

2016

Parent-Adolescent Cross-Informant Agreement: Findings from Two Clinical Samples

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Parent-Adolescent Cross-Informant Agreement:
Findings from Two Clinical Samples

by

Jillian L. Neill

May 2016

Submitted to the Faculty of Bryn Mawr College
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy
in the Department of Psychology

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Abstract

The current study examined parent-adolescent cross-informant agreement in two clinical samples (Total $N = 204$ dyads) based on adolescents' ratings on the Youth Self-Report and parents' ratings on the Child Behavior Checklist. Using the five different methods for examining cross-informant agreement used by Rescorla et al. (2013) in large international population samples, we sought to examine whether parents report more problems about their adolescents than the adolescents report about themselves, the degree of correlation between parent and adolescent scores on problem scales, how much parents overall and their children overall tend to agree on item ratings, how well parent-adolescent dyads agree on which specific items are rated low, medium, or high, and how well parents and their adolescents agree about the adolescent having a high number of problems. We found that adolescents and their parents did not tend to differ in levels of problem reporting and that agreement between the dyads tended to be moderate. We also found high levels of overall agreement around the most and least common items, although dyads did not tend to agree about the specific items endorsed by the parent and adolescent. Finally, we found parents tended to agree when their children expressed elevated range scores, and adolescents tended to agree when their parents indicated non-elevated range scores. However, when parents endorsed elevated range scores, their adolescents were less likely to agree. Parent agreement varied between the samples around the adolescent's assessment of a non-elevated-range score. Relevance to clinical practice and understanding of parent-child discrepancies in clinical populations are discussed.

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Acknowledgements

Thank you to my advisor, Dr. Leslie Rescorla, who has been a constant source of guidance throughout my graduate school years. You have helped me to keep my eyes on a goal and to produce work that I can be proud of. I will be forever grateful for your guidance and the time and energy you put into helping me to be a better researcher, writer, and clinician. To my dissertation committee, Drs. Marc Schulz, Carol Roberts, and Rob Wozniak, thank you for your patience, for your thoughtfulness, and for helping me to think about and answer challenging questions about my research: my dissertation is better because of you. I am also grateful to Warwick Family Services, particularly Traci Neary, and the Bryn Mawr College Child Study Institute for partnering with me in gathering the data for my dissertation.

To my friends and family, I find I am struggling to put into words how much I appreciate your unwavering support up to and through my graduate school years. You have been with me every step of the way, helping me to celebrate my achievements and cope with my setbacks. I could not ask for a better village. To my husband Preston, thank you for following me up the east coast so I could pursue my dream, for knowing better than I did when I needed a break and when I needed a push to continue moving forward, and for always being a voice of encouragement and reason. Thank you to my family, who have inspired me with their own achievements and instilled in me a belief that I could achieve anything, while always letting me know that they were proud of me no matter what. I also owe so much to my friends, particularly my graduate school cohort and colleagues: it has been a pleasure and a privilege to learn and work with you these last six years.

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Vita

Jillian Leigh Neill (born Bartels) was born and raised in Raleigh, North Carolina. In 2008, she earned a Bachelor of the Arts in Psychology from the University of North Carolina- Chapel Hill, graduating with highest honors and highest distinction. After graduating from college, she taught special education for two years in the Washington DC Public School District. During her time as a teacher, she also worked towards a Master of the Arts in Early Childhood Special Education and Human Development from George Washington University, which she earned in 2010.

While her time as a teacher was rewarding, Jillian soon felt pulled back towards a career she had aspired to from a young age: being a clinical psychologist. With her eye on this goal, Jillian enrolled in the Clinical Developmental Psychology program at Bryn Mawr College in the Fall of 2010. She completed her Masters degree in 2012; the focus of her Masters Thesis was the development of early math skills in young children. That same year, she earned a certification in School Psychology. Throughout her graduate career, Jillian has had a wide range of clinical experiences in different settings, including a public school, a residential treatment facility for children and adolescents, and the Counseling Centers of the University of Pennsylvania and Drexel University. In June 2016, Jillian will complete her Pre-Doctoral Internship at Drexel University's Counseling Center. In the Fall of 2016, Jillian will begin a one year position as a Postdoctoral Fellow in Clinical Psychology at Princeton University's Counseling and Psychological Services.

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Parent-Adolescent Cross-Informant Agreement:

Findings from Two Clinical Samples

Seeking information from multiple informants is considered an essential part of the assessment process for children referred for mental health assessment and treatment. Data regarding the child's behavior, thoughts, and feelings are often sought from parents, teachers, and the child himself, frequently through both informal interviews and more formal checklist and rating-scale measures. However, while gathering reports from various informants leads to a wealth of information regarding the child, it also creates a dilemma for clinicians about how to deal with information that is inconsistent or divergent between the different reporters. And it's a dilemma they encounter frequently: modest cross-informant agreement between different reporters of a child's behaviors has been referred to as "one of the most robust findings in child clinical research" (De Los Reyes & Kazdin, 2005, p. 483).

In their seminal 1987 meta-analysis of 119 studies regarding informant discrepancies in reports of child behavior, Achenbach, McConaughy, and Howell (1987) found that, on the whole, reports of child behavior from different informants did not correlate highly with each other. They found larger correlations when paired informants had similar roles related to the child, such as between teachers (average $r=.64$) or between parents (average $r=.59$), than when paired informants had different roles. When the child was one of the informants, correlations were significant but low (parent-self average $r=.25$, teacher-self average $r=.20$, mental health worker-self average $r=.27$), with a weighted mean total correlation of .22; individual r s for these studies ranged from .00-.80, with most falling in the .10-.40 range. With regards to

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different factors that may predict discrepancies, Achenbach and his colleagues found that gender and clinical status were not related to the level of correlation found in the studies examined. However, they found that scores for younger children were more highly correlated than those for older children. They also found more consistency in reports of externalizing behaviors than of internalizing behaviors.

