15, *t*(74) = 8.87, *p* < .001) significantly and equivalently decreased following both treatments.

See Table 2 for bivariate correlations and for partial correlations regarding post-treatment outcomes, controlling for pre-treatment reports of ODD symptoms and severity, respectively. For child reports of perceived relationship quality with parents and mother reports of child's conduct problems there were small to moderate correlations with clinical outcomes; all were

in the expected directions. These effect sizes suggest that items such as reported conduct problems were expectedly related to, but not heavily overlapping with, other indices of ODD. In partial correlations, maternal reports of conduct problems were associated with greater resultant ODD symptoms ($r = .37, p = .002$) and severity ($r = .27, p = .024$), whereas child reports of perceived relationship quality with parents showed a trend toward lower ODD symptoms ($r = -.23, p = .071$) and was associated with significantly lower resultant ODD severity ($r = -.27, p = .024$).

Regressions concerning change in mother-reported ODD symptoms were tested first. See Table 3. At Step 1, boys had greater reductions in ODD symptoms than girls (Beta = -1.37 , S.E. = $.64, p = .034$) and children who were initially reported to have more ODD symptoms at pre-treatment showed greater reductions in symptoms (Beta = $.89$, S.E. = $.18, p < .001$). Treatment type did not contribute significantly. At Step 2, conduct problems significantly predicted attenuated reductions in ODD symptoms (Beta = $-.08$, S.E. = $.03, p = .010$), whereas perceived relationship quality with parents showed a near-significant trend for greater reductions in ODD symptoms (Beta = $.05$, S.E. = $.03, p = .052$). At Step 3, the interaction term did not account for significant variance ($R^2 = .004$, Beta = $.002$, S.E. = $.002, p = .517$).

Regressions concerning change in clinician-reported ODD severity were then tested. See Table 4. At Step 1, pre-treatment ODD severity significantly predicted greater reductions in ODD severity (Beta = $.72$, S.E. = $.24, p = .003$), but the other variables including treatment type did not. At Step 2, conduct problems significantly predicted smaller reductions in ODD severity (Beta = $-.04$, S.E. = $.02, p = .042$) and perceived relationship quality with parents showed a near-significant trend for greater reductions in ODD severity (Beta = $.04$, S.E. = $.02, p = .068$). At Step 3, the interaction between positive relations with parents and conduct problems accounted for significant variance ($R^2 = .07$, Beta = $.004$, S.E. = $.002, p = .020$). When relationships with parents were viewed as being more positive, children showed greater reductions in ODD severity, across levels of conduct problems. When the relationship with parents was viewed as being more negative, children showed smaller reductions in ODD severity as conduct problems became more elevated. See Figure 1 for the simple slopes of this interaction. Confidence bands were calculated to determine simple slope regions of significance across conditional values of perceived relations with parents when ODD severity was regressed on the focal predictor of conduct problems (Bauer & Curran, 2005; Preacher, Curran, & Bauer, 2006). The region of significance indicated that when mean-centered values for perceived relations with parents were below 0.62, confidence bands for simple slopes for associations between conduct problems and reductions in ODD severity did not include zero and the simple slopes were significant at the $\alpha = .05$ level. When mean-centered values for perceived relations with parents were equal to or greater than 0.62, simple slopes for relations between conduct problems and reductions in ODD severity were non-significant.

Discussion

Findings partially support our hypotheses regarding the main effects of conduct problems and children's perceptions of the parent-child relationship on ODD treatment response, and

the moderating role of perceived parent-child relations on impacts of conduct problems. Consistent with our earlier findings (Ollendick et al., in press), CPS and PMT were equally effective and did not contribute to the differential prediction of treatment response. On the other hand, mother reports of conduct problems at pre-treatment were associated with poorer treatment response and a smaller decrease in ODD symptoms (as reported by mothers) and ODD severity (as determined by blinded clinicians). In addition, child reports of relationship quality with parents showed trends of greater reductions in ODD symptoms following treatment. An interaction effect was observed between these variables on reductions of ODD severity. When children reported better relations with their parents, conduct problems did not attenuate treatment response; hence, they showed similarly robust symptom severity improvement regardless of the level of conduct problems. In contrast, when children reported poorer relations with their parents, they failed to show improvements in ODD severity when pre-treatment conduct problems were higher. This moderation effect was not significant for mother-reported improvements in ODD symptoms.

