Criterion Validity of Interpreting Scores From Multi-Informant Statistical Interactions as Measures of Informant Discrepancies in Psychological Assessments of Children and Adolescents

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Parents and adolescents often provide discrepant reports of adolescent and family behavior. Recent work indicates that scores from indirect measures of discrepancies between parent and adolescent reports, namely, statistical interactions between reports, longitudinally predict adolescent psychopathology. However, no previous work supports the criterion validity of interpreting scores from these interactions as indirect measures of informant discrepancies. In a community sample of 50 parents and adolescents ages 14–17 years (M = 15.4 years, 20 males and 30 females), we examined indirect measures of parent–adolescent reporting discrepancies, using parent and adolescent reports of parents’ awareness of adolescents’ whereabouts and activities (i.e., parental monitoring). We examined these reporting discrepancies in relation to a structured interview that directly assesses “discrepant beliefs” or perceived discrepancies between parent and adolescent views of daily life topics (e.g., doing chores and homework). Greater parent- and adolescent-reported parental monitoring related to lower perceived discrepant beliefs. Importantly, the interaction between parental monitoring reports provided additional information. Specifically, when adolescents provided relatively high parental monitoring reports, we observed greater parents’ parental monitoring reports relating to lower perceived discrepant beliefs, but no such relation when adolescents provided relatively low parental monitoring reports. Overall, findings suggest that indirect assessments of parent–adolescent discrepancies in reports of parental monitoring relate to direct assessments of how parents and adolescents perceive everyday life topics differently. These findings have important implications for understanding the longitudinal links between informant discrepancies and adolescent psychopathology, as well as developing multimethod assessments of informant discrepancies in psychological assessments.

Keywords: informant disagreement, informant discrepancies, multiple informants, statistical interactions, To(may)to-To(mah)to Interview

A key tenet of best practices in psychological assessments of child, adolescent, and family functioning involves collecting information from multiple informants (Hunsley & Mash, 2007).

These assessments might include reports taken from parents, teachers, and children and adolescents (i.e., self- and peer reports). Domains of assessment might include child and adolescent psychological symptoms (e.g., aggression, anxiety, depression, and hyperactivity) as well as risk and protective factors implicated in the development and maintenance of these symptoms (e.g., parenting practices and peer relations). Perhaps as a consequence of informants varying in where they observe these behaviors (e.g., home vs. school settings; Achenbach, 2011), multiple informants’ reports often exhibit low to moderate levels of correspondence (e.g., rs ranging from .20s to .60s; Achenbach, McConaughy, & Howell, 1987). In fact, low levels of correspondence often create a great deal of uncertainty in research and practice settings. This is because when informants’ reports disagree, they tend to also yield inconsistent conclusions regarding such issues as identifying risk and protective factors of psychopathology (e.g., Offord et al., 1996) and identifying efficacious treatments (e.g., Casey & Berman, 1985). To this end, much of the research on informant discrepancies has largely focused on the implications that these discrepancies have for interpreting the outcomes of assessments.
conducted in research and practice settings (for reviews, see De Los Reyes & Kazdin, 2005, 2006; De Los Reyes, Thomas, Goodman, & Kundey, 2013).

Recently, researchers and theorists have posited that, beyond methodological implications, informant discrepancies may have important implications for the development of child and adolescent psychopathology (for a review, see De Los Reyes, 2011). Indeed, as mentioned previously, informants often vary in the settings within which they observe the behaviors measured in psychological assessments. Furthermore, children and adolescents may also vary in where they express specific behaviors measured in these assessments (Dumenci, Achenbach, & Windle, 2011; Kraemer et al., 2003). In fact, a great deal of research indicates that children and adolescent psychopathology develops within the context of dynamic and reciprocal interactions between children/adolescents and other people, such as parents, teachers, and peers (see Baumrind, 1991; Dishion & McMahon, 1998; S. H. Goodman & Gotlib, 1999; Granic & Patterson, 2006; Loebner, Burke, & Pardini, 2009; McMahon & Frick, 2005; Stice & Barrera, 1995; Stoolmiller, 1994). These people with whom children and adolescents interact also often serve as informants in psychological assessments. Consequently, researchers have surmised that when informants, namely, parents and children/adolescents, view behavior differently, these discrepant views may reflect how informants relate to one another, and thus may point to increased risk for child and adolescent psychopathology (e.g., Ferdinand, van der Ende, & Verhulst, 2004). For example, the Discrepancies inVictimization Implicate Developmental Effects (DiVIDE) model postulates that underlying informant discrepancies in reports of youth violence exposure is a lack of parental understanding or acceptance of child/adolescent behavior, and this predisposes children and adolescents to psychopathology (K. L. Goodman, De Los Reyes, & Bradshaw, 2010).