Subsequent studies examining parent-child agreement have shown similar levels of agreement between raters, with *rs* ranging from about .20 (Salbach-Andrae, Lenz, & Lehmkuhl, 2009) to .54 (Verhulst & Ende, 1992) (e.g. Achenbach & Rescorla, 2001; Carlston & Ogles, 2009; Collishaw, Goodman, Ford, Rabe - Hesketh, & Pickles, 2009; De Los Reyes et al., 2011; Kolko & Kazdin, 1993; Martin, Ford, Dyer-Friedman, Tang, & Huffman, 2004; Rescorla et al., 2013; Rey, 1992; Rosenblatt & Rosenblatt, 2002; Salbach-Andrae, Klinkowski, Lenz, & Lehmkuhl, 2009; Van Roy, Groholt, Heyerdahl, & Clench-Aas, 2010). In a meta-analysis designed to examine whether the findings of the Achenbach et al. (1987) study held in subsequent studies, De Los Reyes et al. (2015) found similar results. For example, parent-child agreement averaged $r = .26$ for internalizing behaviors and $.32$ for externalizing behaviors. The De Los Reyes et al. study also found that pairs who observed the child in the same environment (e.g., pairs of parents) demonstrated higher agreement than those in different environments (e.g., a parent and a teacher). They did not find the same age effect as in the previous meta-analysis, which they attributed largely to the inclusion of more child self-reports in studies subsequent to 1987.

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Overall, Achenbach and colleagues (1987) and De Los Reyes and colleagues (2015) both concluded that, although data from one person in a given role with a child, such as one parent or one teacher, may be sufficient to represent the general view of someone in that role, the low correlation between different types of informants suggests that they are not interchangeable for each other and that child self-reports cannot take the place of other's reports. Thus, while many studies conducted around the time of the original meta-analysis focused on finding a "gold standard" reporter of child behavior, subsequent research along this line has suggested that comprehensive assessment of child behavior cannot be achieved by gathering information from just one informant and that discrepancies between informants may yield clinically important information.

Variation between Reports by Parents and Adolescents

Much of the research on cross-informant agreement has focused specifically on agreement between parents and their children (primarily adolescents) regarding reports of the child's behaviors. Both the adolescent and the parent are seen as potential sources of important information at intake, but only low to moderate levels of agreement have been found between parents and their adolescent children with regards to the adolescent's feelings and behaviors. This is a consistent finding in both clinical and non-clinical samples, and has been found to be pervasive across many societies around the world (Rescorla et al., 2013). Clinicians often seek information from both the parent(s) and the adolescent upon intake, but it is not clear to many how they should deal with discrepancies in parent and adolescent reports.

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Parents were once thought to be the most reliable reporters of children's behaviors, but studies in the 1980s showed that children were able to report on their own behaviors and internal states reliably (e.g. Angold et al., 1987; Edelbrock, Costello, Dulcan, Conover, & Kala, 1986). Additional studies have shown that parent and child endorsed diagnoses receive similar rates of validation from clinicians (Jensen et al., 1999) and that child reports contribute meaningful diagnostic or prognostic information (Verhulst, Dekker, & Ende, 1997), particularly when only parent or only teacher accounts are gathered (Becker, Hagenberg, Roessner, Woerner, & Rothenberger, 2004). Thus, gathering information from the child regarding his or her thoughts, feelings, and behaviors has come to be an important part of the diagnostic process. But understanding and integrating these reports is not as simple as aggregating the information or choosing one reporter over another. Additionally there are different opinions regarding the importance and meaning of informant discrepancies for both clinical work and psychological research.

How should we interpret informant discrepancies?

The lack of agreement between different reporters of children's behavior has been regarded by some researchers as an issue of measurement error. According to this view, discrepancies are a "nuisance" to be dealt with (Roberts and Caspi, 2001, as cited in De Los Reyes, Thomas, Goodman, and Kundey (2013)). For example, Greenbaum, Decrick, Prange, and Friedman (1994) used Campbell and Fisk's (1959) Multitrait-Multimethod Matrix (MTMM) to examine if measurement error was responsible for the discrepancies in parent and child reporting. They found large method effects for each rater, which have traditionally been interpreted as being

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measurement artifacts that artificially skew the relationship between raters. However, the authors also recognized an alternative explanation of this effect, namely that there are distinct differences in the child's presentation across environments and therefore variation in knowledge possessed by different raters regarding the child. It is impossible to distinguish between these two circumstances using the MTMM and, for this very reason, Achenbach (2011) argues that the MTMM is not an appropriate method for examining informant discrepancies.

This brings us to the alternative explanation of why raters may vary. According to this view, there is significant variability in behavior that children may manifest across environments, which results in different informants having different knowledge about the child (De Los Reyes et al., 2013). Variation in child behavior across different contexts due to gene and environmental effects is a well-documented phenomenon and one that has been found to contribute significantly to the variance in parent and teacher ratings of child behavior (Achenbach, 2011). De Los Reyes et al. (2015) provided both theoretical and empirical support for the view that context must be taken into account when trying to understand differences in reports of children's behavior across environments. They proposed that divergent opinions are likely reflective of context-dependent behaviors manifested by the child. As evidence, they cited studies wherein child behavior was found to vary meaningfully between environments (e.g., home and school), meaning that gathering information from informants in both environments could be beneficial in guiding assessment decisions. As children get older, they are under less constant supervision by their parents, resulting in less parental knowledge regarding their behaviors. Additionally,

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teenagers may not be particularly willing to share information with their parents regarding their thoughts, feelings, and behaviors, which would also contribute to the lack of agreement seen between adolescents and their parents. Thus, as opposed to viewing modest inter-rater agreement as an issue to be solved, or a methodological flaw to be resolved, many consider informant discrepancies to illustrate the different perspectives the raters have, all of which are likely valid in their own right.

