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THE CONTRIBUTION OF TEMPERAMENT AND DEPRESSIVE SYMPTOMS AS  
PATHWAYS TO INFORMANT DISCREPANCIES ON PARENTING PRACTICES

by

YURI SHISHIDO

Under the Direction of Robert D. Lutzman Ph. D.

ABSTRACT

Despite low/moderate convergent correlations, assessment of youth typically relies on multi-informants for information across a range of domains including parenting practices. Although parent-youth informant discrepancies have been found to predict adverse youth outcomes, few studies have examined contributing factors to the explanation of informant disagreements on parenting. The current study represents the first investigation to test the fit of hypothesized path models by which mother and son's self-reported affective dimensions of temperament and depression were concurrently examined as critical pathways to informant discrepancies on parenting. Within a community sample of 174 mother-son dyads, results suggest that whereas the effects of mothers' temperament on discrepancies for parenting evidenced a full mediation through depression, the effect of sons' temperament only partially depended on depression in explaining discrepancies on parenting. Results broadly confirmed the importance of considering multi-informant's self-reported affective dimensions of temperament and depression in the explanation of discrepancies on parenting practices.

INDEX WORDS: Informant Discrepancies, Measurement, Parenting, Temperament, Depression

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PATHWAYS TO INFORMANT DISCREPANCIES ON PARENTING PRACTICES

by

YURI SHISHIDO

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

Georgia State University

2014

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2014

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## 1. INTRODUCTION

Parenting is an important factor to consider when assessing youth psychosocial functioning (Collins & Laursen, 2006). Decades of research have unequivocally confirmed the critical role that parenting practices play in both negative and positive youth outcomes (e.g., Dadds, Maujean, & Fraser, 2003; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Dishion & Patterson, 2006; McLeod, Weisz, & Wood, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003; Yeh & Weisz, 2001; Wills & Yaeger, 2003). As is the case with a wide range of assessments of youth psychosocial functioning, the assessment of parenting practices has traditionally relied on multiple informants (e.g., parents, teachers, children, clinicians, researchers). Indeed, the use of multi-informant ratings is considered essential in evidence-based assessment of youth psychosocial functioning (Achenbach, 2006; Hunsley, & Mash, 2007; Weisz, Jensen Doss, & Hawley, 2005). As context is important in youth assessment, the inclusion of multiple informants, each with their own unique perspective, helps to capture a more comprehensive and accurate picture of youth psychosocial functioning, which may vary across different settings and situations (e.g., home, school; Achenbach, McConaughy, & Howell, 1987; Kazdin, 2005). Further, a large body of research has demonstrated that parenting is bi-directional and comprises of both parent and youth-driven processes, whereby parents and youth both actively contribute to expressions of parenting behaviors (Clark, Kochanska, & Ready, 2000; Granic & Patterson, 2006; Latzman, Elkovitch, & Clark, 2009; Pardini, Fite, & Burke, 2007; Patterson, 2002; Pettit & Arsiwalla, 2008). Moreover, an emerging literature indicates that parent-youth informant discrepancies may serve as a proxy for potential family dysfunction; discrepant perception between parents and youth may indicate high level of family conflict and poor communication among families and may signal increased risk for the development of youth

psychopathology. More specifically, families' difficulties with effective communication, interaction, and problem solving likely result in discrepant reporting on multiple variables including parenting as well as maladaptive outcomes in youths (Grills & Ollendick, 2003; Ferdinand, van der Ende, & Verhulst, 2004; Guion, Mrug, & Windle, 2009). These findings underscore the importance of identifying contributing factors to parent-youth discrepant reporting on a range of psychosocial variables including parenting (Grills and Ollendick, 2003; Ferdinand, van der Ende, & Verhulst, 2004; Guion, Mrug, & Windle, 2009). Collectively, converging lines of research suggest that the use of data from multiple informants in general, and from parents and youth specifically, is particularly critical for a comprehensive assessment of parenting practices.

In practice, however, multi-informant assessment of parenting practices is complicated as ratings from different informants consistently evidence low convergent correlations across a wide range of psychosocial variables. In the first meta-analysis examining multi-informant discrepancies, Achenbach and colleagues (1987) found the mean correlation among reports by parents, teachers, mental health workers, and trained observers across a broad range of psychosocial variables to be .28 (Achenbach, McConaughy, & Howell, 1987). Consistent with these early meta-analytic findings, subsequent research has consistently found, at best, low to moderate cross-informant correlations (e.g.,  $r$ s often in the .20's on average across multiple variables; De Los Reyes & Kazdin, 2005) across a wide range of psychosocial variables. Specifically, the phenomenon of inconsistent reporting across multiple informants (hereafter, "informant discrepancies") has been consistently observed with regard to both the severity and existence of psychopathological symptoms across multiple domains, including youth internalizing and externalizing symptoms (Achenbach et al., 1987; Achenbach, 2006; De Los

Reyes & Kazdin, 2005; De Los Reyes, 2011; Guion et al., 2009; Pelton, Steele, Chance, & Forehand, 2001). In addition to reports of psychopathological symptoms, informant discrepancies have been reported with respect to individual differences characteristics, such as temperament and personality traits (Tackett, 2011), and with regard to contextual variables, including parent-youth relationships and parenting practices (De Los Reyes, Goodman, Kliewer, & Reid-Quiñones, 2010; Guion et al., 2009). Taken together, research strongly suggests that when it comes to youth assessment, informant discrepancies are “the rule, rather than the exception” (Ferdinand, Blüm, & Verhulst, 2001, p. 198).

Nonetheless, given their usefulness, convenience, and cost effectiveness, multiple-informant approaches continue to be employed in the psychological assessment of youth. However, researchers and clinicians largely operate blindly with a limited scientific evidence base to guide them in their use of multiple-informant data. Specifically, preferential reliance on a single informant’s data over others or integrated data from multiple informants at the researcher’s discretion leads to different conclusions from research results (De Los Reyes & Kazdin, 2005). For instance, informant discrepancies have been found to contribute to inconsistent findings in research on prevalence rates of major childhood psychopathology (Kolko & Kazdin, 1993; MacLeod, McNamee, Boyle, Offord, & Friedrich, 1999) and the efficacy of treatment for clinical conditions, such as ADHD (De Los Reyes & Kazdin, 2005; Kraemer et al. 2003). Moreover, highly discrepant parent-youth reports on youth psychopathological symptoms may lead clinicians to make incorrect assessments, diagnosis, and treatment decisions, depending on which data the clinicians choose to use and how they choose to interpret disagreements among multiple informants (Kazdin, 1989; Kraemer et al., 2003). The lack of consensus regarding the use of multiple-informant data is particularly concerning as research is converging

on the assertion that comprehensive youth assessment requires data from multiple informants. As such, identifying the optimal use of multi-informant data is “essential for clinical assessment and for elucidating causes and cures of psychopathology” (Achenbach, 2006, p. 94).

## **1.1 Importance of Studying Informant Discrepancies Regarding Parenting Practices**

*1.1.1 Informant Discrepancies and Youth Outcomes.* In the context of effort to begin elucidating how best to conceptualize and utilize multi-informant data, a burgeoning body of research suggests that parent-youth informant discrepancy itself may predict adverse adjustment outcomes in youth (Chi & Hinshaw, 2002; De Los Reyes & Kazdin, 2005; Ferdinand et al., 2004; Pelton et al., 2001). For instance, discrepancies between parent and youth reports of youth behaviors have been found to be associated with a wide range of emotional and behavioral outcomes, including substance use, police/judicial contact, loss of job, expulsion from school, unwanted pregnancy, self-harm, suicidal ideation, and referral to mental health services (Ferdinand et al., 2004; Ferdinand, Van Der Ende, & Verhulst, 2006). Further, Ferdinand and colleagues (2006) found that parent-youth informant discrepancies on youth attention problems predicted future disciplinary problems at school, disagreements on youth anxiety symptoms were associated with police/judicial contacts, and discordance on youth aggressive and oppositional behaviors predicted later substance abuse.

Only two studies to date have examined discrepant reports of parenting practices as predictors of youth psychopathological outcomes (De Los Reyes et al., 2010; Guion et al., 2009). In these studies, parent-youth informant discrepancies on parenting variables predicted youth negative outcomes, including internalizing and externalizing symptoms and lack of social competence. More specifically, De Los Reyes and colleagues (2010) found mother-youth informant discrepancies in reports of parental monitoring practices to uniquely predict youth

delinquent behaviors two years later, while mother and son's individual reports of parental monitoring did not. Further, Guion and colleagues (2009) found that discrepant reports on parenting practices, specifically when youth generated more negative youth-reports than did their parents, predicted later development of internalizing problems and lower social competency. Of note, contrary to other studies examining the association between informant discrepancies and youth outcomes (e.g., De Los Reyes et al., 2010), discrepancies in parenting in Guion et al. (2009) were not found to predict youth externalizing problems. Results of these studies underscore the importance of parenting research, in particular, and the need for investigation of discrepancies on parenting practices more specifically, in the explanation of youth psychopathological outcomes.

***1.1.2 Parenting and Youth Outcomes.*** Over the last decade, a substantial body of empirical, theoretical, and clinical assessment literature has found two constructs of parenting practices to be critical for youth psychosocial outcomes; whereas negative parenting practices (e.g., poor parental monitoring, inconsistent parenting, lack of nurturing) are associated with negative psychosocial adjustment in youth, positive parenting practices (e.g., parent involvement, nurturance/warmth, appropriate discipline) are associated with positive youth outcomes (e.g., Kaiser, Burnett, & Piffner, 2011; Locke & Prinz, 2002). More specifically, negative parenting practices have been repeatedly linked to a plethora of negative emotional, behavioral, social, and intellectual outcomes in youth. These include delinquency, disruptive behavior problems, substance abuse (Dadds et al., 2003; Dishion, Patterson, et al., 1991; Dishion & Patterson, 2006; Wills & Yaeger, 2003), poor academic achievement, social and interpersonal difficulties (Swanson, Valiente, Lemery-Chalfant, & O'Brien, 2011), and internalizing problems (McLeod, et al., 2007; Wood, et al., 2003; Yeh & Weisz, 2001). Conversely, positive parenting



practices have been found to contribute to a range of positive developmental outcomes in youth, such as school readiness and academic performance (Hess, Holloway, Dickson, & Price, 1984; Pettit et al., 1997), and general prosocial development (Fine et al., 1993; Zahn-Waxler & Radke-Yarrow, 1990). Moreover, parenting practices have shown to serve as protective factors in the context of childhood adversity (e.g., Walther et al. 2012; Lutzman & Lutzman, 2013). For example, positive parenting, particularly parental knowledge of youth, moderates the effect of childhood ADHD on future substance abuse or conduct problems among youth (Walther et al. 2012). Further, in a clinical setting, parenting practices and behaviors, such as parent involvement, have been consistently found to be associated with positive treatment outcomes and maintenance of treatment gains among youth with psychopathological symptoms (e.g., Diamond & Siqueland, 2001; Henggeler, 2001; Israel et al., 2007). Collectively, these findings highlight the critical role that parenting practices play in both negative and positive developmental outcomes in youth.

Surprisingly however, despite an emerging body of research indicating association between informant discrepancies and psychopathological outcomes in youth, relatively few empirical studies to date have examined what factors, such as informant characteristics, contribute to the prediction of parent-youth informant disagreements (De Los Reyes & Kazdin, 2005). In the absence of a theoretical rationale and empirical evidence concerning contributors to informant discrepancies, it remains unclear what mechanisms account for parent-youth informant discrepancies, the mechanisms that have been found to be salient in predicting youth psychopathological outcomes. Further, as noted earlier, an extensive body of literature yields unequivocal evidence that parenting plays an important role in the prediction of both positive and negative youth outcomes (e.g., Dadds et al., 2003; Dishion et al., 1991; Dishion & Patterson,

2006; McLeod, et al., 2007; Wood, et al., 2003; Yeh & Weisz, 2001; Wills & Yaeger, 2003). It is therefore imperative to examine what factors contribute to the prediction of informant discrepancies on parenting practices. Such practices will advance our understanding of potential pathways leading to psychopathological outcomes in youth, which will aid in the development of better assessment and intervention with youth.

## **1.2 Promising Potential Factors associated with Informant Discrepancies on Parenting**

Within the informant discrepancy literature, a considerable body of empirical research has been conducted and several conceptual frameworks have been proposed in an effort to explicate the relationship between informants' characteristics and informant discrepancies for a broad range of dependent variables (De Los Reyes & Kazdin, 2005; Kraemer et al. 2003). Characteristics that have been previously examined include: child age, gender, race/ethnicity, socioeconomic status, family stress and conflict, social desirability bias, and the observability of psychological symptoms (e.g., internalizing versus externalizing problems; for comprehensive reviews see De Los Reyes & Kazdin, 2005; Kraemer et al. 2003). However, the majority of previous research examining the correlations between child or parent variables and informant discrepancies has resulted in largely inconsistent results (De Los Reyes & Kazdin, 2005; Ferdinand et al., 2004; Kraemer et al. 2003; Richters, 1992). As noted earlier, despite a number of published studies relevant to informant discrepancies, there continues to be a general dearth of literature continues to exist concerning potential contributing factors, such as informant characteristics, to the explanation of parent-youth informant disagreements.