In line with the DiVIDE model, a number of studies have purportedly demonstrated that increased levels of informant discrepancies longitudinally predict increased levels of child and adolescent psychopathology (for a review, see Laird & De Los Reyes, 2013). Yet, recent work raises concerns regarding the ability to interpret scores from the measures typically relied upon to assess informant discrepancies as reflections of the construct. Specifically, in psychological assessments of children and adolescents, researchers most often assess informant discrepancies using a mathematical difference score, which involves subtracting one informant’s report on a measure from another informant’s report on that same measure (e.g., Beck, Hartos, & Simons-Morton, 2006; Guion, Mrug, & Windle, 2009; Pelton & Forehand, 2001; Pelton, Steele, Chance, & Forehand, 2001). Researchers vary on the kinds of difference scores they use, including directional differences between reports (i.e., which informant reports greater scores than the other), absolute values of the differences, and regression-based residual difference scores (for reviews, see De Los Reyes & Kazdin, 2004; Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007). Prior work indicates that when informants’ reports disagree to a considerable extent—a common occurrence in psychological assessments of child, adolescent, and family behavior (Achenbach, 2006)—these difference scores are as reliable as the reliabilities of scores taken from the individual reports used to create them (see Rogosa, Brandt, & Zimowski, 1982; Rogosa & Willett, 1983).

Yet, prior work also indicates that difference scores evidence considerable limitations, namely with regard to the validity of interpreting scores from these measures as indicators of informant discrepancies. Two key issues point to questions of validity in this regard. First, regardless of the measure used, statistical analyses of difference scores yield findings equivalent to analyses of the individual informants’ reports used to create them (Laird & Weems, 2011). Stated another way, one cannot empirically demonstrate that difference scores yield information beyond interpreting scores from the individual informants’ reports upon which they are based. Second, in organizational behavior research, research indicates that a difference score imposes mathematical constraints on the relations between the two reports used to construct the score and an outcome or dependent variable (for a review, see Edwards, 1994). For example, when subtracting a child’s score from a parent’s score to assess the directional difference between a parent and child report (i.e., which informant reports greater levels of the assessed behavior, relative to the other), use of the resulting difference score carries with it the assumption that the parent and child reports will correlate with a common outcome variable at equal magnitudes but opposite signs (i.e., parent report correlates positively with outcome, but child report correlates negatively with outcome; see Edwards, 2002). As a result, difference scores as used in psychological assessments of children and adolescents would be particularly affected, because overall, informants’ reports correlate positively, albeit at low to moderate magnitudes (e.g., Achenbach et al., 1987). This might indicate that generally, informants’ reports correlate with an outcome at different magnitudes, but in the same direction (see also Laird & De Los Reyes, 2013). Such an observation would violate both of the constraints outlined by Edwards (1994).

In response to recent concerns regarding interpretations of difference scores, researchers have advocated for examining informant discrepancies using traditional methods for studying statistical moderation within a multiple-regression framework (Laird & Weems, 2011). This approach addresses a key concern raised when using difference scores. Indeed, a moderation framework, by design, involves examining whether the interaction between two main effects (i.e., the two informants’ reports) explains variance in an outcome beyond what explained by the main effects (Holmbeck, 2002). Thus, one can examine whether congruence or difference between reports explains variance in an outcome beyond what explained by the individual reports, and without imposing constraints regarding the magnitude and direction of the individual reports on the outcome variable (Laird & Weems, 2011). In fact, two recent studies indicate that these statistical interactions between survey reports longitudinally predict child and adolescent alcohol use and psychopathology (De Los Reyes, Reynolds, Wang, MacPherson, & Lejuez, 2010; Laird & De Los Reyes, 2013). For instance, parent and adolescent reports that both indicate positive interactions within the parent–adolescent relationship relate to the lowest levels of adolescents’ depressive symptoms (Laird & De Los Reyes, 2013).

In sum, recent studies support the validity of interpreting scores taken from multi-informant statistical interactions as predictors of adolescent psychopathology. Yet, these findings do not indicate whether interpretations of scores from these interaction calculations evidence criterion validity. That is, do multi-informant statistical interactions relate to measures that also purportedly assess
discrepancies between informants’ views on the same behavior? Understanding whether it is valid to interpret scores from multi-informant statistical interactions as reflections of informants’ discrepant views is a crucial step toward theory testing and using informant discrepancies to improve interpretations of the outcomes of multi-informant clinical assessments. Importantly, multi-informant statistical interactions, by construction, indirectly or unobtrusively assess informant discrepancies. That is, informants providing behavioral reports are not told explicitly that the purpose of the assessment is to compare their reports with those of other informants. Indeed, when completing a psychological measure, informants likely deduce that the purpose of the measure is to assess the behaviors described in the items (e.g., family behaviors). Thus, one method for assessing the criterion validity of interpreting scores from multi-informant statistical interactions as measures of informant discrepancies is to examine these scores in relation to informants’ direct experiences with discrepant views.