Being able to interpret discrepancies appropriately and use them in clinically meaningful ways depends upon being able to understand situations in which they are likely to occur. Therefore, gaining a better understanding of how these discrepancies look in clinical populations may help to guide the diagnostic and therapeutic process. This is particularly important in light of research that shows that informant discrepancies can have effects on both the diagnostic process and therapy outcomes.

Importance of Examining Informant Discrepancies

The concern about discrepancies in parent and adolescent reports of adolescent behavior goes far beyond academic speculation regarding the psychometric and developmental aspects of this issue. Research has shown that informant discrepancies may have implications for the diagnosis and treatment of mental health conditions in children.

As mentioned previously, one of the primary concerns about discrepancies in parent/child reports of child behavior is that they present clinicians with a dilemma around identifying and addressing the child's presenting problem(s). In a study designed to examine how discrepancies in parent and child reports affect therapist judgment of goals for treatment, Hawley and Weisz (2003) found low agreement

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between the parents and children on both the specific problem to be addressed and the problem area to be addressed. The researchers also found that, for most problem types, treatment targets were significantly related to parent report over child report. Thus, when a discrepancy exists between children and their parents, it appears that parent opinions are given greater weight by therapists than the opinions of the children involved.

Parent-child reporting discrepancies have also been found to have implications for future problems, referrals, and even behavior in therapy. In a longitudinal study of clinic-referred adolescents, Ferdinand, van der Ende, and Verhulst (2006) found that discrepancies on certain scales of the CBCL and YSR predicted certain negative outcomes over and above to those predicted by the individual scale scores, suggesting that examining the discrepancies themselves as prognostic factors may be useful. Ferdinand, van der Ende, and Verhulst (2004) found similar results in a community sample, where discrepancy scores were predictive of several negative outcomes, including behavioral/emotional problems, referral to mental health services, and feeling the need for help with mental health without receiving help.

Few studies have examined the effect that parent-child discrepancies have on treatment involvement or outcome, but two such studies suggest that higher degrees of parent-child discrepancy are related to poorer outcomes. Specifically, Israel, Thomsen, Langeveld, and Stormark (2007) found that although the level and type of child problems reported by the parent and child did not predict parental involvement in the therapy, higher discrepancies between parent and child report were related to a

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lack of parental behavioral and relational involvement in the child's therapy.

Additionally, parent-child agreement on at least one treatment goal has predicted a higher number of visits in therapy (Brookman-Frazee, Haine, Gabayan, & Garland, 2008).

Overall, while the literature on how discrepancies relate to future behaviors and problems remains somewhat sparse, it is apparent that discrepancies can be related to negative outcomes. Because of the potential negative ramifications of parent-child disagreement around the child's problems, gaining a better understanding of these discrepancies and how and when they manifest can add to our knowledge about and treatment of child clinical disorders.

Factors Potentially Affecting Parent-Adolescent Cross-Informant Agreement

Since the 1980s, there is an extensive literature on factors related to higher or lower levels of cross-informant agreement regarding child and adolescent behavior. Some of the factors that have been examined include the type of instrument used to gather information (e.g., diagnostic interviews vs. checklists), type of problem (internalizing vs. externalizing disorders), and demographic characteristics of the child (such as age, gender, and race/ethnicity).

Studies using clinical interviews to test parent-child agreement regarding symptoms and diagnosis have revealed particularly low levels of agreement around internalizing symptoms and disorders (Cantwell, Lewinsohn, Rohde, & Seeley, 1997; Choudhury, Pimentel, & Kendall, 2003; Comer & Kendall, 2004; Grills & Ollendick, 2003; Ivens & Rehm, 1988; Rubio-Stipec, Fitzmaurice, Murphy, & Walker, 2003) and highlighted the importance of both the parent and the child as reporters of child

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behavior (Angold et al., 1987; Jensen et al., 1999). While these studies have added significantly to our understanding of parent-child agreement around child problems, most researchers are not able to use diagnostic interviews to study parent-child agreement because of the large amounts of time, training, manpower, and expense required for gathering data via clinical interview. As such, most recent studies of parent-child agreement have focused on the use of checklist measures; this trend appears likely to continue in the future. These measures have the advantage of being easier to administer and score than clinical interviews. Additionally, checklist measures provide numerous quantitative scores (including scores for total problems, narrow-band symptom scales, and broader-band scales of internalizing and externalizing behaviors), which allow for a wide variety of statistical tests measuring different types of agreement. This is in contrast to most interview studies, which have mainly used kappas to examine agreement about clinical status.

Given that checklists are the more common measure used to gather formal information about child behaviors in clinical settings, it is important to determine the factors related to agreement specifically on these types of measures. Therefore, the following review will summarize agreement findings on checklist measures in both clinically-referred and community samples.

Factors Affecting Cross-Informant Agreement from Checklists

Informant discrepancies have been studied using checklists in both clinical and community samples. While Achenbach et al. (1987) did not find a difference in the pattern of discrepancies in community versus clinical samples, many subsequent studies have found consistent differences between the two. Specifically, while parents

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tend to report that their children have more problems than the youth report themselves in clinical samples (e.g. Carlston & Ogles, 2009; De Los Reyes et al., 2011; Handwerk, Larzelere, Soper, & Friman, 1999; Lohaus & Vierhaus, 2014; Rey, 1992; Salbach-Andrae, Klinkowski, et al., 2009; Salbach-Andrae, Lenz, et al., 2009), children tend to self-report more problems than their parents do about them in community samples (e.g. Barker, Bornstein, Putnick, Hendricks, & Suwalsky, 2007; Lohaus & Vierhaus, 2014; Rescorla et al., 2013; Seiffge-Krenke & Kollmar, 1998; Sourander, Helstelä, & Helenius, 1999; Stanger & Lewis, 1993; Van Roy et al., 2010; Verhulst & Ende, 1992; Youngstrom, Loeber, & Stouthamer-Loeber, 2000).