Among those few studies that have examined potential predictors of discrepancies, the factor that has been most frequently investigated is maternal depression (De Los Reyes & Kazdin, 2005), a single characteristic of a single informant. As noted earlier, parenting is a

dynamic and reciprocal process, where both parents and youth actively participate in the expression of behaviors in a transactional manner (Granic & Patterson, 2006; Lutzman et al., 2009; Pardini, Fite, & Burke, 2007; Patterson, 2002; Pettit & Arsiwalla, 2008). Additionally, informant discrepancies are likely a function of both informants' differing perspectives (De Los Reyes & Kazdin, 2005; Kreamer et al. 2003) and discrepant views of the same behavior may reflect underlying family dysfunction, and thus may signal potential increased risk for youth psychopathology (Grills & Ollendick, 2003; Ferdinand et al., 2004; Guion et al., 2009). Surprisingly, however, little extant research to date has examined the potential impact of multiple informants' characteristics on the explanation of informant disagreements on parenting behaviors. As such, when assessing discrepancies in parenting practices, it is critical to investigate potential contributions of characteristics of both informants, particularly parent and youth, to the prediction of discrepancies on parenting practices.

To fill the aforementioned void in the literature, the current study examined a hypothesized path model predicting informant discrepancies on parenting from both mother and adolescent son's self-reported affective dimensions of temperament and depression, two promising potential contributors to the prediction of informant discrepancies on parenting practices (see Figure 1). As described in more detail below, although affective dimensions of temperament are broad, higher order dimensions known to underlie depression (Clark & Watson, 1991, 1999; Clark, Watson, & Mineka, 1994; Mineka, Watson, & Clark, 1998), no published empirical research examines temperament as a predictor of informant discrepancies in reporting on any variables including parenting practices. In contrast, depression has been previously examined with regard to its contribution to the prediction of informant discrepancies in both youth adjustment (Gartstein et al., 2009; Youngstrom, Loeber, & Stouthamer-Loeber, 2000) and

parenting variables (De Los Reyes, Goodman, Kliewer, & Reid-Quiñones, 2008). Nonetheless, as described subsequently, the vast majority of previous research has examined only a single informant's self-reported depression (for an exception, see De Los Reyes et al., 2008). The current study, therefore, assessed both mother and youth self-reported temperament and depressive symptoms as potential pathways leading to informant discrepancies on parenting practices.

### ***1.2.1 Temperament***

***1.2.1.1 Temperament and Parenting – Process Model of Parenting.*** Temperament is conceptualized as individual differences in patterns of emotional and behavioral reactivity and self-regulation that emerge early in life and exhibit relative stability over situations and time. Temperament traits describe individual tendencies, dispositions, and capacities that influence individual's adaptation or maladaptation to the environment throughout life (Clark & Watson, 1999; Rothbart & Bates, 1998; Rothbart, 2011). With regard to the role of temperament in psychopathology, the Tripartite Model (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998) reveals that the broad, higher order affective dimensions – Negative and Positive Temperament (NT and PT, respectively) – represent the core temperamental features underlying symptoms of depression. NT refers to a tendency for negative emotional and behavioral reactivity, including fear, sadness, and anger, whereas PT refers to a propensity for positive affect, including joy, interest, and excitement, as well as reward sensitivity and sociability (Clark & Watson, 1999; Rothbart & Bates, 1998). NT and PT are theorized to be orthogonal dimensions (Clark & Watson, 1999; Watson & Tellegen, 1985); an individual therefore can have high or low levels of NT or PT, or any combination of the two dimensions.

With regard to the association between temperament and parenting, converging lines of

research confirm that temperament plays a critical role in determining parenting behaviors (e.g., Belsky, 1984; Clark et al., 2002; Kochanska, Friesenborg, Lang, & Martel, 2004; Lutzman et al., 2009; Maccoby, 1992). Specifically, the Process Model of parenting posits that both parent and youth characteristics, in particular, temperament, jointly affect the expression of specific parenting practices (Belsky, 1984; Maccoby, 1992). The Process Model asserts a dynamic interplay between parent and youth temperament whereby a youth's temperament elicits differential reaction from parents or vice versa, thereby influencing future parenting behaviors and parent-youth interactions (Clark, et al., 2002; Kochanska et al., 2004). Indeed, a recent-meta analysis revealed evidence of significant relationship among parent and youth personality traits and parenting practices; parent's high levels of Extraversion, Agreeableness, Conscientiousness, and Openness and low levels of Neuroticism were associated with parental warmth and behavioral control, while high levels of Agreeableness and low levels of Neuroticism were related to autonomy control (Prinzle, Stams, Dekovic, Reijntjes, & Belsky, 2009).

Further, a burgeoning body of research has indicated the joint contribution of parent and youth temperament/personality traits to the prediction of parenting practices. For example, Lutzman and colleagues (2009) found youth temperament to moderate the effect of maternal temperament on positive parenting, poor monitoring, and corporal punishment among adolescents. Similarly, in a more recent longitudinal study, Prinzle et al. (2012) reported that youth personality traits moderated the relationship between paternal personality and positive and negative parenting practices; high levels of father's emotional stability (low Neuroticism) predicted less overactive and more positive parenting behaviors six years later, but only when youth exhibited high levels of positive personality traits, such as high levels of Extraversion and Conscientiousness.

As described in more detail below, informants' affective dimensions of temperament are distinctly associated with symptoms of depression (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998). These symptoms have, in turn, been found to predict negative rating biases that lead to discrepant views of the same parenting behavior (Chi & Hinshaw, 2002; De Los Reyes et al., 2008; Gartstein, Bridgett, Dishion, & Jauferman, 2009; Richters, 1992).

Collectively, the emerging literature indicates that both maternal and youth temperament are likely important factors to consider in the investigation of parent-youth informant discrepancies on parenting practices.

**1.2.1.2 Temperament and Depression – Tripartite Model.** Temperamental dimensions have been repeatedly found to predict nearly all types of psychopathological symptoms (Clark, 2005; Rettew, Althoff, Dumenci, & Hudziak, 2008). As described earlier, the Tripartite Model reveals that broad, higher order affective dimensions of temperament, NT and PT, represent the core temperamental features of depression and anxiety. More specifically, Clark & Watson (1991) demonstrated that high NT is common to both depression and anxiety. In contrast, low PT has a specific association with depression (Mineka et al., 1998). In sum, the Tripartite Model contends that depression is characterized by both high levels of NT and low levels of PT (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998). In the last decade, a large literature comprising studies of adults and children using both clinical and community samples has supported the Tripartite Model's assertion that the combination of high NT and low PT is specific to depression (e.g., Brown, Chorpita, & Barlow, 1998; Chorpita & Daleiden, 2002; Joiner & Lonigan, 2000; Litzman, Shishido, Litzman, & Clark, in preparation). Further, Clark (2005) extended the Tripartite Model and delineated that broad, innate affective temperamental dimensions, including NT and PT, develop into personality traits through genetic-

environmental interplay, and unify personality and psychopathology along the same underlying continua (Clark, 2005; Watson, Kotov, & Gamez, 2006). Specifically, variance in PT, high levels of PT in particular, distinguishes those who are psychologically healthy and adept in life from those who are not and thus experience psychopathological symptoms (Clark, 2005).

According to this model, PT, in essence, is hypothesized to play a critical role in moderating the effect of NT on depression and potentially other psychopathological symptoms, indicating that joint and interactive contributions of NT and PT may be particularly important to consider with regard to the prediction of depressive symptoms.

**1.2.1.3 Trait versus State Aspects of Temperament.** Although temperament is conceptualized as a relatively stable global trait, emerging research suggests that self-reported measures of the affective dimensions of temperament (i.e., NT and PT) tap both stable “trait” and transient “state” components of affect (Clark, Vittengl, Kraft, & Jarrett, 2003). Self-reports of temperament therefore are not immutable and likely show changes with the fluctuating mood “state” that accompanies the development or remittance of depression. Indeed, in a series of recent studies examining individuals with depression receiving psychotherapy, self-reported changes in temperament among individuals with current depression were found to be largely a function of transient distress rather than premorbid temperamental “trait” (Clark et al., 2003; Costa, Bagby, Herbst, & McCrae 2005). Collectively, the extant literature suggests that affective dimensions of temperament, which tap both stable “trait” and transient “state” components of affect, likely account more than just the variance accounted for by depressive symptomatology, variance that is largely a function of current mood “state.”

### *1.2.2 Depression*

An extensive body of existing research has demonstrated strong links between parental depression and a myriad of adverse emotional and behavioral outcomes in youth across the life span (Cummings & Davies, 1999; Goodman & Gotlib, 1999). Indeed, parental depression has been identified as one of the key mechanisms that put youth at risk of developing depression (Cummings & Davies, 1999; Goodman & Gotlib, 1999). In the informant discrepancy literature, parental, most often operationalized as maternal, depression represents one of the few factors that have been reliably found to contribute to predicting informant discrepancies (Chi & Hinshaw, 2002; De Los Reyes et al., 2008; Gartstein, et al., 2009). According to the Depression-Distortion hypothesis, an informant's ratings of a youth are negatively biased by the informant's distorted perceptions and cognitions, key features of depression; parental depression therefore predicts negative cognitive bias in parent's reporting of youth behavioral problems (Richters, 1992). In his review of 22 studies, however, Richters (1992) concluded that methodological problems resulted in a lack of empirical support for this hypothesis. Of note, the Depression-Distortion hypothesis interprets informant discrepancies as an evidence of informant's bias or error as a function of depression. An alternative way of conceptualizing informant discrepancies, and the conceptualization employed in the current study, parent-youth rating discrepancies are conceptualized as a proxy for potential family dysfunction where families' inability to effectively interact and solve problems likely result in parent-youth discrepant reporting as well as negative adjustment outcomes in youth (Grills & Ollendick, 2003; Ferdinand et al. 2004; Guion et al., 2009). Nonetheless, regardless of the underlying mechanism, subsequent studies have shown considerable support for the assertion that parental depression may predict higher ratings of negative child characteristics. For example, mothers with



depression rate their own children as more troublesome than do non-depressed informants (Youngstrom et al., 2000). Additionally, mothers with dysphoria have been found to rate videotaped behavior of their children more negatively than do trained observers (Youngstrom, Izard, & Ackerman, 1999). More recently, mothers with depression or dysphoria were found to report high levels of negative child characteristics, particularly behavioral problems than did mothers without depression or dysphoria (Gartstein et al., 2009). With regard to parenting, a recent investigation of mothers of children with ADHD revealed that maternal depressive symptoms predict negative biases in mothers' reporting of their child's ADHD symptoms, behavioral problems, and their own parenting style (Chi & Hinshaw, 2002).

Furthermore, consistent with extant research on adult depression, research on youth with depression has yielded evidence of a significant association between informant's depression and negative rating bias. For example, a recent investigation reported that youth with high levels of depressive symptoms consistently overrated their peer victimization relative to non-depressed peer-reports (De Los Reyes & Prinstein, 2004). A more recent study by De Los Reyes and colleagues (2008), the only published study examining the contribution of self-reported depression to predictions of informant discrepancies on parenting variables specifically, found that mother and youth depressive symptoms were significantly related to discrepant reporting on parental monitoring behaviors. Although limited, the existing literature on informant discrepancies regarding parenting practices appears to suggest that depression contributes to the prediction of informants' negative reports. As such, further investigation into the contribution of depressive symptoms in both parents and youth to the prediction of parent-youth informant discrepancies on parenting practices is needed.

Taken together, the extant literature suggests that depression and affective temperamental traits, NT and PT, broad trait dimensions known to underlie depression, represent two promising pathways leading to parent-youth informant discrepancies on parenting practices. The current study therefore explicitly tested a hypothesized path model that concurrently examined the effects of both depression and temperament, a high-order dimension hypothesized to account for variance over and above the effect of depression, which has a known linkage to discrepant reporting, in order to clarify the roles of temperament and depression in the prediction of informant discrepancies on parenting practices.

### **1.3 Overview of the Current Study**

An emerging literature conceptualizes parent-youth informant discrepancies as a function of different informant perspective that may serve as a proxy for potential family dysfunction. Specifically, discrepant perception between parent and youth may indicate high levels of family conflict, poor communication and problem-solving among families and likely result in higher discrepant reporting on a range of psychosocial variables including parenting, as well increased risk for negative youth outcomes (Grills & Ollendick, 2003; Ferdinand et al., 2004; Guion, et al., 2009). Further, a relatively small but informative body of research suggests that higher levels of negative ratings of youth on parenting than their parents may be critical in the prediction of both internalizing and externalizing psychopathology in youth (Ferdinand et al., 2004; Guion et al., 2009; Yeh & Weisz, 2001). More specifically, when compared to their parents, the tendency for a youth to negatively report on parenting may signal parental disinterest, lack of parental awareness of symptoms, and lack of insight into their own parental deficits, and may lead to maladaptive psychosocial outcomes in youth (Ferdinand et al., 2004; Guion et al., 2009). Collectively, an extant literature underscores the importance of examining both magnitude and

directionality of contributing factors to the parent-child rating discrepancies on parenting practices.

Although an emerging extant literature suggests that parent-youth informant discrepancies on parenting variables contribute to the explanation of important youth outcomes (De Los Reyes et al., 2010; Guion et al., 2009), less is known concerning factors that may help explain parent-youth informant disagreements on parenting practices. In the absence of an empirical literature concerning contributors to these discrepancies, the mechanisms that account for parent-youth informant discrepancies on parenting remain unclear. Given the importance of discrepant reporting on parenting practices for youth developmental outcomes, it is therefore critical to examine potential contributors to the prediction of informant discrepancies on parenting in an effort to advance assessment and intervention with youth.