The perception of relationship quality with parents has been understudied among youth with ODD. Yet, with community samples, positive behaviors between parents and children (e.g., warmth and limited instances of conflict) and children's perceptions of high-quality relationships with parents are associated with academic performance and adjustment (Ingoldsby et al., 2006; Laursen & Mooney, 2008). As noted earlier, in our sample, only 16.7% of children were in the severe range for poor parent-child relations on the BASC (*T*-score of 30 or below) and an additional 29.8% (*T*-score of 31 – 40) were in the borderline range. Thus, slightly more than half (53.5%) of our children viewed their relationships with parents as average or of high-quality prior to commencement of treatment. Thus, a considerable number of children reported positive relations with their parents even though they were exhibiting argumentative, negativistic, and oppositional behaviors. It is possible that at least some children's perceptions of relations with their parents were inflated, as some research suggests that boys with ODD report overly positive self-concept (Hoza, Pelham, Dobbs, Owens, & Pillow, 2002) and other findings have shown discrepancies in how some aggressive youth and their parents perceive the parent-child relationship (Edens et al., 1999). Even if this were the case in the current study, there was a trend for reports of parent-child relations to predict better treatment response from a third-party, the clinician. Because children's perceptions of high-quality relationships with parents may compensate for other poorer-quality relationships (e.g., siblings; van Aken & Asendorpf, 1997), improving perceptions of the parent-child relationship might not only benefit symptom reduction but might also enhance development of positive social skills.

In terms of clinical relevance, these findings suggest that treatment of ODD behaviors is more difficult when the initial relationship between child and parent is viewed negatively by oppositional children. This appears to be the case independent of treatment type, at least for the two treatments examined in the current study. The impact of positive relations between oppositional children and their parents can be explained in various ways, depending on one's perspective on oppositional behavior. It is possible that, in spite of problematic ODD behaviors, some family members are able to maintain relatively positive relations with each other. In other words, oppositional behavior does not define the totality of interactions between children diagnosed with ODD and their parents, and conflictual interactions may be

confined to certain specific demands and expectations. Thus, one possible interpretation of the current findings is that treatment is more difficult when parent-child conflict has come to color a higher number of parent-child interactions, or at least when such conflict has come to color perceptions of the parent-child relationship. By this reasoning, positive parent-child relations facilitate children's compliance with adult directives (as is involved in PMT) and adult-child collaboration in solving problems (as is involved in CPS). These are more likely to be families which exhibit warmth and better emotion regulation across interactions (Beauchaine et al., 2005; Eisenberg et al., 2005).

It is also possible that children's concepts of their relationships with parents and other family members are particularly salient aspects of their self-views which direct thoughts, feelings, and goals when interacting with the family, and that these self-views are grounded in more secure and optimistic outlooks. These views of the relationship, just as with other concepts of the self and one's standing in the social world, may then direct ongoing interactions with the world and continue to be shaped by experiences across relationships and settings (Andersen & Chen, 2002; Tesser, 2002). For oppositional children in treatment, viewing the relationship with parents as something worth maintaining and improving further may encourage greater cooperation and collaboration during and after treatment, enhancing investment and willingness to follow instructions or work with parents when distressed. For oppositional children who do not initially hold the relationship with parents in high regard, investment in treatment may, initially at least, be lower. However, given the potential malleability of the parent-child relationship (Scott, Briskman, & O'Connor, 2014; Silver, Measelle, Armstrong, & Essex, 2010; Webster-Stratton, Reid, & Hammond, 2004), and the emphasis of relationship improvement among many clinical treatments, it is possible that these children would continue to see more value and quality in their relationships over time, and eventually invest more effort in incorporating treatment techniques. Finally, in transactional terms, it is possible that ODD behaviors are the byproduct of pre-existing difficulties that could hinder relations between parent and child (e.g., biological factors contributing to reactivity or risk-taking, mean testosterone levels, neuroanatomical functioning) as well as difficulties in other social domains that impact routine family dynamics (e.g., peer rejection; see Burke, Loeher, & Birmaher, 2000; Greene & Ollendick, 2000). With each of these possibilities, the parent-child relationship remains an important consideration, with implications for family cooperation and treatment response in both PMT and CPS treatment approaches.