Parent and adolescent reports of whether parents know their adolescents’ whereabouts and activities (i.e., parental monitoring; Kerr & Stattin, 2000) offer a prime context for testing the criterion validity of interpreting scores taken from multi-informant statistical interactions as measures of informant discrepancies. Indeed, parent and adolescent reports of parental monitoring often exhibit low correspondence (e.g., Lippold, Greenberg, & Feinberg, 2011; Reynolds, MacPherson, Matusiwick, Schreiber, & Lejuez, 2011). Thus, discrepancies between parent and adolescent parental monitoring reports are likely large enough to examine variations in the differences between reports when assessed using different measures of informant discrepancies (e.g., indirect vs. direct measures of informant discrepancies). Additionally, these issues are important to examine in families with adolescents, given that understanding informant discrepancies in these families would inform both applied and basic research. For example, family-based intervention programs have been developed to improve parent monitoring behaviors in order to prevent or reduce adolescent risk behaviors (e.g., unprotected sexual intercourse), and randomized controlled trials of these programs often assess parent- and/or adolescent-reported parental monitoring as key outcomes (e.g., Pantin et al., 2009; Stanton et al., 2004, 2000; Wu et al., 2003). These interventions focus on parental monitoring because low levels of parental monitoring predict the development of adolescent risk-taking and antisocial behavior (see Dishion & McMahon 1998; Smetana, 2008). Thus, by better understanding measures of discrepant parental monitoring reports, we might, in turn, better understand both the effects of prevention programs that target parental monitoring as well as the links between parental monitoring and adolescent risk-taking and antisocial behavior.

**Purpose and Hypotheses**

The purpose of this study was to extend the literature on the measurement of informant discrepancies in psychological assessments of children and adolescents. We extended this literature in two ways. First, we examined the criterion validity of interpreting scores taken from statistical interactions between parent and adolescent reports of parental monitoring as measures of informant discrepancies. Specifically, we examined these interactions in relation to a direct, structured interview of discrepancies between parent and adolescent views of daily life topics (e.g., completing chores and homework; De Los Reyes et al., 2012). Second, we examined traditional measures of informant discrepancies used in psychological assessments of children and adolescents (e.g., directional and residual difference scores; see Owens et al., 2007) in relation to (a) statistical interactions between parent and adolescent reports and (b) the same structured interview of parent–adolescent discrepancies examined in relation to statistical interactions between parent and adolescent reports.

We tested two sets of research questions. First, low levels of parental monitoring relate to greater levels of adolescent risk-taking and antisocial behavior (Smetana, 2008), and greater informant discrepancies relate to greater levels of adolescent psychopathology generally (K. L. Goodman et al., 2010). Logically following from these notions, we expected to find that greater parent and adolescent reports of parental monitoring would relate to lower levels of perceived discrepant beliefs about daily life topics, directly assessed via structured interview. However, we also expected that the interaction between parent and adolescent reports of parental monitoring would relate to direct assessments of perceived discrepant beliefs. That is, we expected to find that congruency on relatively high parent and adolescent reports of parental monitoring would relate to lower perceived discrepant beliefs as assessed via structured interview.

Second, prior work indicates that, by construction, difference scores cannot explain variance in an outcome beyond that explained by the individual informants’ reports (Edwards, 1994; Laird & Weems, 2001). If difference scores between parent and adolescent reports of parental monitoring may not reflect levels of informant discrepancies in reports of such parental monitoring, then these difference scores should be unrelated to other measures taken to assess informant discrepancies. Therefore, we examined these difference scores in relation to (a) a structured interview that directly assesses parents’ and adolescents’ perceived discrepant beliefs and (b) statistical interactions between parent and adolescent reports of parental monitoring.

**Method**

**Participants**

Data reported below are based on information collected from families who participated in a larger psychometric study of measures of parent–child/adolescent conflict (see De Los Reyes et al., 2012). From this larger study, we examined a subsample of 50 families from a large metropolitan area in the mid-Atlantic United States who were recruited because they spoke English, had an adolescent in the home between the ages of 14 and 17 years (20 adolescent males, 30 adolescent females; $M = 15.4$ years; $SD = 1.1$ years), and completed information on all constructs. The parent identified the adolescent’s race as White, Caucasian American, or European ($n = 18$); African American or Black ($n = 27$); or some other race ($n = 5$). Parents had a mean age of 46.6 years ($SD = 6.8$ years, range = 31–64 years) (three parents did not provide proper age data). Parents identified themselves primarily as biological (92%; three biological fathers and 43 biological mothers), with a minority identifying as grandmother (4%), legal guardian (i.e., adolescent’s aunt; $n = 1$), or stepmother ($n = 1$). For the purposes of this article, these caregivers are collectively referred to as *parents.* Approximately one quarter (18.4%) of the families had a
weekly household income of $600 or less; 59.2% earned greater than $900 per week (one family did not provide income data). The economic and racial background figures for our sample are in keeping with the economic and racial background representation of the geographic area of our sampling range (U.S. Census Bureau, 2010).

Procedure

All procedures were approved by the Internal Review Board of the large mid-Atlantic university within which we conducted the study. We recruited participants through community agencies, events, and via advertisements posted online (e.g., Craigslist.org) in qualifying neighborhoods (i.e., neighborhoods targeted because of demographic variability). Families provided informed consent and assent. Two trained research assistants (i.e., undergraduate or postbaccalaureate trainees) then individually administered the interview described below to the parent and adolescent simultaneously and in separate rooms. Following these interviews, the parent and adolescent completed a counterbalanced battery of measures, which included the parent and adolescent survey reports of parental monitoring described below. At the outset, families received $80 in monetary compensation (parent = $40 and adolescent = $40; n = 17 families) for an advertised 4- to 5-hr study. However, in initial administrations, it became clear to us that the study had a typical duration of 5 hr. Thus, we subsequently revised advertisements of the study duration to 5 hr, and thus increased the monetary compensation to $100 (parent = $50 and adolescent = $50) for the remaining 33 participants.