As described earlier, various youth and parental factors (e.g., child age, gender, race/ethnicity, socioeconomic status, family stress and conflict, social desirability bias) have been examined in attempts to explain informant discrepancies. However, these factors have rarely been based on a theoretical framework and, potentially more importantly, findings are rarely replicable (Achenbach et al., 1987; De Los Reyes & Kazdin, 2005; Ferdinand et al., 2004) with the notable exception of informant depression. Also noted earlier, the informant discrepancy literature is converging on the assertion that depression contributes to the prediction of parent-youth informant discrepancies (Chi & Hinshaw, 2002; De Los Reyes et al., 2008; De Los Reyes & Prinstein, 2004). With regard to discrepancies on parenting variables, however, there has been only one published study examining the contribution of self-reported depression as a predictor of informant discrepancies on parental monitoring behaviors (De Los Reyes et al., 2008) and this previous study has several limitations.

First, De Los Reyes and colleagues (2008) used a sample of mother-youth dyads comprising mainly African-American participants living in moderate- to high-crime neighborhoods. Despite the relative scarcity of discrepancy research, one of the consistent findings is that African American families make more discrepant reports on youth psychopathology and parenting than other racial/cultural groups (e.g., Des Los Reyes & Kazdin, 2005; Guion et al., 2009). Therefore, it is possible that results may be indicative of racial/cultural or socio-economically based differences in parenting practices rather than symptoms of depression. Second, De Los Reyes et al. (2008) examined informant discrepancies on a single dimension of parenting practices, parental monitoring. Although parental monitoring represents a key dimension of positive parenting practices, this study may be limited as parenting is a multi-faceted construct including both positive and negative parenting practices (Skinner, Johnson, & Snyder, 2005). Third, De Los Reyes and his colleagues (2008) used a brief 6-item depression subscale that evaluates cognitive aspects of depression to assess maternal depression. Given that depression is a heterogeneous construct (Watson et al. 2007), the results of this study may therefore be limited to cognitive aspects of depression.

The current study aimed to fill the aforementioned gap in the literature and to extend previous findings from the only published study examining informant's self-reported depression as a predictive factor for parent-youth discrepancies in parenting. Given that previous findings might potentially be reflective of racial/cultural or socio-economically based differences in parenting practices instead of depression, the current study tested the generalizability of previous findings among mostly African American families to other populations. Specifically, the current study included predominantly White mothers and their sons who were moderate to high in terms of socioeconomic status. With regard to addressing the measurement limitations of the De Los

Reyes et al. study (2008), the current study employed a parenting measure designed to assess the multi-dimensional nature of parenting, in particular, both positive and negative parenting practices. Additionally, as described in more detail below, the current study used a maternal depression scale explicitly designed to assess the heterogeneous nature of depression, including cognitive, somatic, and affective components. Further, the current study employed path analysis to test the hypothesized relationship across multiple study variables, while minimizing the risk for committing Type 1 error.

Lastly, as noted earlier, the extant literature suggests that affective dimensions of temperament are broader, higher order dimensions underlying depression (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998). Additionally, an emerging literature suggests that affective dimensions of temperament tap both “trait” and “state” components of affect and therefore likely account for variance over and above depressive symptoms, which are largely a result of “state” affect. Despite the underlying temperamental basis of depression (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998), to date, no empirical investigation has been conducted to explicate the contribution of both affective temperamental dimensions and depression in predicting informant discrepancies regarding any variables including parenting practices. This is clearly a missed opportunity as the identification of contributors to the prediction of informant discrepancies is essential for understanding potential mechanisms underlying parent-youth informant discrepancies if the literature on assessment and intervention efforts with youth psychopathology is to advance.

The overarching goal of the present study therefore was to determine the fit of a hypothesized path model in which mother and son’s self-reported affective dimensions of temperament and depressive symptoms were concurrently examined in the explanation of

informant discrepancies on parenting practices. As shown in Figure 1, the proposed path model includes direct and indirect effects of mother and son's temperamental traits and depression on discrepancies on parenting. In accordance with the Tripartite Model (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998), it was expected that mother and son's NT would be significantly and positively associated with depression, while mother and son's PT would be significantly and negatively associated with depression. With regard to the nature of the interaction, it was hypothesized that PT would interact with NT in the explanation of depression for both mothers and sons. Specifically, as compared to high levels of PT, at low levels of PT, NT would be more strongly associated with depression for both mothers and sons.

Additionally, consistent with the extant literature linking informant depression to negative rating bias (De Los Reyes et al., 2008; Garstein et al., 2009; Youngstrom et al., 1999, 2000), Chi and Hinshaw (2002) have demonstrated that maternal depressive symptoms predict negative biases in reporting of parenting style. Therefore, it was hypothesized that maternal depression would be positively associated with discrepancies on Negative Parenting, and negatively associated with discrepancies on Positive Parenting in the current study. Similarly, youth depressive symptoms have also been found to be associated with higher negative reporting of a variety of experiences, including peer victimization (De Los Reyes & Prinstein, 2004) and parenting monitoring behaviors (De Los Reyes et al., 2008). Thus, it was expected that youth depressive symptoms would also be negatively associated with parent-youth discrepant reporting on Negative Parenting, while positively associated with parent-youth discrepancies on Positive Parenting.

As noted earlier, the extant literature indicates that affective dimensions of temperament, which have been found to tap both "trait" and "state" components of affect, likely account for

variance over and above the effect of depressive symptoms (Clark et al., 2003; Vittegnl et al., 2013), which have a known link to discrepancies on parenting practices (De Los Reyes et al., 2008; Garstein et al., 2009; Youngstrom et al., 1999, 2000). As such, it was hypothesized that mother and son's depression would mediate the direct effects of mother and son's NT on discrepancies on parenting practices. Also consistent with the Tripartite Model, it was expected that mother and son's PT would moderate the effect of NT on depression as affective dimensions of temperament underlie symptoms of depression through the interaction between NT and PT (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998). Collectively, the hypothesized path model represented a partial mediated moderation in which the direct effects of mothers and son's NT on discrepancies on parenting practices are mediated by depression. However, this mediation differs by the level of PT, which moderates the effect of NT on depressive symptoms (mediated moderation; Muller, Judd, & Yzerbyt, 2005; Preacher Rucker, & Hayes, 2007). In other words, mothers and sons with high levels of NT would show increased depressive symptoms. Mother and son's depression would then be associated with higher discrepant scores on parenting practices. However, the effect of NT on discrepant ratings on parenting would vary according to the level of PT, which moderates the effect of NT on depression. In particular, as a result of the NT x PT interaction, mothers and sons with the combination of high levels of NT and low levels of PT would show increased levels of depressive symptoms. These mothers and sons with high levels of depression would then, in turn, evidence high levels of discrepant scores on parenting practices.

With regard to differential outcomes on parenting variables between parent and youth, as noted earlier, only single study has examined the association between parent and youth characteristics (depression) on discrepancies on parenting practices. More specifically,

consistent with previous studies linking depression and negative rating bias (Chi & Hinshaw, 2002, De Los Reyes et al., 2008; Garstein et al., 2009; Youngstrom et al., 1999, 2000), De Los Reyes and colleagues (2008) found that both mother and youth with higher levels of depression rated parent monitoring behavior more negatively than did less-depressed peers. Given the paucity of prior research that examined parent and youth temperament in the prediction of discrepancies on parenting practices, a priori hypotheses for the current study were tentative. Nonetheless, given the temperamental basis underlying depressive symptoms, (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998), which have known links to negative rating bias (Chi & Hinshaw, 2002, De Los Reyes et al., 2008; Garstein et al., 2009; Youngstrom et al., 1999, 2000), it was expected that mother and son's temperamental characteristics would account for independent portion of the variance in discrepant scores on parenting practices. As described in more detail in the Method section below, it was hypothesized that mothers and sons with high NT would show higher negative rating discrepancies on Negative Parenting. Conversely, both mothers and sons high in NT would show lower positive rating discrepancies on Positive Parenting. As the effects of PT are conceptualized through the interaction with NT in the Tripartite Model (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998), it was expected that neither mother nor son's PT would have significant direct effects on discrepancies for any of parenting variables.

Given that affective dimensions of temperament have never been examined before in this context, the results of the current study provide critical information concerning predictors of informant discrepancies on parenting practices, having implications for both research and clinical assessment settings. For example, identifying new predictors of discrepancies will better guide



the use of multiple informant data in assessment and intervention settings with youth (De Los Reyes & Kazdin, 2005; Kreamer et al. 2003).

## **2. METHOD**

### **2.1 Participants**

Participants included a community sample of 174 mother-son dyads who participated in the Iowa-Youth Development Project (I-YDP; Lutzman et al., 2009), a larger study of adolescent males and their mothers. Participants were predominantly White mothers ( $M_{age} = 44.2$  years; 93.1% White, 3.4% African American, 1.7% Asian, 1.1% Other) and their sons aged 11 to 16 years ( $M_{age} = 13.64 \pm 1.35$ ; 87.9% White, 5.2% Other, 4.6% African American, 2.3% Asian). Most mothers were married to their son's biological fathers (81.0%). The families were relatively high in socioeconomic status in terms of education and income; most mothers had achieved college or post-graduate education (71.9%), worked outside of home, and were mostly employed full-time (93.7%). Additionally, 34.1% of the families exceeded an annual combined household income of \$100,000.

### **2.2 Recruitment Procedure and Eligibility Criteria**

The I-YDP employed multiple recruiting methods to obtain a representative sample of Midwestern male youth, where 80-90% of the population identifies as "White"; participants were recruited through a child participant database maintained by the Psychology department as well as through fliers distributed in the community, including laundromats, and through advertisements placed in newsletters and on-line advertisements in the affiliated university hospital. The inclusion criterion was self-reported English proficiency and mothers and sons self-reported their qualifications. The exclusion criteria comprised: having a diagnosis of mental retardation, autism spectrum disorder, or reading disorder; history of being held back a grade;

neurological disorders; traumatic brain injuries that required hospitalization; and life-threatening medical conditions, to ensure a sample of typically-developing male youth. The assessments for the exclusion were made using the mother's report of her son's developmental history.

### **2.3 Procedures**

Participating mothers and their sons provided informed consent and assent, respectively, prior to beginning the study. Following informed consent and assent procedures, mothers and sons separately completed the study protocol during a single 3-hour visit. Sons completed questionnaires regarding their reported psychological symptoms and temperament traits, as well as their mother's parenting practices. Mothers completed questionnaires concerning their own depressive symptoms and temperamental traits, as well as their own parenting practices. Mothers and their sons separately received monetary compensation for their time and participation. The University of Iowa's Institutional Review Board approved all study protocols and materials.

### **2.4 Measures**

#### ***2.4.1 Mother's Measures***

*Demographic Interview.* This interview was designed to assess participants' age, ethnic background, race, marital status, mothers' biological relationship with their sons, occupation, highest levels of education, household income level, and currently prescribed medications for both medical and psychiatric conditions for both mothers and sons.

*Alabama Parenting Questionnaire (APQ; Frick, 1991).* Mothers reported on parenting practices using the APQ. The APQ consists of 42 items rated along a 5-point Likert-type scale ranging from 1 (never) to 5 (always). The measure is designed to assess five aspects of parenting practices related to disruptive behavior problems in youth: Involvement (e.g., "your parents talk

to you about your friends”), Positive Parenting (e.g., “your parents tell you that you are doing a good job”), Poor Monitoring/Supervision (e.g., “you go out without a set time to be home”), Inconsistent Discipline (e.g., “your parents threaten to punish you and then don't do it”), and Corporal Punishment (e.g., “your parents slap you when you have done something wrong”). The APQ measures both positive and negative parenting approaches used in research on effective as well as ineffective parenting practices (Locke & Prinz, 2002). Additionally, the APQ appears to be useful for studying the effects of parenting practices on behavioral problems among youth, including ADHD, conduct disorder, and oppositional defiant disorder (Ellis & Nigg, 2009; Hinshaw et al. 2000). Further, internal consistencies of the five parent scales have been generally found to be adequate, with all scales’ alphas exceeding .65, except the 3-item Corporal Punishment (.46). The current study therefore used the APQ Positive Parenting scale, which consisted of Involvement and the Positive Parenting, and the Negative Parenting scale, which comprised Poor Monitoring/Supervision and Inconsistent Discipline and excluded Corporal Punishment. Moreover, the APQ has been found to show good test-retest reliability ( $r > .80$  for all scales; Dadds et al., 2003). In the current sample, internal consistency reliabilities (Cronbach’s alphas) and average interitem correlations were .76 and .24 for Negative Parenting scale and .75 and .24 for Positive Parenting scale.

*Inventory of Depression and Anxiety Symptoms* (IDAS; Watson et al. 2007). Mothers reported on their depression symptoms using the IDAS. The IDAS has been found to show strong internal consistencies, with all scales’ alpha’s exceeding .80 (Watson et al. 2007) and test-retest reliabilities ( $r = .72$  (Il Temper) -  $.84$  (General Depression); Watson et al. 2007). The IDAS also demonstrates strong convergent and discriminant validity with other self-reported measures of depressive and anxiety symptoms (Watson, O'Hara, Chmielewski, McDade-Montez,

Koffel, Naragon, & Stuart, 2008). The current study used the General Depression, a 20-item composite scale that has shown a strong association ( $r = .83$ ; Watson et al. 2007) with a widely used measure of depression, the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996). In the current sample, internal consistency reliability (Cronbach's alpha) and average interitem correlation were .81 and .21 for General Depression scale.