Many researchers attribute this pattern of results to the fact that parents are usually responsible for seeking out mental health services for their children. Thus, clinical samples may reflect a selection “bias” whereby participants in clinical samples are more likely to have parents who recognize and report problem behaviors than participants in community samples (Martin et al., 2004). Some researchers have also proposed that clinically referred children might be more likely to under-report behaviors, which would result in lower self-scores (Handwerk et al., 1999). However, while the pattern of parents reporting more problems than their children is a consistent finding in clinically-referred populations, it is important to note that it may not hold for all subpopulations that fall under this umbrella. Specifically, researchers have expressed concerns that children who are experiencing internalizing symptomatology may be missed by diagnosticians who give more credence to parent report than child report. Because patterns of cross-informant agreement using checklists appear to differ somewhat for community versus clinical samples, studies

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using these two different types of samples will be reviewed separately. For each type of sample, effects of problem type, age, and gender on agreement will be reviewed.

Community Samples.

Many studies examining parent-child discrepancies have examined differences in the way that parents and their children report internalizing versus externalizing behaviors. Achenbach et al. (1987) found that informants show higher levels of agreement about externalizing than internalizing problems, as did the more recent meta-analysis (De Los Reyes et al., 2015). While some studies of community samples support this conclusion (e.g. Kolko & Kazdin, 1993; Rey, 1992; Youngstrom et al., 2000), several others have found no difference between reports of internalizing and externalizing behaviors in parents and children (Rescorla et al., 2013; Seiffge-Krenke & Kollmar, 1998; Sourander et al., 1999; Stanger & Lewis, 1993; Verhulst & Ende, 1992).

Most studies of agreement on behavioral checklists within community samples do not examine problems at a more specific level than the internalizing versus externalizing dichotomy. However, those studies that have examined problems at the syndrome (problem-type) level have found the highest levels of agreement ($r > .50$) for the Aggressive Behavior syndrome (Externalizing scale) and the Somatic Complaints syndrome (Internalizing scale) of the CBCL and YSR; these same studies have found particularly low agreement on the Thought Problems scales of the same measures ($r = .27$) (Ferdinand et al., 2004; Verhulst & Ende, 1992). This illustrates how agreement tends to be highest for issues that are apparent (i.e. externalizing problems, such as aggressive or rule-breaking behaviors) or readily expressed by the

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child (i.e. somatic complaints), and lower for those issues that are not as observable (i.e. other internalizing problems and thought problems).

The Achenbach et al. (1987) meta-analysis found a significant effect of age on overall discrepancies regarding children's behavior, such that agreement was higher for younger children than for older children. However, the effect of age on checklist agreement in community samples has been inconsistent; many studies of community samples have found no effect of age (Kolko & Kazdin, 1993; Rey, 1992; Seiffge-Krenke & Kollmar, 1998; Van Roy et al., 2010). Some researchers have found results in line with the meta-analysis (Verhulst & Ende, 1992), while others have shown increases in correlations as children get older (Lohaus & Vierhaus, 2014). Rescorla et al. (2013) also noted slightly higher item-level agreement on Total Problems scores for older adolescents ($Q = .39$) than for younger adolescents ($Q = .35$), although the effect of age on agreement was small ($ES < 1\%$). Additionally, some studies have found that age effects on agreement may depend on the type of problem being examined. Specifically, the few longitudinal studies that have examined this have found that agreement increases with age on externalizing problems, but decreases with age on internalizing problems (Rubio-Stipec et al., 2003; van der Ende, Verhulst, & Tiemeier, 2012).

Consistent with the meta-analysis, many studies of community agreement have not found an effect of gender on agreement (Barker et al., 2007; Collishaw et al., 2009; Kolko & Kazdin, 1993; Lohaus & Vierhaus, 2014; Rey, 1992) Other studies have found inconsistent results, with some pointing to higher agreement for girls over boys (Seiffge-Krenke & Kollmar, 1998) and others finding that boys showed more

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agreement with their parents than girls did (Sourander et al., 1999). Rescorla et al. (2013) found that girls showed significantly higher agreement with their parents than boys did on Internalizing ($r=.40$ vs. $r=.46$), Externalizing ($r=.43$ vs. $r=.49$), and Total Problems ($r=.42$ vs. $r=.50$), although the practical differences between these groups are small (and the statistical significance is likely due to the very large sample size in that study). Overall, the results of these studies suggest that there may not be a consistent relationship between gender and agreement in community samples.

In the most comprehensive examination of parent-child agreement in a community sample to date, Rescorla et al. (2013) used multiple methods to examine agreement between parents and children in a large, multi-society community sample study. Thus, this study provides a model for several different ways in which parent-child agreement could be examined. They first ran $2 \times 2 \times 2 \times 25$ mixed-model ANOVAs for each scale to determine if informant (parent or adolescent), gender (male or female adolescent), age (older or younger adolescent), or society (as it was a 25 society study) had an effect on the mean level of problems endorsed by the informants on each scale. They then examined the correlations between parent and adolescent scores on all 17 scales (eight syndrome scales, six DSM-oriented scales, and three broad-band scales) using Pearson's r . In addition, they used Q correlations to examine whether or not parents overall and their adolescent children overall agreed on which items they endorsed as occurring at low, moderate, or high levels, thus providing information about agreement as to the frequency of the given behaviors. They also used dyadic Q correlations to determine agreement within each dyad on the items they endorsed, thus providing more nuanced information about whether parents

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and their adolescent children agree about the specific behaviors they endorsed.

Finally, they examined whether or not parents and their adolescents agreed about the deviance status of the adolescent; that is to say they examined whether or not parents and adolescents agreed that the child was experiencing a normal or elevated range of behavioral problems on the Total Problems scale.