We administered all assessments reported in this study on a computer in which either the interviewer (i.e., for interviews) or parents and adolescents (i.e., for survey measures) directly inputted responses to items. Responses were recorded using IBM SPSS Data Collection survey administration software (Version 5.6; IBM Corporation, 2009). Research assistants practiced administering the interview to each other approximately four to six times and videotaped these practices to be observed by the first author at weekly supervision meetings. At these meetings, the first author reviewed practice assessments to determine interviewers’ readiness to administer the interview. In addition, we periodically implemented continued reviews of videotaped administrations of the assessments to actual participants to ensure that our research assistants continued to administer the interview as trained. All assessment administrators were kept blind to study hypotheses.

Measures

Demographics. Parents completed an adolescent, parent, and family demographics form that assessed information described previously, and from which we took measurements of demographic covariates to be used in analyses described below (i.e., adolescent age and gender).

Structured interview of discrepant beliefs. The To(may)to-To(mah)to Interview (TTI; De Los Reyes et al., 2012) is a structured interview and includes both parent and child/adolescent parallel versions. We administered the 30- to 45-min TTI independently to parents and adolescents. The TTI assesses informants’ perceptions about 16 daily life topics (e.g., the adolescent’s computer time, spending time with the family, and quality of grades). When developing the interview, we selected topics to assess based on research in the developmental literature on topics of parent–adolescent disagreement (Darling, Cumsille, Caldwell, & Dowdy, 2006). On the TTI, respondents provided reports about perceived differences between the beliefs parents and adolescents have about topics (hereafter referred to as TTI-Discrepant Beliefs; sample parent report item: “Do you think that you and your teen have different beliefs about how often teens his/her age should do their chores?”). Informants provided responses to items on scales of 0 (We have the same beliefs), 1 (We sometimes have the same beliefs, sometimes not), and 2 (We have different beliefs). We calculated total summary scores of the 16 topics in the TTI-Discrepant Beliefs scale; scores can range from 0 to 32. Importantly, scores taken from both parent and adolescent reports yield acceptable levels of internal consistency, and scores from both parent and adolescent reports on the TTI-Discrepant Beliefs scale can be distinguished from scores on reports of related constructs (e.g., parent–adolescent conflict; see De Los Reyes et al., 2012). In this sample, we identified acceptable internal consistency alpha estimates for scores taken from both parent and adolescent interviews (see Table 1).

Survey measures of parental monitoring. Two scales were included to assess important parental monitoring constructs (Parental Knowledge and Adolescent Disclosure; Stattin & Kerr, 2000). One parental monitoring scale (nine items) assessed parents’ knowledge of the adolescent’s whereabouts, activities, and associations (e.g., “Do your parents know what you do during your free time?”). A second parental monitoring scale (five items) assessed how often adolescents spontaneously disclosed information to their parents as well as efforts to conceal information (e.g., “Do you keep a lot of secrets from your parents about what you do during your free time?”). For each scale, parents and adolescents answered parallel items with minor word changes as needed to

Table 1
Means, Standard Deviations, and Internal Consistency Estimates for Scores From Survey Reports of Parental Reports and Structured Interviews of Discrepant Beliefs

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>Paired t test (df = 49)</th>
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<tr>
<td>Parental knowledge</td>
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<tr>
<td>Parent report</td>
<td>38.28</td>
<td>3.97</td>
<td>.79</td>
<td>4.55***</td>
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<tr>
<td>Adolescent report</td>
<td>34.38</td>
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<td>Adolescent disclosure</td>
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<tr>
<td>Parent report</td>
<td>20.02</td>
<td>3.27</td>
<td>.78</td>
<td>2.64*</td>
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<tr>
<td>Adolescent report</td>
<td>18.36</td>
<td>4.31</td>
<td>.81</td>
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<td>TTI-Discrepant Beliefs</td>
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<tr>
<td>Parent report</td>
<td>13.46</td>
<td>6.62</td>
<td>.84</td>
<td>5.62***</td>
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<tr>
<td>Adolescent report</td>
<td>8.70</td>
<td>4.94</td>
<td>.77</td>
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Note.  
TTI = To(may)to-To(mah)to Interview.

a Parent-reported parental monitoring composite scores were based on z scores of parents’ parental knowledge and adolescent disclosure reports, and yielded a mean of 0 and a standard deviation of 0.93.  
b Adolescent-reported parental monitoring composite scores were based on z scores of adolescents’ parental knowledge and adolescent disclosure reports, and yielded a mean of 0 and a standard deviation of 0.93.  
c TTI-Discrepant Beliefs composite scores were based on z scores of parent and adolescent reports on the scale, and yielded a mean of 0 and a standard deviation of 0.86.