*Schedule for Nonadaptive and Adaptive Personality – 2<sup>nd</sup> Edition* (SNAP-2; Clark, 1993; Clark, Simms, Wu, & Casillas, in press). Mothers reported on their temperamental traits using the SNAP-2. The SNAP-2 consists of 390 items rated along a true-false format and is designed to assess trait dimensions of personality from normal to pathological range. The instrument is comprised of 3 higher-order temperamental traits (i.e., Negative Temperament, Positive Temperament, and Disinhibition vs. Constraint). The SNAP-2 has been shown a strong internal consistency ( $\alpha = .80$ 's with college, community, and clinical patient samples), test-retest reliability ( $r = .85-.88$ ), and temporal stability ( $r = .87$  for intervals ranging from 7 days to 4 months; Clark et al., in press). The SNAP-2 also demonstrates strong convergent and discriminant validity with other self-reported and interview-based measures of personality (Clark, 1993; Simms & Clark, 2006). In the current sample, as reported previously (Latzman et al., 2009), internal consistency reliabilities (Cronbach's alphas) and average interitem correlations were .89 and .22 for Negative Temperament and .82 and .14 for Positive Temperament.

#### **2.4.2 Son's Measures**

*Alabama Parenting Questionnaire* (APQ; Frick, 1991). Sons separately reported their mothers' parenting practices using the APQ's parallel form for youth. The current study used son-reported the APQ Positive Parenting and Negative Parenting scales. In the current sample,

internal consistency reliabilities (Cronbach's alphas) and average interitem correlations were .81 and .31 for Negative Parenting and .84 and .34 for Positive Parenting scales, respectively.

*Youth Self Report* (YSR; Achenbach & Rescorla, 2001). Sons reported on their own depressive symptoms using the YSR. The YSR consists of 112 items rated along 0 (not true) to 2 (very true or often true) and is designed to assess problem behaviors in internalizing (i.e., Anxious/Depressed, Withdrawn/Depressed) and externalizing (i.e., Rule-Breaking Behaviors, Aggressive Behaviors) scales. The YSR used normative data that reflect the diverse composition of the general U.S. population during the development. The YSR has shown good internal consistency ( $\alpha = .76$ ; Yeh & Weisz, 2001), strong test-retest reliability ( $r = .79-.95$ ) and criterion validity (Achenbach & Rescorla, 2001). In the current sample, internal consistency reliability (Cronbach's alpha) and average interitem correlation were .70 and .24 for Withdrawn/Depressed scale.

Of note, in the factor analyses on which YSR syndrome scales are based, affective problems loaded on the combination of withdrawal and depression as well as anxiety and depression rather than depression versus anxiety (Achenbach & Rescorla, 2001). This is consistent with the Tripartite Model's assertion that symptoms of anxiety and depression are derived from different aspects of general affective distress underlying both affective symptoms (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998). Nonetheless, the factor analyses found a clear distinction between combinations of withdrawn/depression, and anxiety/depression, and showed that the Withdrawn/Depressed scale primarily measures the depressive aspects of negative affectivity (Achenbach & Rescorla, 2001). As such, the current study used the YSR Withdrawn/Depressed scale to assess son's depressive symptoms.

*Schedule for Nonadaptive and Adaptive Personality –Youth* (SNAP-Y; Clark, Simms, Wu, & Casillas, in press). Sons reported on their temperamental traits using the SNAP-Y. The SNAP-Y, an item-level modification of the SNAP-2 for youth assesses trait dimensions of personality along a spectrum from normal to pathological. This measure consists of 3 higher-order temperamental traits (i.e., Negative Temperament, Positive Temperament, and Disinhibition vs. Constraints). The SNAP-Y scales also show strong internal consistency ( $\alpha = .83$  in a sample of 366 youths aged 12-18 years), and strong convergent and discriminant validity with other self-and parental reports of personality (Linde, 2001; Linde, Clark & Simms, 2011). In the current sample, as reported previously (Latzman et al., 2009), internal consistency reliabilities (Cronbach's alphas) and average interitem correlations were .89 and .24 for Negative Temperament and .87 and .20 for Positive Temperament, respectively.

## **2.5 Analyses**

**2.5.1 Demographics.** Previous research has identified associations between child's age and informant discrepancies (Achenbach et al., 1987). As such, consistent with the few existing studies on informant discrepancies on parenting (De Los Reyes et al., 2008; Guion et al., 2009), son's age was included as a covariate in all analyses.

**2.5.2 Informant Discrepancy Scores.** Multiple approaches have been proposed and tested to analyze informant discrepancies (De Los Reyes & Prinstein, 2004; Ferdinand et al., 2004, 2006; Kraemer et al. 2003). Although there is no consensus on how best to analyze informant discrepancies, the most frequently used approaches include calculating standardized and raw difference scores (De Los Reyes & Kazdin, 2004), and both approaches have strengths and weaknesses. Specifically, a raw difference score is calculated by simply subtracting mother's scores from son's scores to yield an index of discrepancy for each of two parenting

variables. As compared to standardized difference scores, the raw difference scoring approach has been shown to maximally capture intra-dyadic discrepancies (De Los Reyes & Kazdin, 2004; Guion et al., 2009). In the standardized difference scoring approach, mother and son's raw scores on parenting variables are first converted to z scores. Discrepancy scores are then calculated by subtracting son's z scores from mother's z scores on each of two parenting practice variables. Negative z scores indicate that son's ratings are higher than the mother's, and positive z scores suggest that mother's ratings are higher than son's ratings on the same set of parenting practices. For instance, negative z scores on informant discrepancies on Negative Parenting indicate that sons provided higher negative ratings on Negative Parenting than did their mothers. Conversely, positive z scores on informant discrepancies on Positive Parenting suggest that mothers reported higher positive ratings of their own Positive Parenting practices than did their sons. As compared to the raw difference scoring approach, the use of z scores has been shown to equalize the influence from the differential distribution of mother and son's scores as well as to adjust for potential systemic bias (e.g., mothers underreporting negative parenting, sons using only a few response scale; De Los Reyes & Kazdin, 2004; Guion et al., 2009). Consistent with the few previous studies on informant discrepancies on parenting (De Los Reyes et al., 2008; Guion et al., 2009), and given the fact that affective dimensions of temperament have not previously been investigated in this context, the current study used both standardized and raw difference scores to index informant discrepancies on parenting practices.

**2.5.3 Descriptive Statistics and Preliminary Analyses.** First, means and standard deviations were examined for the mother- and son-reported measures to confirm the normality of distribution of all the variables. Next, zero-order correlations were performed to examine

associations among mother and son's self-reported temperamental traits, depressive symptoms, and two aspects of parenting practices (i.e., Negative and Positive Parenting).

**2.5.4 Path Analyses.** Then, using Mplus 6.0 (Muthén & Muthén, 1998-2010), path analyses were conducted using the maximum likelihood (ML) method of parameter estimation to determine the fit of a set of observed variables with the hypothesized path models in which mother and son's self-reported affective dimensions of temperament and depression symptoms explain informant discrepancies on parenting practices. Specifically, as shown in Figure 1, the current path model represents a partial mediated moderation model, consisting of ten variables, of which six were exogenous (i.e., independent variables; mother and son's NT, PT, and NT x PT interaction), two were exclusively endogenous (i.e., dependent variables; informant discrepancies on Negative and Positive Parenting practices), and the remaining mother and son's depressive symptoms, are both exogenous and endogenous variables. Specifically, the hypothesized model assumed that mother and son's NT influences their depression, which in turn affects discrepancies in reports of negative and positive parenting practices (mediation). In addition, the model presumed that the strength of the proposed mediation differs according to the level of PT. In other words, PT was expected to moderate the mediated association between NT and depression (a partial mediated moderation; Muller et al., 2005; Preacher et al., 2007). Chi-square test of model fit were used to examine model fit; the following fit indices were also examined: the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990), the Comparative Fit Index (CFI; Bentler, 1990), and the Standardized Root Mean Square Residual (SRMR; Bentler, 1995). Models were deemed to have good fit when a path model demonstrated a non-significant chi-square tests of model fit yielded non-significant results and cut off values for other fit indices (the RMSEA  $\leq$  .08; the CFI  $\geq$  .95; and the SRMR  $\leq$  .08; Hu &



Bentley, 1999) were met. Of note, when a path model includes interaction of exogenous variables, the use of unstandardized path coefficients is preferable to standardized path coefficients for more accurately reporting the regularities of interaction variables (Jaccard & Turrisi, 2003). As such, unstandardized path coefficients were used as indices of the strength and direction of model paths.

### 3. RESULTS

#### 3.1 Preliminary Bivariate Analyses

As shown in Tables 2 and 3, bivariate associations between mother-son discrepant report on Negative and Positive Parenting were statistically significant but relatively small ( $r = -.24$ ). Additionally, as illustrated in Figure 4, associations between temperamental traits and depressive symptoms were largely consistent across informants. Specifically, both mother and son's NT and PT were negatively associated with each other. Further, both mother and son's NT was positively, and PT was negatively, associated with their depressive symptoms. The magnitude of these associations was greater for NT ( $r_s = .51-.59$ ) than for PT ( $r_s = -.32$ ). Furthermore, associations between both mother and son's depression and discrepancies on parenting variables were both significant, with absolute values ranging from .16 to .32 (See Figure 5). Absolute values were reported because the formula for calculating discrepancy scores (i.e. mother's ratings – son's ratings) ensures that those scores relate in inverse ways to variables for different informants (mother versus sons). Thus, mother's depression was positively, and son's depression was negatively, associated with discrepancies on Negative Parenting, and mother's depression was negatively, and son's depression was positively, associated with discrepancies on Positive Parenting. That is, as depression scores increased for both mothers and sons, discrepancies on both Negative and Positive Parenting showed higher negative ratings ( $r_s = |.22|$ )

and  $|.31|$ ,  $rs = |.16|$  and  $|.32|$ , respectively). Moreover, as shown in Figure 5, the magnitude of the associations between depression and Negative Parenting was greater for sons ( $rs = |.31|$ ) than for mothers ( $rs = |.22|$ - $|.27|$ ), while the magnitude of the associations between depression and Positive Parenting was greater for mothers ( $rs = |.26|$ - $|.32|$ ) than for sons ( $rs = |.16|$ - $|.19|$ ).

Furthermore, with the exception of son's PT, which was negatively associated with discrepancies on Positive Parenting ( $rs < -.30$ ), mother and son's temperament evidenced no association with discrepancies on any other parenting variables. That is, only sons with high levels of PT made higher positive ratings on Positive Parenting than did as their mothers: mother and son's temperament scores were unrelated to discrepancies in ratings for any other parenting practices. Lastly, the standardized and raw difference scores for discrepancies in ratings of parenting were highly correlated ( $rs = .97$ - $.98$ ). In sum, at the bivariate level, mother and son's NT and depressive symptoms were the most highly correlated ( $rs = |.51|$ - $|.59|$ ), while associations between mother and son's temperament and discrepant reports on parenting were limited only to son's PT on discrepancies on Positive Parenting practices.

As shown in Table 1, correlations between mother and son's ratings on Negative and Positive parenting variables were moderate, ranging from  $.31$  to  $.45$ . Additionally, mean differences between mother and son's reports on parenting ranged in absolute values from  $.38$  to  $.40$ . Further, as indicated by the standard deviations of the raw difference scores, variability between mother and son's ratings on parenting practices ranged in absolute values from  $.57$  to  $.62$ , which is approximately half a standard deviation of standardized difference scores. These small differences on average raw scores indicate high levels of agreement between mothers and sons on the parenting scales. Moreover, significant differences emerged between mother and son reports of parenting variables; sons reported higher levels of Negative Parenting than their

mothers ( $t(173) = -9.21, p < .001$ ), while mothers reported higher levels of Positive Parenting than their sons ( $t(173) = 8.07, p < .001$ ). Of note, correlations between Negative and Positive Parenting variables were significant but relatively low for both mother's report ( $r = -.29$ ) and son's report ( $r = -.25$ ).

## 3.2 Path Analyses

**3.2.1 Path Model with Standardized Difference Scores.** As shown in Table 4, when standardized difference scores served as the metric for informant discrepancies on parenting, the overall fit of the hypothesized model was good as indicated by a non-significant chi-square test of model fit. Further, all fit indices exceeded recommended thresholds for good fit. The direct and indirect unstandardized path coefficients for the path model are presented in Tables 5 and 6. In the hypothesized path model, as illustrated in Figure 2, the pattern of model paths varied by informant. Specifically, mother's temperament showed no direct effects on discrepancies for any parenting variables. Instead, mother's NT and PT were found to be indirectly associated with rating discrepancies for Positive Parenting through depression (unstandardized indirect effects =  $-.25, SE = .08, p < .01$  for NT and =  $.08, SE = .04, p < .05$ , for PT). As such, mothers' reports evidenced a full mediated moderation in the prediction of Positive Parenting; mothers with high levels of NT showed increased levels of depressive symptoms, which in turn were associated with lower discrepancy between mother and son ratings on Positive Parenting. However, the effect of NT on mother-son rating discrepancies on Positive Parenting differed as a function of the level of mother's PT, which moderated the effect of NT on depression. As shown in Figure 6, mother's PT was found to interact with NT to explain depression; as compared to high levels of PT, at low levels of PT, mothers' NT was more strongly associated with depression than it was at high levels of PT. In other words, as a result of the NT x PT interaction, mothers with both

high levels of NT and low levels of PT reported lower discrepancy on Positive Parenting through depression.