Our findings also emphasize the importance of assessing broader conduct problems among oppositional youth. Research has historically linked ODD and CD; moreover, children who exhibit the behaviors associated with ODD are at increased risk for the behaviors characterizing CD (Biederman et al., 1996; Maughan et al., 2004). For our sample, although none of the children met full criteria for CD, mothers typically reported that their children displayed clinical levels of conduct-related problems on the BASC (*T*-score = 70). As noted above, these conduct problems differ from the predominantly reactive problems frequently associated with ODD, and often reflect forethought and intentional manipulation of others in the achievement of relationship goals (e.g., White et al., 2013; Wolke et al., 2000; Woodworth & Waschbusch, 2007). Although children with oppositional and conduct problems may be particularly difficult to treat, they may be more engaged in and responsive

to treatments if they value their relationships with their parents and believe their parents value them as well (Pasalich et al., 2012).

The current study possesses several weaknesses. First, the correlational nature of our study precludes making causal inferences. Second, a major limitation concerns the extent of family dropout during treatment or before the post-treatment assessment. Although lower than the approximately 50% attrition rates in many treatment studies of ODD or CD (Kazdin, 2005; Murrihy et al., 2010), our dropout rate was still about 25%. We used full information maximum likelihood to incorporate all available data and reduce the impact of attrition. Other weaknesses include our largely middle-class, Caucasian sample of children and the lack of longer-term follow-up on intervention effects. In addition, we recognize that considering only the perspective of the child concerning the quality of the parent-child relationship is limiting, and fails to incorporate important (and possibly discrepant) views from the parent. Parents' views of the relationship are also important and could further inform treatment responsiveness among families. However, we prioritized children's perspectives in the current study given interest in the understudied role of oppositional children's viewpoints in treatment response and the desire to incorporate separate informants whenever possible.

Importantly, our study also possesses strengths. This is the first study to examine child perceptions of relationship quality with parents alongside the level of conduct problems in children with ODD and to explore their associations with treatment outcomes. As noted above, we also used FIML approaches to handle missing data in analyses and we used multiple informants (child, parent, clinician). Each of these approaches strengthens the present results. Further, while ODD was the principal reason of referral for all youth, nearly all of our youth met criteria for another disorder, most frequently ADHD or an anxiety disorder, and over half met criteria for a third disorder. The highly comorbid sample suggests that our findings have applicability to populations of youth with ODD in the "real-world," where non-comorbid ODD is rare.

Our findings suggest important leads for future research and possible treatment. For example, in future studies it will be important to assess for conduct problems in children diagnosed with ODD and to examine pre-treatment levels of positive parent-child relations. Oppositional children with co-occurring conduct problems – even in the absence of a clinical diagnosis of CD – may require an augmented treatment that addresses these additional features. Our findings suggest this will be especially important for youth who are less positive about the support they will receive from their parents. Indeed, perhaps the most clinically relevant conclusion to be drawn from our findings is that, in some families, successful treatment of youth with ODD may benefit from improving the relationships between these youths and their caregivers to enhance reduction in ODD symptoms. It is possible that focusing solely on reduction of ODD symptoms may not address other factors contributing to dysfunctional interactions between youth with ODD and their caregivers.

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Figure 1. Moderator Effect of Children's Perceived Relationship Quality with Parents on the Association between Conduct Problems and Post-Treatment ODD Symptom Count. Plotted values were set at 1 SD below and above the mean for *Conduct Problems* and *Perceived Relations with Parents*.