*p < .05.  ***p < .001.
Data Analytic Plan

Preliminary analyses. We first conducted preliminary analyses to detect deviations from normality. We also computed bivariate correlations between our independent and dependent variables (see Table 2) and paired t tests to compare reports taken from parents and adolescents on parallel measures (i.e., measures of parent- and adolescent-reported parental monitoring). Specifically, we observed that within-informant correlations for scores taken from samples of families within age ranges similar to the age range of our own sample (e.g., De Los Reyes, Ehrlich, et al., 2013; De Los Reyes, Goodman, Kliewer, & Reid-Quinones, 2010). In the current sample, we identified acceptable internal consistency alpha estimates for scores taken from parent and adolescent reports of parental monitoring (see Table 1).

Composite scoring. As reported in Table 2, parent and adolescent interviews of discrepant beliefs correlated in the moderate range (r = .49). Furthermore, parent and adolescent interviews of discrepant beliefs exhibited consistent correlations patterns with parent- and adolescent-reported parental monitoring. Specifically, parent interviews correlated negatively with parental monitoring reports, regardless of informant (rs ranging from -.31 to -.45). Furthermore, adolescent interviews correlated with parental monitoring reports at lower magnitudes (relative to parent interviews; rs ranging from -.05 to -.23). The consistent correlations among the interviews, and the moderate correlations between parent and adolescent interviews of discrepant beliefs, justified combining the discrepant beliefs reports into a single composite score, which we constructed by converting the parent and adolescent reports into z scores and averaging the scores together. This was the dependent variable used in regression analyses reported below.

We also took composite scores for the individual parental monitoring reports. Specifically, we observed that within-informant reports of parental monitoring domains correlated positively with each other; both informants’ parental knowledge and adolescent disclosure scores evidenced within-informant Pearson r correlations of .73 (see Table 2). Furthermore, as we report below, parents reported greater levels of parental monitoring than adolescents reported, regardless of the parental monitoring domain assessed (see Table 1). Thus, to construct our independent variable reports of parental monitoring, we constructed composite scores. Specifically, we converted parent reports of parental knowledge and adolescent disclosure into z scores and averaged these scores into one composite score. We used the same procedure to construct one composite score of adolescent reports of parental monitoring. This procedure is consistent with prior work indicating that when parent and adolescent reports of parental monitoring disagree, they tend to exhibit the same pattern of disagreement across different domains of parental monitoring (De Los Reyes, Ehrlich, et al., 2013; De Los Reyes, Goodman, et al., 2010).

Hypothesis testing. To test the criterion validity of interpreting multi-informant statistical interactions as measures of informant discrepancies, we conducted a hierarchical regression analysis, in which the TTI-Discrepant Beliefs composite score served as the criterion variable. We entered adolescent age (centered) and gender in the first step as independent variables, consistent with prior work in informant discrepancies in parental monitoring (e.g., Reynolds et al., 2011). In the second step, we entered both parent and adolescent composite score reports of parental monitoring. In the third step, we entered the interaction term for the parent and adolescent parental monitoring reports. In the presence of a significant interaction effect, we used Holmbeck’s (2002) guidelines for post hoc probing of moderator effects. This included (a) computation of slope estimates using centered variables (reducing multicollinearity) and (b) examining the statistical significance of these slopes for high (1 SD above the mean) and low (1 SD below the mean) levels of adolescent reports of parental monitoring (i.e., the moderator variable).

We were also interested in testing traditional measures of informant discrepancies in relation to direct measures of informant discrepancies and multi-informant statistical interactions. Thus, we constructed two difference scores between the parent and adolescent parental monitoring reports to examine in relation to (a) the TTI-Discrepant Beliefs composite score and (b) the statistical interaction between parent and adolescent parental monitoring reports described previously. First, we took a directional difference score by subtracting the adolescent-reported parental monitoring composite score from the parent-reported parental monitoring

Table 2

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<th>1</th>
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<td>7. TTI-Discrepant Beliefs composite score</td>
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<td>8. Monitoring composite score, parent report</td>
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Note. TTI = To(may)to-To(mah)to Interview. 
*p < .05. **p < .01. ***p < .001.
composite score. Second, by entering the parent-reported parental monitoring composite score as a dependent variable in a linear regression analysis, and the adolescent-reported parental monitoring composite score as the independent variable in this analysis, we took a residual difference score for each parent–adolescent dyad that consisted of the portion of a parent’s report left unexplained by the adolescent’s report. Lastly, we computed bivariate correlations between the TTI-Discrepant Beliefs score, directional and residual difference scores between the parent and adolescent parental monitoring reports, and the statistical interaction between the parent and adolescent parental monitoring reports.

### Results

#### Preliminary Analyses

Frequency distributions for all variables were examined to detect deviations from normality. We detected no deviations from normality on any variables representing the measures reported in Table 1, based on recommendations of Tabachnick and Fidell (2001). In Table 1, we report means, standard deviations, and internal consistency estimates (i.e., Cronbach’s alphas) for all variables. In Table 2, we report bivariate correlations between all variables. Consistent with previous work (e.g., Lippold et al., 2011), parent and adolescent reports of parental monitoring correlated in the low to moderate range (Cohen, 1988).