In contrast, son's self-reported temperament evidenced direct effects on discrepancies on both parenting variables. Specifically, while son's PT was directly associated with lower discrepancy on Positive Parenting, son's NT was not related to discrepancies on any of parenting variables. Additionally, son's NT x PT interaction was directly associated with higher discrepancy on Negative Parenting. These findings generally suggest that the direct effects of son's NT on discrepancies on both Negative and Positive Parenting varied according to the levels of PT. As was the case with mother's reports, son's PT was also found to interact with NT in the explanation of depression; as compared to high levels of PT, at low levels of PT, son's NT was more strongly associated with depression (See Figure 7). That is, as a function of the NT x PT interaction, sons with both high levels of NT and low levels of PT reported lower discrepancy on Positive Parenting through depression. However, son's depression was unrelated to discrepancies on any form of parenting, indicating the associations between son's temperament and discrepancies on parenting variables were not mediated by son's depression. Lastly, youth age was found to be unrelated to discrepancies on parenting variables.

**3.2.2 Path Model with Raw Difference Scores.** Next, the hypothesized path model with raw difference scores was fit. The fit of this model was identical to that for the hypothesized path model with standardized difference scores (Table 4); fit was good based on both a non-significant chi-square test of model fit and all fit indices that exceeded thresholds to be deemed good fit. The direct and indirect unstandardized path coefficients for the path model are presented in Tables 5 and 6. As illustrated in Figure 3, the pattern of model paths again varied by informant. As was the case with the path model with standardized difference scores, mother's

temperament did not evidence a direct effect on discrepancies for any of parenting variables. Instead, mother's NT was found to be indirectly associated with discrepancies on Positive Parenting through depression (unstandardized indirect effects =  $-.17$ ,  $SE = .08$ ,  $p < .05$ ). As such, mother's reports again evidenced a full mediated moderation in the prediction of Positive Parenting; mothers with high levels of NT showed increased levels of depression, which in turn were associated with lower discrepancy on Positive Parenting. However, the levels of discrepancy depended on the level of mother's PT, which moderated the effect of NT on depression (See Figure 6).

As shown in Figure 3, the path model with raw difference scores revealed a different pattern of model paths in son's reports as compared to the standardized difference scores. Specifically, the direct effects of son's NT x PT interaction were associated with higher discrepancy on Positive but not Negative Parenting. Additionally, son's PT moderated the effects of NT on depression (See Figure 7) and son's depression was positively associated with discrepancies on Positive Parenting. Further, son's NT was found to be indirectly associated with discrepancies on Positive Parenting through depression (unstandardized indirect effect =  $.15$ ,  $SE = .07$ ,  $p < .05$ ). Of note, the indirect effects of son's PT as well as the NT x PT interaction term approached significance (unstandardized indirect effect =  $-.07$ ,  $SE = .04$ ,  $p = .056$ , unstandardized indirect effect =  $-.01$ ,  $SE = .01$ ,  $p = .055$ , respectively).

Collectively, son's reports evidenced a partial mediated moderation in the explanation of discrepancies on Positive Parenting; sons with high levels of NT showed increased levels of depressive symptoms, which in turn were associated with higher discrepancy on Positive Parenting. However, the magnitude of discrepancy was partially attenuated by son's PT, which was directly and negatively associated with discrepancies on Positive Parenting. As such, at high

levels of PT, sons with high levels of NT showed lower discrepancy on Positive Parenting through depression. At low levels of PT, sons with high levels of NT reported higher discrepancy on Positive Parenting through depression. Finally, youth age was again found to be unrelated to discrepancies on parenting.

#### 4. DISCUSSION

The overarching goal of the current study was to fit a hypothesized path model by which mother and son's self-reported affective dimensions of temperament and depressive symptoms were concurrently examined in the explanation of informant discrepancies on parenting practices. The present study represents the first investigation to date that explicitly examines the prediction of mother-son informant discrepancies regarding parenting from both mother and son self-reported affective dimensions of temperament and depressive symptoms. As described earlier, the Tripartite Model (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998) contends that NT and PT, in particular through the NT x PT interaction, form the core temperamental basis for symptoms of depression, which in turn, are associated with both parent and youth's negative rating biases (De Los Reyes et al., 2008; Garstein et al., 2009; Youngstrom et al., 1999, 2000) including reporting on parenting (Chi and Hinshaw, 2002). As described in more detail below, although neither mother nor youth temperament has ever been examined in relation to discrepancies on parenting before, measures of affective dimensions of temperament have been found to tap both "trait," and "state" components of affect encompassing both normal and pathological ranges, while scores on depression measures likely represent unstable "state" components of affect. Affective temperamental traits therefore likely account for the explanation of discrepancies on parenting over and above the effect of depressive symptoms (Clark et al., 2003; Vittegnl, Clark, Thase, & Jarrett, 2013). The current study tested a hypothesized path

model representing a partial mediated moderation in which the direct effects of mother and son's NT on discrepancies regarding parenting practices are mediated by self-reported depression. This mediation then varies according to the level of PT, which moderates the effect of NT on depression (Muller et al., 2005; Preacher et al., 2007).

The initial hypothesized path models with both standardized and raw difference scores in explaining informant discrepancies on parenting fit the data well. Results of these path models broadly confirm mother and son's affective dimensions of temperament and depressive symptoms as critical pathways to parent-youth discrepancies in evaluating parenting practices. Specifically, the path model with standardized difference scores explained a significant 25% of the variance in discrepancies on Negative Parenting, and a significant 16% of the variance in discrepancies on Positive Parenting. In the path model with raw difference scores, the model explained a significant 88% of the variance in discrepancies on Positive Parenting, while it did not account for the variance in the explanation of Negative Parenting. In this model, none of the model paths showed associations with rating discrepancies for Negative Parenting. As described in more detail below, these differences between path models may reflect strengths and weaknesses associated with the two difference scoring approaches used in the current study.

Although mother's self-reported temperament evidenced no direct effects on discrepancies for any of the parenting variables, mother's NT was indirectly associated with smaller discrepancies in ratings of Positive Parenting through depression. The magnitude of discrepancy then varied according to the level of mother's PT; in other words, maternal PT moderated the association between NT and depression, indicating a full mediated moderation. In contrast, results indicated both direct and indirect effects of son's temperament on ratings discrepancies for parenting variables. Findings varies, however, depending on the type of

difference scores used to calculate discrepancies on parenting variables. Specifically, while the direct effects of son's PT were associated with lower discrepancy on Positive Parenting, the direct effects of son's NT on discrepancies for both Negative and Positive Parenting varied by the level of PT with both standardized and raw difference scores. Although son's PT consistently moderated the effects of NT on depression with both approaches to evaluating discrepancies, son's depression was positively associated with discrepancies on Positive Parenting only when raw difference scores were used. With regard to indirect effects, son-reported NT evidenced an indirect effect on Positive Parenting through depression with raw difference scores, indicating a partial mediated moderation. That is, with only the raw difference scoring approach, sons with high levels of NT evidenced increased depressive symptoms, which, in turn, were associated with higher discrepancy on Positive Parenting. However, the magnitude of discrepancy was partially attenuated by son's PT, which was negatively associated with discrepancies on Positive Parenting. Collectively, these findings revealed some differences between the standardized and raw difference approaches with regard to sons', but not mothers' reports of discrepancies on parenting practices. In general, results of the current study suggest that whereas the direct effects of mother's temperament on discrepancies between mother and son reports regarding parenting are fully mediated by depression, the direct effects of son's temperament on discrepancies for parenting are only partially dependent on depression in the explanation of discrepancies on parenting practices.

#### **4.1 Patterns of Discrepancies**

A large body of research, underscored by recent meta-analytic findings, has repeatedly found that ratings from different informants consistently evidence low to moderate convergent correlations across a wide range of psychosocial variables (e.g., Achenbach et al., 1987; De Los



Reyes & Kazdin, 2005), including both individual differences variables, such as temperament and personality traits (Tacket, 2011) and contextual variables, such as parent-youth relationships and parenting practices (De Los Reyes et al., 2008; Guion et al., 2009). Consistent with both expectation and previous findings, at the bivariate level, results of current study demonstrated that mother-son cross-informant correlations on rating discrepancies for parenting were significant but in the moderate range. As compared to the only two previously reported findings on rating discrepancies on parenting (e.g.,  $r$ 's = .23-.33, De Los Reyes et al., 2008;  $r$ 's = .02-.14, Guion et al., 2009), however, the relatively high cross-informant convergent correlations on parenting in the current study might have yielded lower mother-son discrepancy scores as compared to the reported findings from the two previous studies (De Los Reyes et al., 2008; Guion et al., 2009). These lower mother-son discrepancy scores might then have attenuated the magnitude of association between mother and son's reports on temperament and depression, and mother-son discrepancy scores on parenting, resulting in a failure to detect significant associations across model paths.

As noted earlier, to date, only one previous study has examined the effects of parent and youth self-reported depression on rating discrepancies on parenting practices (De Los Reyes et al., 2008). This study found that youth with higher levels of depression made negative reports of parental monitoring more consistently than did their mothers with depression. Given the paucity of the discrepancy literature regarding parent-youth informant discrepancies, conceptual framework designed to explicate a pattern of informant discrepancies among different pairs of informants may help advance our understanding of parent-youth cross-informant differences in the pattern on reporting on parenting variables (De Los Reyes & Kazdin, 2005). On such framework drawing from the socio-cognitive literature, the Attribution Bias Context (ABC)

Model has conceptualized informant discrepancies as results of difference between informants in their tendency to attribute a particular behavior to dispositional versus contextual factors (De Los Reyes & Kazdin, 2005). According to the ABC model, youth are more likely than their parents to attribute the causes of negative parenting to the parent's disposition. Youth tend to seek the negative aspects of parent's behavior from their memory that is consistent from their perspective, resulting in reporting higher negative ratings on negative parenting as compared to their parents. Conversely, mothers are more likely than their children to attribute the causes of the negative parenting practices to the context in which a particular behavior is exhibited and not to themselves, resulting in reporting lower negative ratings on their own negative parenting practices. With regard to positive parenting outcomes, the reverse argument can be made. That is, mothers are more likely to see their positive parenting more favorably as they tend to identify themselves as the cause of positive parenting behavior. In contrast, youth are less likely to see their parents' positive parenting practices favorably as they tend to attribute the cause of positive parenting to the context, not to the characteristics of their parents.

Although the ABC model has not been fully examined within the informant discrepancy literature, findings from the few existing studies on informant discrepancies on parenting have yielded inconsistent support for this framework (e.g., De Los Reyes & Kazdin, 2008; Stokes, Pogg, Wecksell, & Zaccario, 2011). Whereas De Los Reyes and colleagues (2008) found that youth reported higher negative ratings on parental monitoring behavior, a practice that falls within the Positive Parenting dimension, than their parents, Guion and colleagues (2009) found different patterns; youth reported higher negative ratings on parental nurturance, another practice that falls within the Positive Parenting dimension, whereas parents provided higher negative ratings on their harsh and inconsistent parenting, practices that fall within the Negative Parenting

dimension. Nevertheless, results of the current study support the tenets of the ABC model as sons reported higher negative ratings on Negative Parenting than their mothers, while mothers reported higher positive ratings on Positive Parenting than their sons. Collectively, results of the current study, as well as previous findings, provide partial support for youth's tendency for negative reporting and mother's tendency for positive reporting on Positive Parenting, but not Negative Parenting practices.

More importantly, a relatively small but informative body of research indicates that higher levels of negative ratings of youth on parenting than their parents may be particularly important in the prediction of both internalizing and externalizing symptoms in youth (Ferdinand et al., 2004; Guion et al., 2009; Yeh & Weisz, 2001). Specifically, high levels of negative reporting on parenting by youth as compared to their parents may signal parental disinterest, lack of parental awareness of youth symptoms as well as insight into parental deficits, in addition to parent's engagement in negative parenting practices, and may lead to poor psychosocial outcome in youth (Ferdinand et al., 2004; Guion et al., 2009). The findings from this study evidenced youth's propensity for negative reporting as compared to mother's tendency for positive reporting on Positive Parenting practices, indicating the importance of examining the directionality of discrepancy scores when investigating parent-child discrepancies on both Positive and Negative parenting practices.

#### **4.2 Temperament and Depression**

According to the Tripartite Model, symptoms of depression are best understood in the context of interactions between NT and PT (Clark & Watson, 1991,1999; Clark et al., 1994; Mineka et al., 1998). Results of the current study are consistent with distinct associations between depressive symptoms and the interaction of self-reported NT and PT that were

consistently evident for both mothers and sons, underscoring the reliability of these results. Specifically, both mother and son's NT was negatively, and PT was positively, associated with depressive symptoms. Notably, with the magnitude of associations between temperament and depression was much larger for mother's temperament than son's. Additionally, for both mothers and sons, PT consistently interacted with NT in the explanation of depressive symptoms (See Figures 6 & 7). More specifically, as compared to high levels of PT, at low levels of PT, mother and son's NT was more strongly associated with depression. These findings are consistent with the Tripartite Model's assertion that high NT and low PT are commonly associated with depressive symptoms (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998). These findings thus provide further evidence that the Tripartite Model is robust across clinical and non-clinical samples (Brown et al., 1998; Chorpita & Daleiden, 2002; Joiner & Lonigan, 2000; Latzman et al., in preparation).