Similar to the other research on community samples, Rescorla et al. (2013) found that adolescents reported more problems than their parents in all 25 societies. Additionally, they found that older adolescents scored somewhat higher than younger adolescents, although the effect size was small. They found that girls scored higher than boys on internalizing symptomatology, while boys scored higher than girls on externalizing problems, although effect sizes for both of these effects were small. While they found only moderate r values across many societies for problem scales (Mean Total Problems and Internalizing Problems $r = .45$, Mean Externalizing Problems $r = .46$), the researchers found high levels of agreement regarding mean item ratings (Average Q correlation = .85), indicating that parents overall and their adolescents overall tended to endorse the same problems as occurring a low, medium, or high rate. However, when they examined whether or not each parent and adolescent dyad endorsed the same items (within-dyad item agreement), they found a mean omnicultural dyadic Q of .33 and great within-society variation in every society, suggesting variation across parent-adolescent dyads regarding the items they endorsed in the adolescent. Additionally, while they found that overall agreement between parents and adolescents about the child's deviance status was pretty high (omnicultural $M = 72\%$ agreement), agreement was much lower when either the

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parent or the adolescent indicated an elevated Total Problems score for the adolescent: in both the case of elevated parent scores for the adolescent and the case of elevated adolescent self-scores, average omnicultural agreement was only 42% (meaning that the other party agreed with the elevated score only 42% of the time).

Clinical Samples.

As mentioned above, clinical samples tend to differ from community samples in the level of problems reported by parents and children: parents tend to report more problems than their children do in clinical samples, while the opposite is the case in community samples. This is not a universal finding, but this frequently identified difference is one of the compelling reasons for examining clinical and community samples separately.

In contrast to the pattern seen in community samples, this pattern of stronger agreement regarding externalizing behaviors over internalizing behaviors has been found in a number of studies examining clinical samples (Kolko & Kazdin, 1993; Lacalle, Ezpeleta, & Doménech, 2012; Rey, 1992; Salbach-Andrae, Klinkowski, et al., 2009; Salbach-Andrae, Lenz, et al., 2009; Verhulst & Ende, 1991; Youngstrom, Findling, & Calabrese, 2003; Youngstrom et al., 2000). In one of the only studies examining parent-child agreement surrounding reasons for being in treatment, Yeh and Weisz (2001) found that that while general levels of agreement were not particularly high, agreement was much higher for externalizing behaviors over internalizing behaviors. Only a few studies have found a different pattern of agreement regarding internalizing and externalizing behaviors, namely higher

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agreement for internalizing over externalizing disorders (Berg - Nielsen, Vika, & Dahl, 2003; Handwerk et al., 1999).

Many researchers have postulated that the higher levels of agreement around externalizing behaviors is due to the observable and more objective nature of these behaviors. In a study designed to test how the characteristics of items on a behavioral checklist related to parent-child agreement, Karver (2006) found evidence to support this. Specifically, she found that parents and children in a clinically referred sample were more likely to agree on behaviors that were rated by judges (i.e. clinicians, graduate students, and psychology faculty at a university) as being more salient to the parent and to the child than those that were less so. However, although agreement tends to be higher for externalizing behaviors over internalizing behaviors, agreement is by no means high. In a study that was particularly illustrative of this phenomenon, Kramer et al. (2004) found that even for discrete and observable behaviors and consequences (e.g., arrest, school suspension or expulsion), parent-child agreement in a clinical sample was only moderate, with the highest level of agreement found for in-or-out-of-school-suspension or expulsion ($k = .53$).

While many studies have examined patterns of discrepancy in parent-child problems on the broader scales of internalizing and externalizing behaviors, relatively few have reported parent-child agreement in clinical samples for narrow-band scales, such as Attention Problems. The CBCL and YSR (Achenbach & Rescorla, 2001) yield scores on eight narrow-band syndromes derived from factor analysis (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive

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Behavior), six DSM-oriented scales derived by consultation with experts in child psychopathology from different cultures (Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems), and three broad-band scales derived by second-order factor analysis of the eight syndromes (Internalizing, Externalizing, and Total Problems). The Internalizing scale includes the Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints syndromes, whereas the Externalizing scale includes the Aggressive Behavior and Rule-Breaking Behavior syndromes. The Social Problems, Thought Problems, Attention Problems syndromes are on neither the Internalizing nor the Externalizing broad-band scale. Thus cross-informant agreement can be tested for 17 CBCL/YSR scales.

Relatively few studies have examined parent-child agreement at the syndrome level in clinical populations, and results of these studies have been somewhat contradictory. For example, in the clinical sample studied by Ferdinand et al. (2006), quite large CBCL/YSR correlations were obtained for syndrome scales (from .40 for the Withdrawn scale to .70 for the Anxious/Depressed scale), but correlations in other clinical samples have been smaller. While Handwerk et al. (1999) reported that Anxious/Depressed had the largest r (.35) and Thought Problems scale had the smallest ($r=.11$), the correlations found in Israel et al. (2007) ranged from .27 for Anxious/Depressed (and .29 for Thought Problems) to .49 for Social Problems (and .46 for Somatic Problems). De Los Reyes et al. (2011) found correlations that ranged from .19 for the Thought Problems Scale to .41 for the Rule-Breaking Behavior scale. Thus, there has been some variability in the scales showing the highest levels of

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correlation, although, interestingly, the Thought Problems scale seems to show particularly low levels of agreement.

Interestingly, the higher correlations for the Anxious/Depressed and Somatic Problems scales found in two of these studies contradicts some of the evidence from the aforementioned clinical interview studies that showed low levels of agreement between parents and their children in the area of internalizing symptomatology. However, more in line with the previous findings of low agreement around child depressive symptomatology, other researchers (De Los Reyes et al., 2015; De Los Reyes et al., 2011; Moretti, Fine, Haley, & Marriage, 1985) have found support for the idea that parents may underreport depressive symptoms in their children (leading to low correlations between parent and child scores). While the pattern of parent-child agreement around child problems has not been extensively studied for other disorders that tend to emerge during adolescence, evidence is emerging that there are certain disorders that show particularly low levels of agreement, including bipolar spectrum disorders (Youngstrom, Findling, & Calabrese, 2004) and eating disorders (Salbach-Andrae et al., 2008)

Only one study to date has examined parent-adolescent agreement on the DSM-IV Scales of the CBCL and YSR. In a clinical sample of Spanish adolescents, Lacalle et al. (2012) found poor to moderate concordance between parents and their children. Specifically, lower levels of item-level agreement were found for the Anxiety Problems (ICC= .29) and Conduct Problems (ICC=.25) scales, than were found for the Affective Problems (ICC=.44), Somatic Problems (ICC=.39), ADHD Problems (ICC=.43), and Oppositional Defiant Problems (ICC=.43) scales.