As part of our preliminary analyses, we examined differences between parent and adolescent parental monitoring reports. Specifically, we conducted paired t tests between parallel parent and adolescent reports on the parental knowledge and adolescent disclosure domain scales and report these findings in Table 1. Consistent with prior work (De Los Reyes, Ehrlich, et al., 2013; Laird & De Los Reyes, 2013; Reynolds et al., 2011), parents reported greater levels of parental monitoring across both domains, relative to adolescent reports.

#### Statistical Interactions Between Parent and Adolescent Perceptions of Parental Monitoring in Relation to Discrepant Beliefs About Daily Life Topics

We hypothesized that the interaction between parent and adolescent reports of parental monitoring, an indirect assessment of informant discrepancies, would relate to direct assessments of perceived discrepant beliefs on daily life topics. To test this hypothesis, we conducted hierarchical regression analyses using the previously described data analytic plan.

**Main regression model.** We report results of our regression analyses in Table 3, based on effects observed in Step 3 of our main regression model. We observed greater adolescent age relating to lower perceived discrepant beliefs, and nonsignificant effects of adolescent gender. Consistent with our hypotheses, greater parent- and adolescent-reported parental monitoring related to lower perceived discrepant beliefs. Furthermore, the interaction between parent and adolescent reports of parental monitoring explained significant variance in perceived discrepant beliefs, beyond variance explained by the individual parental monitoring reports.  

**Post hoc probing of moderation effects.** As mentioned previously, we conducted post hoc probing tests of our moderation effects, consistent with procedures outlined by Holmbeck (2002). We report these findings in Table 3. At relatively high adolescent reports of parental monitoring, we observed a strong, negative relation between parent reports of parental monitoring and perceived discrepant beliefs (see also Figure 1). However, at relatively low adolescent reports of parental monitoring, we observed no significant relation between parent reports of parental monitoring and perceived discrepant beliefs. Stated another way, parent and adolescent concordance on reports of high levels of parental monitoring related to the lowest levels of perceived discrepant beliefs, relative to other instances of parent–adolescent reporting patterns of parental monitoring (e.g., parent “high” vs. adolescent “low” vs. adolescent “low”).

#### Table 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>ΔR²</th>
<th>B</th>
<th>SE</th>
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<td><strong>Main regression model</strong></td>
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<tr>
<td>Step 1</td>
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<td>0.10</td>
<td>-.46**</td>
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<tr>
<td>Adolescent age</td>
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<tr>
<td>Step 2</td>
<td>.28***</td>
<td>-0.33</td>
<td>0.12</td>
<td>-.36**</td>
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<tr>
<td>Parental monitoring, PR</td>
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<td></td>
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<tr>
<td>Parental monitoring, AR</td>
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<td>-0.32</td>
<td>0.12</td>
<td>-.34*</td>
</tr>
<tr>
<td>Step 3</td>
<td>.06*</td>
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<td>0.12</td>
<td>-.25*</td>
</tr>
<tr>
<td>PR × AR</td>
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<table>
<thead>
<tr>
<th>Variable</th>
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<tr>
<td><strong>Post hoc tests of moderation</strong></td>
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<td>Step 3 (1 SD above mean on AR)</td>
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<tr>
<td>Step 3 (SD below mean on AR)</td>
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<tr>
<td>PR × AR</td>
<td>-0.26</td>
<td>0.12</td>
<td>-.35*</td>
</tr>
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</table>

**Note.** For the main regression model (left side of table), regression terms for variables entered at Steps 1, 2, and 3 are displayed, based on terms observed for these variables in Step 3 of the model; ΔR² statistics for each step were based on variables entered in that step; for the post hoc moderation tests (right side of table), only Step 3 is reported, with the moderator variable manipulated to reflect high levels of the moderator (when 0 equals 1 SD above the mean) and low levels (when 0 equals 1 SD below the mean) (see Holmbeck, 2002). PR = parent report; AR = adolescent report.

*p < .05.  ***p < .01.  **p < .001.
Main Findings

The purpose of this study was to extend the literature on measurement of informant discrepancies in psychological assessments of children and adolescents. In a community sample of parents and adolescents, we advanced the literature by incorporating recent psychometric research on parent–adolescent perceptions of how each of them view daily life topics differently (De Los Reyes et al., 2012) as well as recent work on multi-informant statistical interactions in the assessment of informant discrepancies (Laird & Weems, 2011). In doing so, we examined whether multi-informant statistical interactions, an indirect measure of informant discrepancies, related to scores on a direct assessment of informants’ perceived discrepant views. Furthermore, we compared findings observed using statistical interactions as measures of informant discrepancies against findings observed using traditional measures of informant discrepancies, namely, directional difference scores and residual difference scores (e.g., Edwards, 1994; Owens et al., 2007). We undertook these comparisons to increase our understanding of the extent to which statistical interactions yield scores that diverge from scores from these traditional measures of informant discrepancies.