### **4.3 Depression and Negative Rating Bias**

Previous research has repeatedly linked both mother and youth's depression to negative rating bias in multiple contexts (De Los Reyes et al., 2008; Garstein et al., 2009; Youngstrom et al., 1999, 2000) including reporting on parenting (Chi and Hinshaw, 2002). Consistent with the extant literature, at the bivariate level, depression in both mothers and sons was significantly associated with discrepancies on all parenting variables in the expected directions. That is, mother's depression was associated with higher mother-son discrepancies in ratings of Negative Parenting and lower mother-son discrepancies in ratings of Positive Parenting. Son's depression showed the reverse pattern of association as a function of the calculation method of discrepancy scores (i.e., mother's scores – son's scores). These findings indicate that both mother and son's

depression was associated with higher negative ratings relative to those of the other rater on both parenting variables.

Further, when mother and son's temperament and depression were examined simultaneously in the path models, significant associations between informant's depression and negative rating bias on parenting behavior also emerged. Specifically, after accounting for mother's temperament, mother's depression continued to be associated with lower discrepancy, whereas son's depression was associated with higher discrepancy, on Positive Parenting. Surprisingly, however, mother and sons' depression was not found to be related to discrepancies on Negative Parenting. That is, both mothers and sons with higher levels of depression reported higher negative ratings on discrepancies on Positive Parenting but evidenced no association with discrepancies on Negative Parenting. Neither mother nor son depression, however, was significantly associated with rating discrepancies for Negative Parenting.

Of particular note, the internal consistency reliabilities (Cronbach's alphas) and average interitem correlations of son's ratings on Negative Parenting were both relatively low, which might have attenuated the magnitude of associations resulting in a failure to detect significant associations. Nevertheless, results of the current study provide general support for a negative rating bias among informants with depressive symptoms in the explanation of discrepancies on Positive but not Negative Parenting (i.e., parental monitoring behavior; De Los Reyes et al., 2008). Furthermore, these findings again underscore the importance of considering both Positive and Negative Parenting practices as well as employing a multi-informant approach to the advancement of our understanding concerning parent-youth discrepant reporting on parenting practices.

#### 4.4 Temperament and Discrepancies on Parenting

As extant research has never examined parent and youth temperament as a potential factor associated with discrepancies on parenting practices before, a priori hypotheses were tentative. Nonetheless, the combination of existing literature concerning temperament and depression suggests potential associations between temperament and mother-son discrepant reports on parenting. Specifically, the Tripartite Model asserts that affective dimensions of temperament are the core temperamental basis of depressive symptoms (Clark & Watson, 1991, 1999; Clark et al., 1994; Mineka et al., 1998). These symptoms have, in turn, been found to be associated with negative rating bias across multiple measures (Chi & Hinshaw, 2002, De Los Reyes et al., 2008; Garstein et al., 2009; Youngstrom et al., 1999, 2000), including reports of parenting practices. Further, affective dimensions of temperament tap both transient “state” and stable “trait” components encompassing normal and pathological range of affect (Clark et al., 2003; Costa, Bagby, Herbst, & McCrae, 2005), while depression likely represent the fluctuating mood “state” that accompanies the development or remittance of depression (Clark et al., 2003; Vittengl et al., 2013). The effect of affective dimensions of temperament therefore likely contributes to the explanation of discrepancies over and above the effect of depressive symptoms (Clark et al., 2003; Vittegnl et al., 2013). As such, it was expected that mother’s NT and PT, and son’s NT and PT, through the NT x PT interaction, would independently explain discrepant scores on parenting practices.

As noted earlier, contrary to expectations, in the hypothesized path models, patterns of associations between informant’s affective dimensions of temperament and parent-child discrepant reports on parenting variables differed according to which informant’s temperament variables were included. Specifically, the model including mother-reported temperament

evidenced a full mediated moderation in which mother's NT was found to be indirectly associated with lower discrepancy on Positive Parenting through depression. The level of discrepancy on parenting then varied according to the level of mother's PT, which moderated the association between NT and depression. In comparison, the model including son-reported temperament was found to be partially mediated by depression in the explanation of depression only with raw difference scores. That is, sons with high levels of NT showed increased depressive symptoms, which, in turn, were associated with higher discrepancy on Positive Parenting. However, the magnitude of discrepancy was partially attenuated by son's PT, which was negatively associated with discrepancies on Positive Parenting. Of particular note, at the bivariate level, with the exception of son's PT, which was negatively associated with discrepancies on Positive Parenting, mother and son's temperament evidenced no associations with discrepancies on any other parenting variables. These findings suggest that whereas the effect of mother's temperament on discrepancies for parenting was fully accounted for by the effect of mother's depressive symptoms, the effect of son's temperament on discrepancies for parenting variables were less dependent on son's depression in the explanation of parenting practices.

One possible explanation for these inconsistent findings may be that differences between what mother and son's self-reports of affective dimensions of temperament and depression each represents in the current study. As noted earlier, the emerging literature supports the assertion that whereas self-reported affective dimensions of temperament tap both transient "state" and stable "trait" components of both normal and more pathological-range affect (Clark et al., 2003; Costa et al., 2005), depression likely represent the fluctuating mood "state" that accompanies the development or remittance of depression and a more pathological-range of

“trait” dimensions of temperament (Clark et al., 2003; Vittengl et al., 2013). That is, it is plausible that mother and son’s affective dimensions of temperament likely represent more normal range of “trait” components of affect while depression represents pathological-range affect.

Further, a burgeoning body of research has identified psychopathological symptoms, personality traits, and psychosocial functioning impairment as three key constructs when examining mental illness (Ro & Clark, 2013). Although the structure of psychosocial functioning and its association with other constructs have not been fully examined, pathological-range personality/temperamental traits have been found repeatedly to predict specific dimensions of psychosocial functional impairment, including job attainment, relationship, health-related behaviors, and mortality (Ozer & Benet-Martinez, 2006; Roberts, Juncel, Shiner, Capsi, & Goldberg, 2007). Moreover, pathological-range negative temperamental traits and depression, which are strongly associated with each other, have been independently linked to various dimensions of poor psychosocial functioning (Hirschfeld et al. 2000; McKnight & Hashdanm, 2009). In other words, it is possible that mother and son’s depression also likely manifest functional impairment associated with pathological-range negative temperamental traits, while their temperament does not.

In the current study, the mean levels of both mother and son’s depressive symptoms were nearly identical to or slightly below the levels typically seen among non-clinical similar-aged community samples (e.g., Achenbach & Rescorla, 2001; Watson et al. 2007). However, the extant literature is unequivocal concerning risk factors associated with development of depression including being female and middle-aged (CDC, 2010), which fit with mothers’ profiles in the current study. Indeed, post-hoc analyses revealed that a greater number of



mothers than of sons reported higher levels of current depressive symptoms and were prescribed anti-depressant medications (i.e., 17.82% of mothers and 4.6% of sons were prescribed anti-depressant). Given the higher levels of depressive symptoms among mothers in the current study, these findings may be indicative of mothers reporting more pathological-range of “trait” components of affect and lower psychosocial functioning associated with depression, relative to their sons who likely evidence less pathological-range affect and more normative levels of psychosocial functioning.

Most importantly, results of the current study suggest that more normal ranges of “trait” components of affect, at least among sons, uniquely contributed to the explanation of discrepancies on Positive Parenting. In other words, as compared to youth with lower levels of NT, youth with high levels of NT alone, with or without depressive symptoms, evidenced increased levels of discrepancies on parenting practices. These findings highlight the importance of considering both affective dimensions of temperament and depressive symptoms as critical pathways to discrepancies on parenting practices.

#### **4.5 Analytical Approach to Discrepancy Scores**

Although different analytical approaches have been used and compared to evaluate informant discrepancies, consensus has yet to be reached on how best to analyze informant discrepancies (De Los Reyes & Prinstein, 2004; Ferdinand et al., 2004, 2006; Kraemer et al. 2003). In the current study, discrepancy scores were operationally defined using two of the most frequently used approaches, the difference between standardized and raw mother and son’s scores. Each approach evidenced both strengths and weaknesses. Specifically, whereas the use of standardized difference scores has been shown to neutralize the influence from differential distributions of informant’s scores as well as to adjust for potential systemic bias, the raw

difference-scoring approach maximally captures information concerning differences in the intra-dyadic variances across mother-son dyads (De Los Reyes & Kazdin, 2004). In the only published study examining informant's self-reported depression in the explanation of parent-youth discrepancies on parenting (De Los Reyes et al., 2008), no significant differences were found between the two difference-scoring approaches. In contrast, results of the current study varied across approaches with regard to son, but not mothers' reports of discrepancies on parenting. These findings may indicate that the standardized difference scores might indeed result in lost information concerning the differences in the rating variances across informants as the standardized difference scores are derived from a difference between mother and son's scores in relation to other mother and son's ratings in this sample. Conversely, as indicated by differences in the percentage of variance explained between two path models, the raw difference scores might reflect differential distributions of informant's scores, in particular, within son's ratings.

In an attempt to address the challenges inherent in interpreting discrepant outcomes, informant discrepancies have begun to be examined using polynomial regression analysis approaches (De Los Reyes Salas, Menzer, & Daruwala, 2013; Laird & De Los Reyes, 2013; Lard & Weems, 2011) in addition to difference-scoring approaches. In polynomial regression approaches, informant's ratings on parallel measures are first transformed into interaction terms (multi-informant interaction terms), which are then examined for the association with a dependent variable(s). Although the polynomial regression approaches have not been fully examined, some scholars have argued that the use of indirect measures of multi-informant interaction terms may provide a more comprehensive interpretation of the utility of information discrepancies (De Los Reyes et al., 2013; Lard & De Los Reyes, 2013; Lard & Weems, 2011).

Of note, due to the use of multi-informant interaction terms, the polynomial regression approaches were not employed for the current study, which included mother and son's NT x PT interaction terms as exogenous variables in the hypothesized path model. Further, an alternative approach of employing absolute values of discrepancies, was not used as this approach allows for examinations of the magnitude but not the directionality of informant discrepancies, which have been found to be critical in the explanation of psychosocial functioning in youth (Ferdinand et al., 2004; Guion et al., 2009; Yeh & Weisz, 2001). Taken together, results of the current study suggest a need for future research to employ multiple analytical approaches to discrepancy scores (e.g., standardized and raw difference-scoring approaches) as well as the need for pursuing alternative analytical methods to advance our understanding of parent-youth discrepant outcomes on parenting practices (De Los Reyes et al., 2013).

#### **4.6 Limitations**

Due to the cross-sectional, correlational nature of the data, the current study does not allow for causal inferences. Future longitudinal research is therefore necessary to confirm the importance of affective dimensions of temperament and depression as critical pathways to parent-youth rating discrepancies for parenting practices. Although the hypothesized path models proved a good fit to the data, providing a plausible explanation for parent-youth discrepant reports on parenting practices, it does not imply that these are the only possible path models. In particular, given the bi-directional nature of parenting (Belsky, 1984; Maccoby, 1992), future research would benefit from investigating bi-directional influences of predictive variables, again underscoring the need for future longitudinal research in the explanation of discrepancies on parenting practices.

Additionally, the current sample represented a community sample comprising of

predominantly White mothers and their sons who were moderate to high with regard to socioeconomic status. Future research should examine more diverse samples to confirm that results of the current study reflect differences in informants' temperament and depression rather than racial/cultural, gender, or socio-economically based differences in parenting practices. Further, the current sample included both mothers with current depressive symptoms and those with a history of depression but no current depression. An emerging body of research has found that in current clinically depressed parents, depressive symptoms are associated with higher negative parenting behavior than they are in parents with a history of depression that is currently in remission (Foster et al., 2009; Garber, Ciesla, McCauley, Diamond, and Schloedt, 2011). Future study is necessary to examine differential outcomes with regard to their parenting between clinical and non-clinical population in the investigation of rating discrepancies for parenting practices.

Furthermore, both the exogenous and endogenous variables in the current study consisted of mother and son's self-reports, resulting in observed effects potentially being explained, at least partially, by shared informant variance. Future research would therefore benefit from the inclusion of other research methods (e.g., laboratory observation, clinical interviews) and of data from additional informants (e.g., fathers, daughters, teachers, peers) to test whether differential outcomes may emerge with different sources of information including gender in the investigation of discrepancies on parenting practices. Moreover, the current study employed aggregated Negative and Positive parenting scales to assess discrepancies on parenting practices. As noted earlier, parenting is a multi-faceted construct consisting of a number of sub-components (Skinner, Johnson, & Snyder, 2005). Indeed, the two parenting composite scales used in the current study are comprise second-order dimensions such as Poor Monitoring/Supervision,

Inconsistent Discipline, and Involvement (Frick, 1992). Future research is encouraged to examine potential differential association with various parenting dimensions in the investigation of discrepancies on parenting practices.

#### **4.7 Conclusions**

Limitations notwithstanding, results of the current study contribute to the limited literature on factors contributing to the explanation of parent-youth informant discrepancies on parenting practices. Taken together, results of the current study broadly confirm the importance of considering affective dimensions of temperamental traits and depression symptoms in the prediction of rating discrepancies for both Negative and Positive parenting practices. Results of the current study have important implications for future research on the identification of critical pathways, which parent and youth's affective dimensions of temperament and depression represent, to the prediction of informant discrepancies. The identification of factors that may explain rating discrepancies is essential for understanding of potential mechanisms underlying parent-youth informant discrepancies in service of advancing assessing and intervening with youth psychopathological outcomes. Further, the current findings underscore the clinical importance of the identification of contributing factors to discrepant reporting on psychosocial functioning domains between parent and youth. Discrepant parent-youth reports likely serve as a proxy for potential family dysfunction: discrepant perception between parents and youth may indicate high level of family conflict, poor communication and problem-solving, which have been linked to the development of youth psychopathological symptoms. As such, parent-youth rating discrepancies on parenting may signal increased risk for youth psychopathology and probing the parent-youth rating discrepancies is likely to provide useful clinical information (Grills & Ollendick, 2003; Ferdinand et al. 2004; Guion et al., 2009). With the identification of

affective dimensions of temperament along with depression as the critical pathways to parent-youth discrepant reporting on parenting practices, findings of the current study will provide important avenues through which to provide tailored approaches to youth assessment and intervention in advancement of youth psychopathological outcomes.