Table 1

Descriptive Statistics for Study Variables

	<i>N</i>	Mean	SD	Min	Max
<i>Pre-Treatment (Pre-TX) Variables</i>					
Child Perception of Parent-Child Relationship Quality <i>T</i>	114	41.93	11.39	10	62
Mother-Reported Conduct Problems <i>T</i>	110	71.28	12.61	48	103
Mother-Reported ODD Symptom Count	123	5.61	1.90	0	8
Clinician-Reported ODD Severity	111	5.91	1.04	4	8
<i>Post-Treatment (Post-TX) Variables</i>					
Mother-Reported ODD Symptom Count	75	2.72	2.67	0	8
Clinician-Reported ODD Severity	72	3.64	2.06	0	8

Note.

T indicates the variable is *T*-scored. Skewness for each variable was 0.72.

Table 2
Bivariate and Partial Correlations with Treatment Outcomes in ODD Symptom Count and Severity

	1.	2.	3.	4.	5.	6.	7.	8.
<i>Bivariate Correlations</i>								
1. Child Age	--							
2. Child Gender	.12	--						
3. Perception of Parent-Child Relationship Quality	-.16	.05	--					
4. Conduct Problems	.19*	.08	-.04	--				
5. Pre-TX ODD Symptoms	.22*	.13	.02	.23*	--			
6. Pre-TX ODD Severity	.17	.15	-.02	.40**	.43**	--		
7. Post-TX ODD Symptoms	.23	.17	-.26*	.31*	.20	.10	--	
8. Post-TX ODD Severity	.24*	.30*	-.23	.40**	.13	.15	.60**	--
<i>Partial Correlations Controlling for Pre-Treatment ODD Variable</i>								
	1.	2.	3.	4.	5.	6.	7.	8.
Post-TX ODD Symptoms	.22	.28*	-.23	.37**	--	.09	--	.58**
Post-TX ODD Severity	.19	.14	-.27*	.27*	.02	--	.58**	--

Note. For Child Gender, girls are coded as the higher value.

Table 3
Mother-Reported Improvement in ODD Symptoms as a Function of Conduct Problems and Relations with Parents

	Ordinary Least Squares				FIML			
	Step	R ²	Beta	SE	Step	R ²	Beta	SE
Step 1		.30**				.32**		
Pre-TX ODD Symptoms			.93**	.20			.89**	.18
Child Gender			-1.53*	.18			-1.37*	.64
Child Age			-.16	.18			-.15	.17
Treatment Group			-.02	.67			.13	.62
Step 2		.13**				.17**		
Conduct Problems			-.08*	.03			-.08*	.03
Perception of Parent-Child Relationship Quality			.05†	.03			.05†	.03
Step 3		.00				.00		
Conduct Problems x Relationship Quality			.002	.002			.002	.002

Note.

* $p < .05$,

** $p < .01$.

Relations with Parents and Conduct Problems were mean-centered. For Child Gender, girls are coded as the higher value. For Treatment Group, the PMT treatment group is coded as the higher value. FIML values used Full Information Maximum Likelihood to address missing data. Variance inflation factor for all variables < 1.50.

Clinician-Reported Improvement in ODD Severity as a Function of Conduct Problems and Relations with Parents

Table 4

	Ordinary Least Squares					FIML		
	Step	R ²	Beta	SE	Step	R ²	Beta	SE
Step 1		.13 [†]				.13 [†]		
Pre-TX ODD Severity			.76 ^{**}	.26			.72 ^{**}	.24
Child Gender			-.42	.52			-.45	.48
Child Age			-.20	.14			-.18	.13
Treatment Group			-.18	.50			.08	.46
Step 2		.11 [*]				.14 [*]		
Conduct Problems			-.04 [*]	.02			-.04 [*]	.02
Perception of Parent-Child Relationship Quality			.04 [†]	.02			.04 [†]	.02
Step 3		.06 [*]				.07 [*]		
Conduct Problems x Relationship Quality			.004 [*]	.002			.004 [*]	.002

Note.

* $p < .05$,** $p < .01$.

Relations with Parents and Conduct Problems were mean-centered. For Child Gender, girls are coded as the higher value. For Treatment Group, the PMT treatment group is coded as the higher value. FIML values used Full Information Maximum Likelihood to address missing data. Variance inflation factor for all variables < 1.50.