Our work was guided by research on parental monitoring and risks for adolescent risk-taking and antisocial behavior (Smetana, 2008), as well as with recent research and theoretical work on the links between parent–adolescent reporting discrepancies and adolescent psychopathology generally (K. L. Goodman et al., 2010). Along these lines, we made two findings. First, we found that greater parent and adolescent reports of parental monitoring related to lower levels of perceived discrepant beliefs about daily life topics, directly assessed via structured interview. Interestingly, we also found that the interaction between parent and adolescent reports of parental monitoring related to direct assessments of perceived discrepant beliefs. That is, in the context of adolescents reporting high levels of parental monitoring, we observed an inverse relation between parent-reported parental monitoring and perceived discrepant beliefs. In other words, congruency in the form of relatively high parent- and adolescent-reported parental monitoring related to the lowest levels of perceived discrepant beliefs, relative to other patterns of parental monitoring reports (e.g., parent “high levels” vs. adolescent “low levels”; both parent and adolescent “low levels”). Second, we observed nonsignificant relations between difference scores and both (a) our structured interview of perceived discrepant beliefs and (b) statistical interactions between parent and adolescent parental monitoring reports. This second finding is of particular importance because it demonstrates the divergence between information gleaned from traditional difference score measures of informant discrepancies and the statistical interaction and structured interview measures of informant discrepancies examined in this study. In sum, our findings support the criterion validity of interpreting scores taken from multi-informant statistical interactions as measures of informant discrepancies.

One additional observation warrants comment. Relative to adolescent-reported discrepant beliefs, parent-reported discrepant beliefs exhibited larger magnitude relations with reports of parental monitoring, regardless of the domain of parental monitoring and informant providing the report (see Table 2). Importantly, we previously cited evidence indicating the validity of interpreting scores from these measures as reflecting the construct each measure was developed to assess (i.e., perceived discrepant beliefs and parental monitoring; see De Los Reyes et al., 2012; Kerr & Stattin, 2000). Furthermore, in our sample, both informants’ parental monitoring reports exhibited large within-informant correlations between parental monitoring domains (rs = .73). Here, it is important to note that psychometrically sound scores from measures completed by multiple informants may disagree, and yet each report may relate to scores from measures of other constructs in different ways (e.g., informants’ reports of psychological symptoms in relation to risk factors or associated features of those
and parental monitoring merit further study.

differences in the relations between perceived discrepant beliefs when their parental monitoring reports agreed with those of parental monitoring reports were linked to perceived discrepant beliefs. However, our interaction effects suggest that adolescents’ parental monitoring reports were linked to perceived discrepant beliefs. In the current study, parents reported greater levels of perceived parental monitoring across two of its domains (i.e., parental knowledge and composite scores for similar reasons, such as composite scores combining multiple informants to assess low base-rate aggressive and antisocial behaviors, which might be expressed under some circumstances or contexts (e.g., peer interactions or school) and not others (e.g., home) (for a review, see McMahon & Frick, 2005). Yet, these composite scores require that reports be standardized before creating the composites, in order to put the scores on the same scale. Consequently, the composite score essentially compares each informant’s rating to what is average in the sample. This might have implications for comparability between the results of interaction terms based on composite scores and the results of interaction terms based on raw scores, particularly if informants’ reports evidence different means and/or variances (see also De Los Reyes & Kazdin, 2004).

Interestingly, prior work in larger samples than our own has addressed the key issue of assessing informant discrepancies with raw versus standardized scores. Specifically, in a study of parent–child discrepancies in reports of the child’s behavior and emotional problems (i.e., N = 420; children ages 11–17 years), researchers identified subgroups of parent–child dyads who exhibited discrepancies that qualitatively varied by the direction of the discrepancies (i.e., parent reported greater problem levels than child, and vice versa) and magnitude of the discrepancies (i.e., relatively large discrepancies vs. relatively small discrepancies) (De Los Reyes et al., 2011). The subgroup analyses were based on examinations of standardized differences between reports; like our statistical interactions, these scores lost information on informant differences in means and variance of scores. Importantly, in this study, parents’ and children’s scores significantly differed in mean problem scores and variances of these problem scores. Yet, comparisons of analyses using standardized difference scores and analyses using raw difference scores indicated that the structure of the parent–child discrepancies in terms of direction and magnitude of these discrepancies was virtually identical. That is, regardless of which scores were used in analyses to create profiles or characterizations of parent–child reporting discrepancies, the resulting profiles of these discrepancies were nearly identical (comparability of profile results from standardized vs. raw difference scores reported in De Los Reyes et al., 2011: Cramer’s V = .96, κ = .96).

In any event, we encourage future work in larger samples to attempt to replicate our findings using raw parent and adolescent reports of parental monitoring to construct statistical interactions between reports.

Third, we used an innovative and relatively new structured interview (i.e., TTI) to assess parents’ and adolescents’ perceived discrepant beliefs. However, the TTI might not assess the same kind of discrepancy as assessed by multi-informant interactions. For instance, the TTI might be assessing a combination of such constructs as parent–adolescent communication patterns, parents’ and adolescents’ appraisals and awareness of each other’s beliefs, and/or agreement about shared beliefs. The interaction effect revealed a strong relation between parent–adolescent concordance on high levels of parental monitoring and perceived discrepant beliefs (see Table 3). Yet, this relation nonetheless left much unexplained variance. In any event, our findings, though promising, ought to be followed up with additional psychometric work on the TTI to understand the various constructs for which scores from the measure represent.