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## APPENDIX

Table 1.

*Correlations among mother and son's self-reported temperament, depression, and parenting practices*

	1	2	3	4	5	6	7	8	9	10
1. Mother NT	<b>.89</b>									
2. Mother PT	-.22**	<b>.82</b>								
3. Son NT	.15*	-.11	<b>.89</b>							
4. Son PT	.06	.14	-.17*	<b>.87</b>						
5. General Dep	.59**	-.32**	.01	-.01	<b>.81</b>					
6. With/Dep	.09	-.06	.51**	-.32**	.01	<b>.70</b>				
7. Mom Neg Par	.24**	-.04	.09	.02	.30**	-.14	<b>.76</b>			
8. Mom Pos Par	-.22**	.27**	-.08	.04	-.33**	-.01	-.29**	<b>.75</b>		
9. Son Neg Par	.11	-.02	.18*	.01	.02	.18*	.45**	-.13**	<b>.81</b>	
10. Son Pos Par	-.05	.16*	-.16*	.39**	.05	-.20**	-.11	.31**	-.25**	<b>.84</b>
Mean	8.34	19.60	9.08	18.94	31.68	2.77	2.08	3.96	2.48	3.58
SD	5.99	4.63	6.31	5.63	8.08	2.40	.46	.41	.60	.60

*Notes.*  $N = 174$ . NT = Negative Temperament, PT = Positive Temperament, Dep = Depression, With/Dep = Withdrawn/Depressed, Neg = Negative, Pos = Positive, Par = Parenting, SD = standard deviation. \* $p < .05$ , \*\* $p < .01$ . Scale reliabilities (Cronbach's alphas) are shown in ***boldfaced italics*** on the diagonal.

Table 2.

*Correlations among mother's self-reported temperament, depression, and parenting practices*

	1	2	3	4	5	6	7	8	9
1. Mother NT	---								
2. Mother PT	-.22**								
3. General Dep	.59**	-.32**							
4. Mom Neg Par	.24**	-.04	.30**						
5. Mom Pos Par	-.22**	.27**	-.33**	-.29**					
6. Neg Par SDS	.13	-.03	.27**	.53**	-.16*				
7. Pos Par SDS	-.14	.09	-.32*	-.16	.11	-.24**			
8. Neg Par RDS	.08	-.02	.22**	-.33**	-.10	.98**	-.23**		
9. Pos Par RDS	-.10	.02	-.26**	-.09	.36**	-.23**	.97**	-.24**	
Mean	8.34	19.60	31.68	2.08	3.96	.00	.00	-.40	.38
SD	5.99	4.63	8.08	.46	.41	1.05	1.18	.57	.62

*Notes.*  $N = 174$ . NT = Negative Temperament, PT = Positive Temperament, Dep = Depression, With/Dep = Withdrawn/Depressed, Neg = Negative, Pos = Positive, Par = Parenting, SDS = Standardized Difference Scores (mother's z scores – son's z scores), RDS = Raw Difference Scores (mother's raw scores – son's raw scores), SD = standard deviation. \* $p < .05$ , \*\* $p < .01$ .



Table 3.

*Correlations among son's self-reported temperament, depression, and parenting practices*

	1	2	3	4	5	6	7	8	9
1. Son NT	-.--								
2. Son PT	-.17*								
3. With/Dep	.51**	-.32**							
4. Son Neg Par	.18*	.01	.18*						
5. Son Pos Par	-.16*	.39**	-.20**	-.25**					
6. Neg Par SDS	-.09	.01	-.31**	-.52**	.13				
7. Pos Par SDS	.06	-.30**	.16**	.59**	-.59**	-.24**			
8. Neg Par RDS	-.12	.001	-.31**	-.70**	.18*	.98**	-.23**		
9. Pos Par RDS	.10	-.36**	.19*	.16*	-.78**	-.23**	.97**	-.24**	
Mean	9.08	18.94	2.77	2.48	3.58	.00	.00	-.40	.38
SD	6.31	5.63	2.40	.60	.60	1.05	1.18	.57	.62

*Notes.*  $N = 174$ . NT = Negative Temperament, PT = Positive Temperament, With/Dep = Withdrawn/Depressed, Neg = Negative, Pos = Positive, Par = Parenting, SDS = Standardized Difference Scores (mother's z scores – son's z scores), RDS = Raw Difference Scores (mother's raw scores – son's raw scores), SD = standard deviation. \* $p < .05$ , \*\* $p < .01$ .

Table 4.

*Fit indices for hypothesized path models*

Fit Indices	Hypothesized Path Model (SDS)	Hypothesized Path Model (RDS)
$\chi^2_M$	12.61	12.61
$df_M$	9	9
RMSEA (90% CI)	.05 (.000 .106)	.05 (.000 .106)
CFI	.99	.99
SRMR	.03	.03

*Note:*  $N=174$ . RMSEA = the Root Mean Square Error of Approximation, CFI = the Comparative Fit Index, SRMR = the Standardized Root Mean Square Residual, SDS = Standardized Difference Scores (mother's  $z$  scores – son's  $z$  scores), RDS = Raw Difference Scores (mother's raw scores – son's raw scores).  $p = .18$ .

Table 5.

*Direct and indirect estimates of mother's report for final models*

	Estimate SDS	Estimate RDS
<b>Direct</b>		
NT / Gen Dep	4.22***	4.22***
PT / Gen Dep	-1.32*	-1.32*
NTxPT / Gen Dep	-.94*	-.94*
NT / Neg Par	.21	.11
PT / Neg Par	-.06	-.07
NTxPT / Neg Par	.04	.03
NT / Pos Par	.14	.12
PT / Pos Par	-.05	-.09
NTxPT / Pos Par	.13	.09
Gen Dep / Neg Par	.01	-.002
Gen Dep / Pos Par	-.06**	-.04*
<b>Indirect</b>		
NT / Gen Dep / Neg Par	.03	-.01
PT / Gen Dep / Neg Par	-.01	.002
NTxPT / Gen Dep / Neg Par	-.01	.002
NT / Gen Dep / Pos Par	-.25**	-.17*
PT / Gen Dep / Pos Par	.08*	.05
NTxPT / Gen Dep / Pos Par	.06	.04
<b>Variances (R<sup>2</sup>)</b>		
General Depression	.37	.37
Discrepancies on Neg Par	.25	.01
Discrepancies on Pos Par	.16	.88

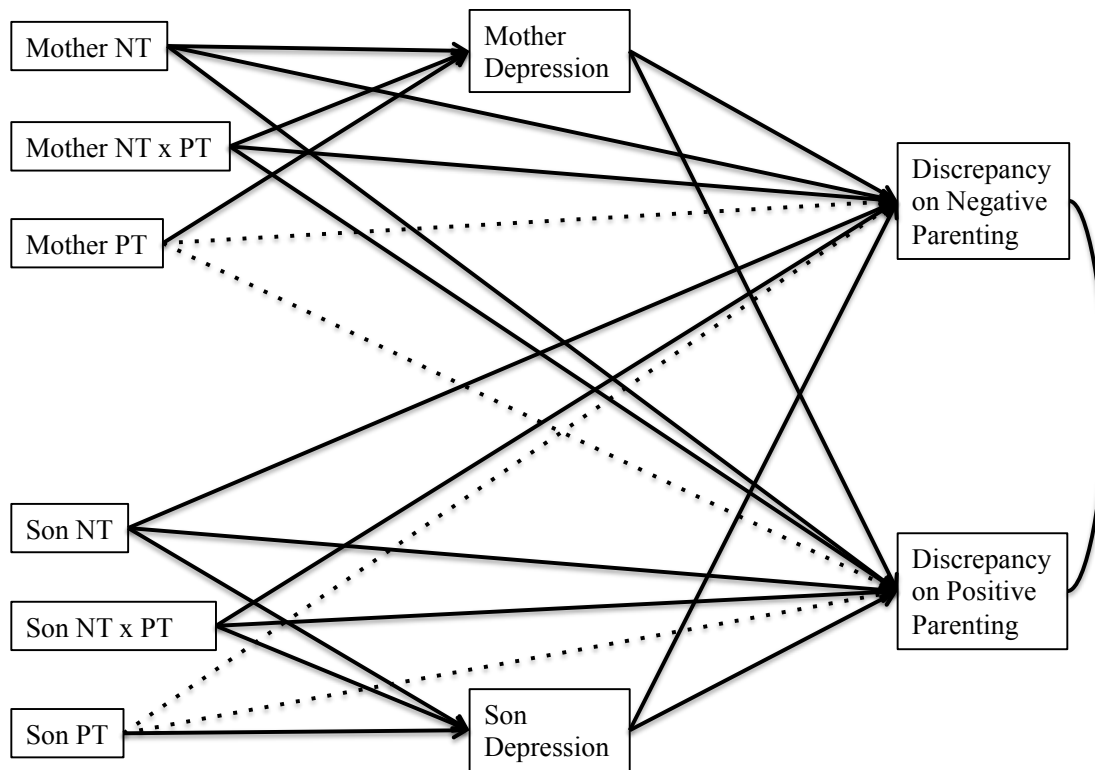
*Note:*  $N=174$ . SDS = Standardized Difference Scores (mother's z scores – son's z scores), RDS = Raw Difference Scores (mother's raw scores – son's raw scores), NT = Negative Temperament, PT= Positive Temperament, Gen Dep = General Depression, Neg Par = discrepancies on Negative Parenting, Pos Par = discrepancies on Positive Parenting. Unstandardized estimates are shown. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 6.

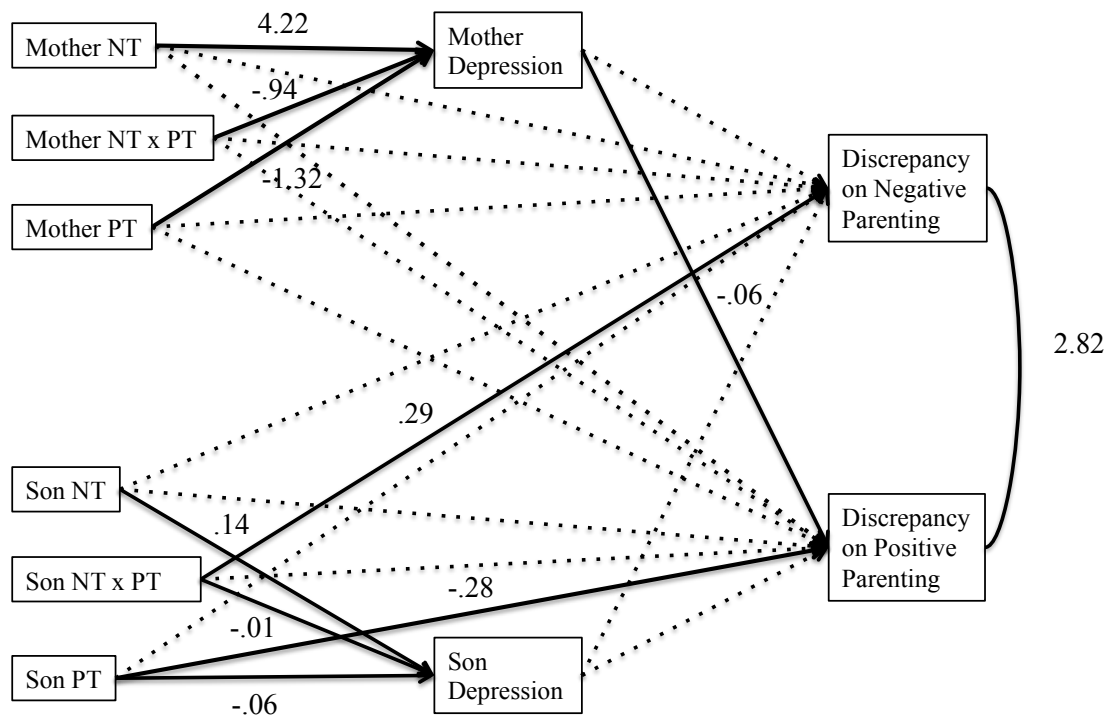
*Direct and indirect estimates of son's reports for final models*

	Estimate SDS	Estimate RDS
<b>Direct</b>		
NT / With Dep	.14***	0.14***
PT / With Dep	-.06**	-.06**
NTxPT / With Dep	-.01**	-.01**
NT / Neg Par	.06	-.004
PT / Neg Par	-.11	-.02
NTxPT / Neg Par	.29***	.01
NT / Pos Par	-.09	-.11
PT / Pos Par	-.28**	-.27*
NTxPT / Pos Par	.02	.64***
With Dep / Neg Par	-.43	-.25
With Dep / Pos Par	.78	1.08*
<b>Indirect</b>		
NT / With Dep / Neg Par	-.06	-.03
PT / With Dep / Neg Par	.03	.02
NTxPT / With Dep / Neg Par	.004	.003
NT / With Dep / Pos Par	.10	-.15*
PT / With Dep / Pos Par	-.05	-.07 <sup>†</sup>
NTxPT / With Dep / Pos Par	-.01	-.01 <sup>†</sup>
<b>Variances (R<sup>2</sup>)</b>		
Withdrawn/Depressed	.32	.32
Discrepancies on Neg Par	.25	.01
Discrepancies on Pos Par	.16	.88