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Examination of cross-informant agreement on the DSM-Oriented Scales would likely benefit from further consideration with regards to parent-child agreement, as these scales were designed to add additional information to the clinician's conceptualization of the client but they have not been extensively studied to date in terms of agreement.

Severity of the child's psychopathology may also influence agreement. Handwerk and colleagues (1999) examined patterns of agreement in more severe clinical cases that required more restrictive levels of care (i.e. children in inpatient, residential, and shelter placements) and found even lower correlations than have been found in other clinical populations. The results of this study suggest that parents and children are even less likely to agree in the case of more severe psychopathology. Thus, it is possible that the severity of the clinical sample being examined could be another factor contributing to the complicated picture of parent-child agreement on child problems.

Overall, there is significant research that supports the differences in parent and child concordance around internalizing vs. externalizing disorders in clinical samples. Additionally a few studies suggest some differences in parent-youth agreement patterns in clinical samples for the various narrow-band scales on the CBCL and YSR. However, research in this area is still quite limited, indicating the needs for further studies.

Few studies of clinical samples have reported evidence supporting the conclusion reached in Achenbach et al. (1987) that parent-child agreement is higher for younger children than older children. Many studies that have looked specifically

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at discrepancies between children and their parents found no differences in levels of agreement between parents and their younger or older adolescents in clinical samples (Carlston & Ogles, 2009; De Los Reyes et al., 2011; Garber, Van Slyke, & Walker, 1998; Karver, 2006; Kolko & Kazdin, 1993; Kramer et al., 2004; Yeh & Weisz, 2001); the most recent meta-analysis also found no age effects on agreement (De Los Reyes et al., 2015). Others have found the opposite effect, showing higher agreement for older adolescents over younger adolescents. Some have found this effect for both the Internalizing and Externalizing scales of the CBCL/YSR (Berg - Nielsen et al., 2003; Salbach-Andrae, Klinkowski, et al., 2009), while others noted it only in the Internalizing scale (Handwerk et al., 1999).

The inconsistencies between these results and those found in the original meta-analysis are often attributed to the differences in the samples used in these studies. While the meta-analysis reported that agreement was higher for younger children than older children, the age range in their study was much younger. That is, the meta-analysis reviewed studies with children down to age 6, but most studies of parent-child agreement in clinical samples use children in late-childhood or adolescence. Therefore, these studies are mostly looking for differences in reporting between younger and older adolescents, as opposed to adolescents and latency-aged children. Additionally, the meta-analysis did not provide information on agreement based on age in different pairings (e.g., parent-parent agreement vs. parent-teacher agreement vs. parent-child agreement); therefore their overall figure of greater agreement for younger vs. older children may have included (in large part) agreement pairings other than the parent-child pairing. Given these differences, it is unsurprising

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that when examining age effects specifically within an adolescent clinical population, the effect found in the meta-analysis does not appear to hold.

The original meta-analysis on this topic did not find a significant effect of gender on discrepancies between parents and their children (Achenbach et al., 1987). Many studies that have examined the relationship between gender and discrepancies on checklist measures in clinical samples have also found this to be the case (Dirks et al., 2014; Garber et al., 1998; Handwerk et al., 1999; Kolko & Kazdin, 1993; Renouf & Kovacs, 1994; Rey, 1992).

The previous studies suggest that gender may not have a consistent impact on discrepancies at the Total Problem score level. However, some researchers have found a more nuanced relationship between gender and discrepancies. A study examining the effect of gender on both the level of problems (severity) as well as item-level discrepancies in a clinical sample found that while parents and daughters agreed more on the total level of problems the child was experiencing, they showed lower item-level agreement than boys did with their parents, particularly with regards to internalizing symptoms (Carlston & Ogles, 2009). So, although girls agreed more with their parents about the *number* of problems they were experiencing, they showed lower agreement than boys did with their parents about the specific problems they were experiencing. Becker et al. (2004) also found that adolescent girls showed higher agreement with their parents than did boys with regards to the level of some of the problem scales (Total Problems, Conduct Problems, Hyperactivity/Inattention Problems, and Peer Problems) on the Strengths and Difficulties Questionnaire, although they did not examine agreement specifically at the item level. In the Dutch

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study that found particularly high parent-child agreement (syndrome scale correlations ranging from .40-.70), many of the high correlations seem to be driven by very large r s between girls and their parents compared to much more moderate (even some non-significant) correlations between boys and their parents, although the researchers did not compare these correlations statistically (Ferdinand et al., 2006). These studies suggest that the relationship between gender and discrepancies may be too complicated to examine just in terms of total agreement or difference scores; the specific items or problem types endorsed may also be a relevant factor in examining the effect of gender on agreement.

Many of the studies that have examined the effects of race or ethnicity on informant discrepancies have focused on agreement between parents and teachers; fewer have examined the effect of race/ethnicity specifically on parent-child agreement around child problems. However, some patterns have begun to emerge in this literature suggesting that some differences may exist between different groups. Lau et al. (2004) examined the effect of race on discrepancies in reports on the CBCL, YSR, and TRF in youth at “high-risk” for mental health issues and found higher levels of agreement between Caucasian adolescents and their parents when compared to African American, Hispanic, and Asian/Pacific Islander dyads for both internalizing and externalizing problems. Additionally, they found patterns of agreement that were dependent upon race and that were not consistent with some of the typical findings in clinical samples. Specifically, while Caucasian parents endorsed more internalizing and externalizing problems than their adolescents,

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African American, Hispanic, and Asian/Pacific Islander youth endorsed more internalizing and externalizing problems than did their parents.