Fourth, we only administered one measure of perceived discrepant beliefs (i.e., a direct structured interview measure) in relation to indirect measures of parent–adolescent discrepancies. All of these measures were completed using reports from the same informants (i.e., parents and adolescents), thus raising concerns regarding shared method variance. We reduced shared method concerns to some extent by using survey reports to take indirect measures of parent–adolescent discrepancies and structured interviews to take direct measures of perceived discrepancies. Nevertheless, our findings may not generalize to use of other methods to assess parent–adolescent discrepancies. For example, the TTI-
Discrepant Beliefs scale assesses perceived discrepant beliefs on one domain (i.e., daily topics often encountered within parent-adolescent interactions). These findings might not generalize to behaviors assessed using other measurement methodologies, such as observed disagreements on behavioral tasks (e.g., conflict discussion tasks; see Donenberg & Weisz, 1997; Granger, Weisz, & Kauneckis, 1994; Klimes-Dougan, Hastings, Granger, Usher, & Zahn-Waxler, 2001). We encourage future research that incorporates other methods of assessing discrepant views.

Research and Theoretical Implications

Our findings have important implications for understanding and interpreting informant discrepancies in psychological assessments of children and adolescents. First, we mentioned previously that parents’ and children’s/adolescents’ discrepant views may reflect how they relate to one another (Ferdinand et al., 2004). Specifically, the DiVIDE model posits that the presence of high levels of discrepant views between parents and children/adolescents may indicate low levels of parental acceptance of child/adolescent behavior and that this low level of parental acceptance is what poses risk for child/adolescent psychopathology (K. L. Goodman et al., 2010). Consistent with the DiVIDE model, many investigators have studied whether increased discrepancies predict increased levels of child and adolescent psychopathology (for a review, see De Los Reyes, 2011). Recently, investigators have sought to provide supportive evidence of the links between increased informant discrepancies and increased levels of adolescent psychopathology by calculating multi-informant statistical interactions to represent informant discrepancies (Laird & De Los Reyes, 2013). Our findings support the criterion validity of interpreting scores taken from these statistical interactions as measures of informant discrepancies (see Figure 1). Thus, future research can use key concepts from the DiVIDE model to test, within a mediation framework, the links between informant discrepancies and adolescent psychopathology. That is, if increased informant discrepancies reflect a lack of parental acceptance of adolescents’ behavior, then one should expect increased informant discrepancies to longitudinally predict decreased parental acceptance. Furthermore, decreased parental acceptance may predict increased adolescent psychopathology, and this relation may explain the longitudinal links identified in prior work between increased informant discrepancies and increased levels of adolescent psychopathology. These issues merit further study.

Second, a key implication of our findings stems from prior work seeking to provide recommendations on how to measure informant discrepancies. Specifically, previous recommendations have focused on use of one particular measure over other measures (for a review, see Owens et al., 2007). For example, some have argued for use of standardized directional difference scores in lieu of raw directional scores or residual scores, in part, due to high multicollinearity concerns with the informants’ reports used to create these scores (e.g., De Los Reyes & Kazdin, 2004; Owens et al., 2007). Similarly and as mentioned previously, others have argued for use of multi-informant statistical interactions in lieu of any form of difference score (Edwards, 1994, 2002; Laird & Weems, 2001). Our findings suggest that researchers should take a more nuanced view on measurement of informant discrepancies. Indeed, both multi-informant statistical interactions and structured interview measures of perceived discrepant beliefs appear to yield scores that can be validly interpreted as reflections of informant discrepancies. Thus, rather than framing issues regarding measurement of informant discrepancies from the perspective of “one measure is best,” our findings pave a road toward multimethod assessments of informant discrepancies in psychological assessments of children and adolescents. To this end, we encourage future work seeking to develop additional measurement modalities of informant discrepancies. Examples of these modalities may include controlled laboratory observations of discrepant views, or constructing a performance-based index of discrepant views.

Concluding Comments

In sum, our findings suggest that indirect measures of parent-adolescent discrepancies in reports of parental monitoring (as assessed with statistical interactions) meaningfully relate to direct assessments of perceived discrepant beliefs about daily life topics. These findings are consistent with two recent studies on the ability of scores taken from statistical interactions of informants’ survey reports to longitudinally predict adolescent psychopathology (De Los Reyes, Reynolds, et al., 2010; Laird & De Los Reyes, 2013). Furthermore, we made our findings using psychometrically sound direct assessments of parent-adolescent perceived discrepancies as well as parent and adolescent reports about parental monitoring. These findings have important implications for building multimethod assessments of informant discrepancies that capitalize on incorporating measures of the construct using direct (i.e., structured interview) and indirect (i.e., multi-informant statistical interactions) modalities. Improving the psychometric and empirical rigor of informant discrepancy measures will, in turn, improve our ability to both interpret outcomes of psychological assessments of children and adolescents and understand the links between informant discrepancies and clinical constructs.

References

CRITERION VALIDITY AND SCORES FROM INFORMANT DISCREPANCIES MEASURES

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