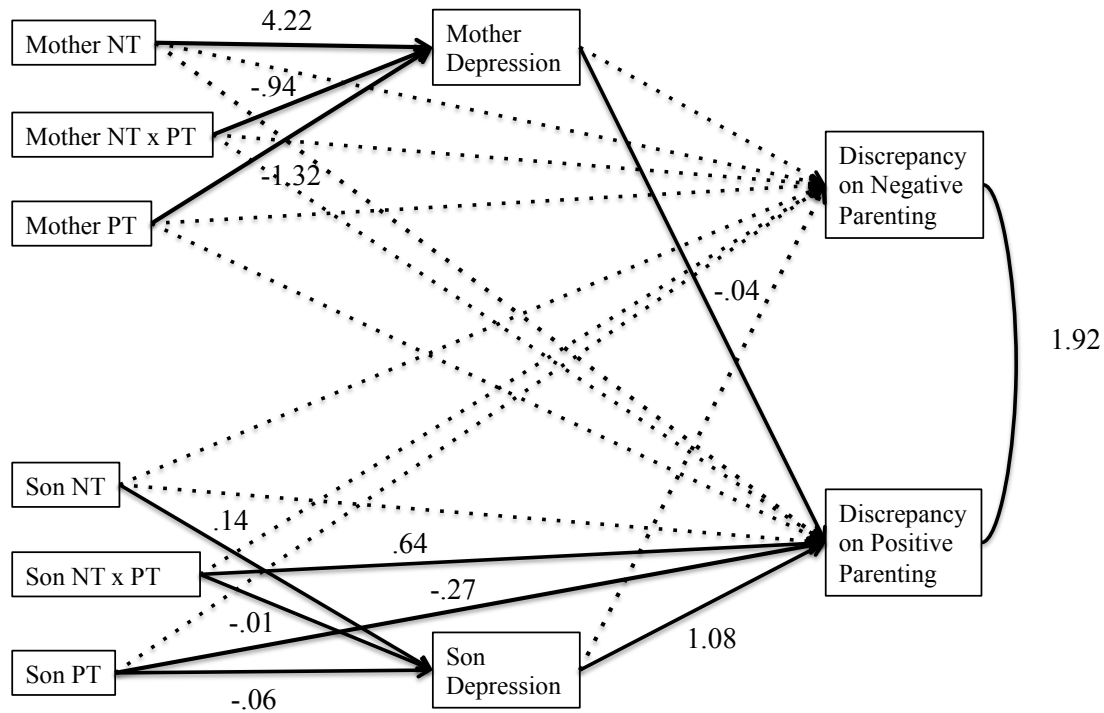
*Note:*  $N=174$ . SDS = Standardized Difference Scores (mother's z scores – son's z scores), RDS = Raw Difference Scores (mother's raw scores – son's raw scores), NT = Negative Temperament, PT = Positive Temperament, With Dep = Withdrawn/Depressed, Neg Par = discrepancies on Negative Parenting, Pos Par = discrepancies on Positive Parenting. Unstandardized estimates are shown. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



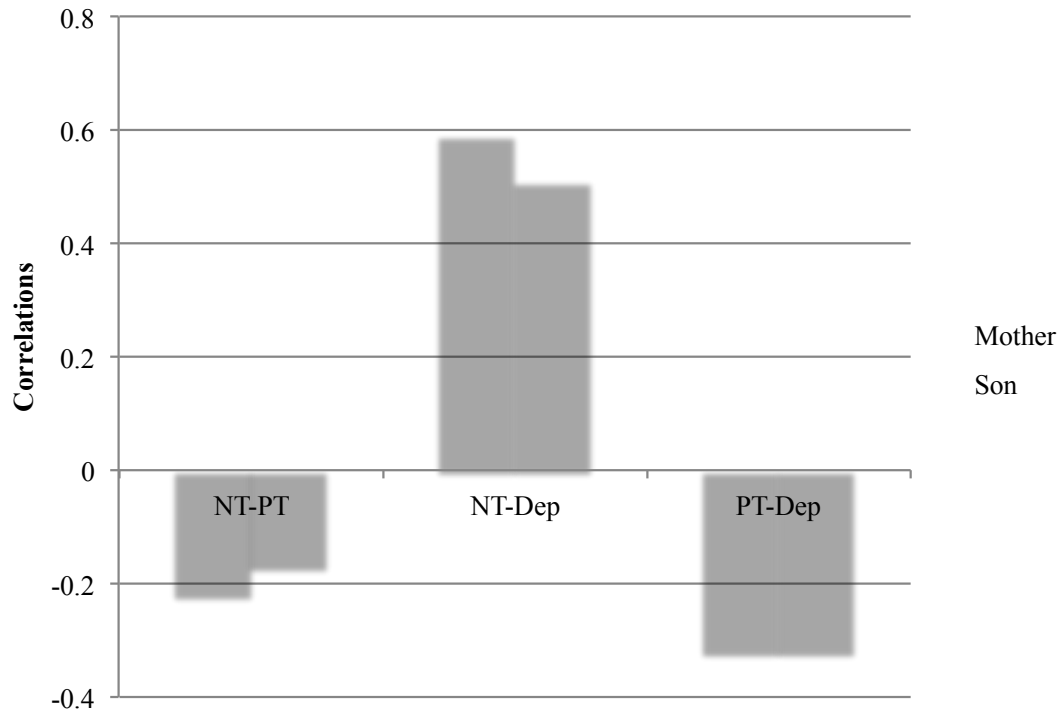
*Figure 1.* Hypothesized path model predicting informant discrepancies on parenting from mother and son's self-reported temperament and depression. All covariances (i.e., son's age) are estimated in the model. Solid lines indicate significant paths and dotted lines show non-significant paths.



*Figure 2.* Tested path model with standardized difference scores predicting informant discrepancies on parenting from mother and son's self-reported temperament and depression. Unstandardized path coefficients are shown. All covariances (i.e., son's age) are estimated in the model. Solid lines indicate significant paths and dotted lines show non-significant paths.

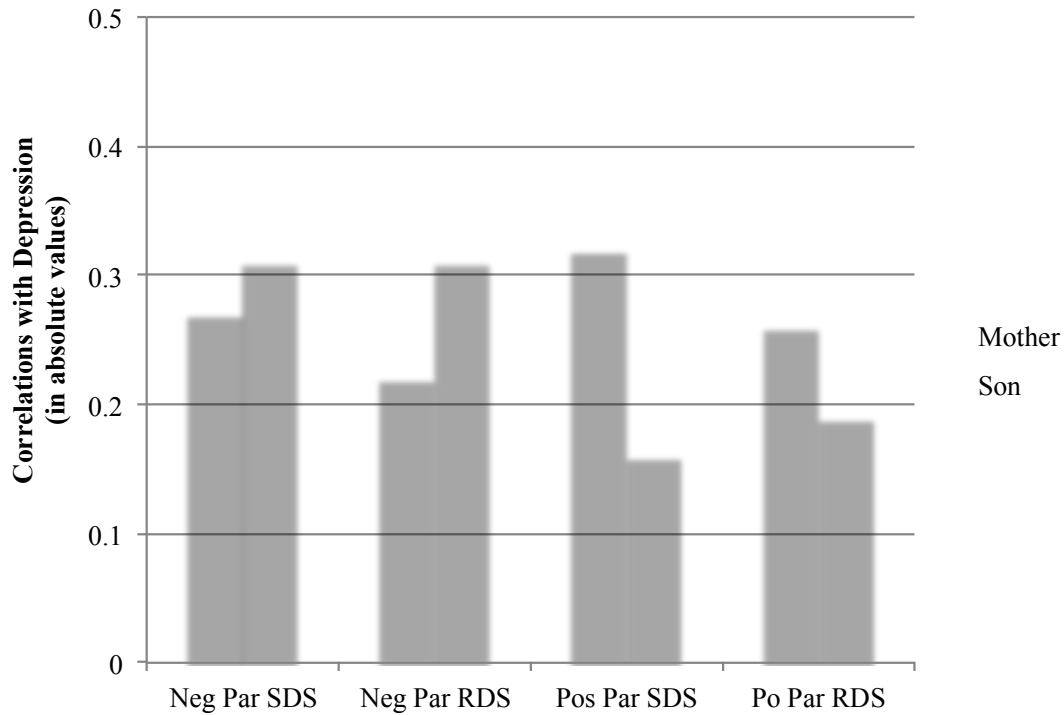


*Figure 3.* Tested path model with raw difference scores predicting informant discrepancies on parenting from mother and son's self-reported temperament and depression. Unstandardized path coefficients are shown. All covariances (i.e., son's age) are estimated in the model. Solid lines indicate significant paths and dotted lines show non-significant paths.

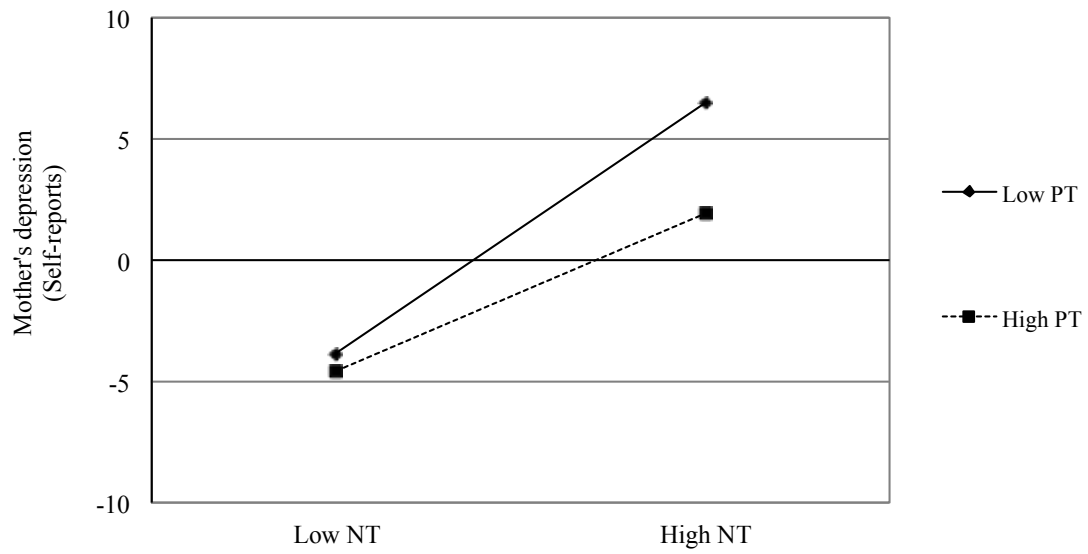


*Figure 4.* Correlations among mother and son's self-reported NT, PT, and depression. NT = Negative Temperament, PT= Positive Temperament, Dep = General Depression for mothers and Withdrawn/Depressed for sons.

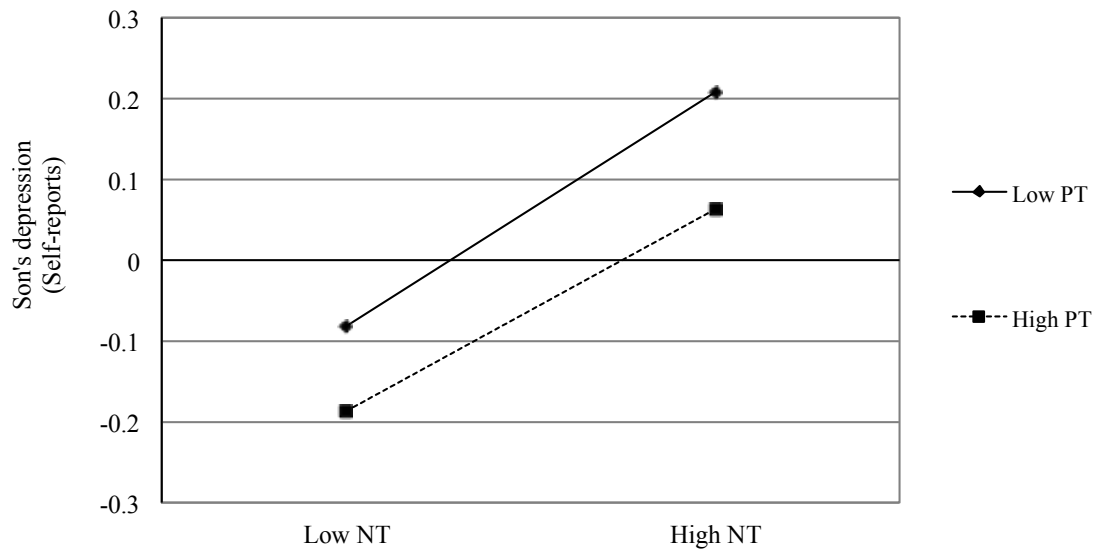




*Figure 5.* Correlations among mother and son's self-reported depression and discrepancies on Negative and Positive parenting. Both standardized and raw difference scores are shown. Neg = Negative, Pos = Positive, Par = Parenting, SDS = Standardized Difference Scores (mother's z scores – son's z scores), RDS = Raw Difference Scores (mother's raw scores – son's raw scores).



*Figure 6.* Interaction between mother-reported NT and PT: associations with mother's self-reported depression. High and low values correspond to +1.0 and -1.0 SD from the mean, respectively.



*Figure 7.* Interaction between son-reported NT and PT: associations with son's self-reported depression. High and low values correspond to +1.0 and -1.0 SD from the mean, respectively.