However, in a similar study examining a clinical sample, Carlston and Ogles (2009) found higher levels of agreement for Hispanic dyads over both Caucasian and African American dyads (which did not differ from each other). Additionally, they found that the Hispanic youth reported more internalizing problems than their parents did, an effect that was not seen in the Caucasian or African American dyads, and which is not typical in clinical samples. Several studies examining anxiety in Caucasian and African American children have also found distinct differences between these two groups on this factor, specifically that Caucasian parents tend to report more anxiety in their children than children do for themselves, while African-American parents tend to report their children are less anxious than the children self-report (Dirks et al., 2014; Wachtel, Rodrigue, Geffken, Graham-Pole, & Turner, 1994; Walton, Johnson, & Algina, 1999). The reasons for the patterns observed in the discrepancies between different ethnic/racial groups are not clear. Some researchers propose that they have to do with differences in family dynamics and cohesion seen between different groups (Carlston & Ogles, 2009) or the effects of discrimination and the relative lack of exposure to education around mental health issues in minority populations (Lau et al., 2004)..

Overall, while the relationship between race and informant discrepancies remains unclear, it is certainly an important topic for further research, particularly as the lower levels of agreement seen in minority dyads in some studies raises concerns

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about potentially failing to detect and address mental health problems in children who belong to racial and ethnic minority groups.

Conclusions

Since the seminal meta-analysis on the topic of cross-informant agreement regarding child behaviors (Achenbach et al., 1987), much significant work has been done to increase our knowledge of this phenomenon specifically as it applies to parent-child agreement. Additionally, several studies have been done that indicate the importance of understanding this phenomenon for both diagnostic and therapeutic outcomes purposes (Brookman-Frazee et al., 2008; Ferdinand et al., 2006; Hawley & Weisz, 2003; Israel et al., 2007).

Studies of agreement on behavioral checklists have shown some distinct differences between clinical and community samples that suggest that parent-child agreement in clinical and community samples should be considered related, but separate, phenomena. Importantly, while parents tend to report more problems about their children than the children do about themselves in clinical samples, children tend to report more problems than their parents do in community samples. Additionally, while the 1987 meta-analysis found that children and their parents are more likely to agree on externalizing behaviors over internalizing behaviors, this effect appears to be specific to clinical populations, as it is not consistently seen in community samples of checklist agreement. Both of these findings suggest that clinical and community samples should be examined separately when it comes to looking at patterns associated with parent-child agreement.

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While research has provided strong evidence for certain aspects of parent-child agreement in clinical samples, there remain many questions that have yet to be answered regarding parent-child agreement in clinical samples. Although there is a large body of literature pointing to low levels of overall parent-child agreement regarding child problems and higher levels of agreement for externalizing over internalizing behaviors in clinical samples, the patterns of agreement exhibited on more specific narrow-band scales of child problems (e.g., Attention Problems) are less well researched and are not consistent across studies. Additionally, most studies have examined agreement in terms of Pearson product-moment correlations between parent and child scale scores, but have not examined other indices of agreement, such as looking at item-level agreement or agreement on deviance status, leaving open questions as to the patterns of agreement on these issues in both the broad and narrow-band scales of checklist instruments. Furthermore, studies that have focused on how demographic factors such as age, gender, and race/ethnicity have yet to reach a consensus about how these various factors contribute to informant discrepancies in clinical populations. Given the implications that modest cross-informant agreement can have for diagnosis and treatment, and the frequency with which checklist measures are used to obtain parent and child reports for clinical assessment and research purposes, further research to develop a clearer understanding of patterns of cross-informant agreement using these instruments in clinical samples is warranted.

Rationale for the Current Study

While there have been many studies that have used the CBCL and YSR to examine discrepancies in parent and child reports of child behavior, a large number of

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these rely on non-referred, community samples for their data (e.g. Achenbach & Rescorla, 2001; Barker et al., 2007; Collishaw et al., 2009; Ferdinand et al., 2004; Lohaus & Vierhaus, 2014; MacLeod, McNamee, Boyle, Offord, & Friedrich, 1999; Rescorla et al., 2013; Seiffge-Krenke & Kollmar, 1998; Sourander et al., 1999; Stanger & Lewis, 1993; van der Ende et al., 2012; Van Roy et al., 2010; Verhulst et al., 1997; Verhulst & Ende, 1992; Youngstrom et al., 2000). As there is strong evidence that there may be differences in the pattern and direction of discrepancies in referred versus non-referred samples regarding the level of problems and the degree and direction of discrepancies, it is important to consider the pattern of parent-child agreement seen in clinical samples separately from that which is seen in community samples.

To our knowledge, only four studies using clinical samples have tested cross-informant agreement on the narrow-band scales of the CBCL and YSR, which provide more specific information about the types of problems children are experiencing than the broad-band scales (De Los Reyes et al., 2011; Ferdinand et al., 2006; Handwerk et al., 1999; Israel et al., 2007). These four studies did not show consistency about the level of correlations between the different syndrome scales (although all found low levels of agreement on the Thought Problems scales). Furthermore, with the exception of the De Los Reyes study, the studies did not examine potential demographic factors that could be affecting agreement. Thus, examining for the effects of demographic variables as well as collecting additional data about the level of correlation for the syndrome scales of the CBCL/YSR would contribute to a better understanding of how they differ in cross-informant agreement.

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Furthermore, only one study to date has examined cross-informant agreement on the DSM-Oriented scales of the CBCL and YSR in a clinical population (Lacalle et al., 2012). Thus, additional research is needed to examine the patterns of agreement on the DSM-oriented scales as well as on the effects of demographic variables on agreement for syndromes and DSM-oriented scales.

In addition to a need for more information about how different factors relate to agreement on different scales of checklist measures in clinical populations, most studies that examine agreement between parent and child report rely only on one method of data analysis. The most common method of examining cross-informant agreement in diagnostic interview studies is calculating kappa between dichotomous decisions by two raters (diagnosis is made or not). The most common method of examining cross-informant agreement in checklist studies has been the use of Pearson's r between CBCL and YSR problem scales (e.g. Berg - Nielsen et al., 2003; Ferdinand et al., 2006; Garber et al., 1998; Handwerk et al., 1999; Martin et al., 2004; Salbach-Andrae, Klinkowski, et al., 2009; Verhulst & Ende, 1991). While both of these methods provide valuable cross-informant agreement information, they do not address other aspects of agreement, such as agreement regarding specific items or symptoms or agreement on overall score level.

The Rescorla et al. (2013) study is a notable exception to this. In this study, the researchers used CBCL and YSR data from over 27,000 dyads in a community sample to examine: how informant, gender, child age, and society influenced the level of problems endorsed; the correlations between parent-child scores on the various scales; general agreement about the problems that received low, medium, and high

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levels of endorsement, as well as dyadic agreement at the item level; and agreement about the child's deviance status. Thus, these researchers provide a comprehensive analytic model for testing parent-adolescent agreement using five different methods. Very few of these methods have been employed using data from clinical samples, and few studies from clinical samples have used more than one analytic method. Thus, our study is designed to apply this set of analytic methods to CBCL and YSR data obtained from a clinic sample.

Goals of this Study

The purpose of this study is to answer the following questions regarding parent-child agreement about child problems in a clinical sample: 1) Do parents report more problems about their adolescents than the adolescents report about themselves, and does this vary by problem type, age, and gender? 2) How highly correlated are parent and adolescent reports and does the level of agreement vary by problem type, age, and gender? 3) How much do parents overall and their children overall tend to agree on low-medium-high item ratings? 4) How well do parents and children within each dyad agree on which items are rated low, medium, or high, and does this vary by problem type, age, and gender? 5) How well do parents and their children agree on the adolescent's deviance status?

Method

The Institutional Review Board (IRB) of Bryn Mawr College has approved of this research project.

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Participants

The samples for this study were derived from two outpatient clinics in the suburban Philadelphia area. Sample A came from a private outpatient clinic associated with a small liberal arts college. The clinic, which largely draws its clients from the wealthier suburbs of Philadelphia, provides a range of services including assessment and individual and family therapy to fee-paying clients. All parents are typically asked to complete the CBCL when they request services for their children at this clinic (i.e., assessment for learning or behavioral issues, therapy services), and adolescents over age 10 are typically asked to complete the YSR. The sample used in this study was drawn from the complete set of de-identified computerized ASEBA records in the clinic's system (about 415 cases) by selecting all cases with both a CBCL and a YSR.

This selection procedure yielded a sample of 107 adolescents who ranged in age from 11-18 ($M= 14.03$, $SD= 2.01$). The sample was 58.9% male ($n= 63$). Most of the families who use this clinic are white, but 46.7% of the sample did not indicate race or ethnicity. Of the 57 participants who indicated their race, most were white (82.61% of those who indicated race). Few participants indicated being members of ethnic minority groups: African/African-American (4.35%), Asian/Asian-American (7.50%), Hispanic/Latino (4.35%), and Other (2.17%). Within this sample, most of the adolescents had data from both of their parents ($n= 70$, 65.42% of the sample), whereas some adolescents only had data from their mothers ($n= 29$, 27.11% of the sample) and a few had data only from their fathers ($n= 8$, 7.50% of the sample).

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Sample B was derived from a community-based outpatient clinic in southeastern Pennsylvania that provides child and adolescent-centered individual and family outpatient services, as well as school-based services and psychiatric evaluations. This clinic draws from a wide demographic range of the Philadelphia metropolitan area and accepts insurance, including Medical Assistance. Children who present at this clinic generally have more impairing issues than those presenting to the clinic in Sample A; many have experienced trauma and have been referred due to serious acting out behaviors or mood disturbances.

As in sample A, the sample used for this study was drawn from the full set of de-identified computerized ASEBA records in the clinic's system (about 343 cases). Selecting cases with both a YSR and a CBCL yielded 97 adolescents who ranged in age from 11-18 ($M= 13.90$, $SD= 1.91$). The sample was 49.5% male ($n= 48$). While a majority of the sample was white (60.8% of the sample), this sample was more diverse, with larger numbers of participants identifying as African American (17.5%), Latino/Latina (10.3%), and Other (7.2); a small percent of the sample did not indicate a racial/ethnic background (4.1%). Within this sample, most of the participants had data only from their mothers ($n= 75$, 77.32% of the sample), some had data only from their fathers ($n=22$, 22.68% of the sample), and only a few had data from both parents ($n= 2$, 2.10% of the sample).

As the vast majority of adolescents in both samples had responses from their mothers, we used the mother as the parent for all analyses if available. If a mother report was not available, the father report was used in place of the mother report. For

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both samples, we divided the participants into the two age groups to yield roughly equal size groups of younger (11-13) and older (14-18) adolescents.

Measures

The Child Behavior Checklist (CBCL). The CBCL (Achenbach & Rescorla, 2001) is a 120-item behavior checklist on which parents provide information about their child's behavioral, emotional, and social problems over the preceding 6 months. Parents are presented with a list of problems and asked to rate their child's problems on a scale of 0-2: 0 = *Not True*, 1 = *Sometimes or Somewhat True*, 2 = *Very True or Often True*. Parents are also asked questions about the child's extracurricular activities, school performance, and family relationships.

Youth Self-Report (YSR). The YSR (Achenbach & Rescorla, 2001) is the self-report counterpart to the CBCL and is designed to be completed by adolescents age 11-18. The YSR is comprised of 105 items assessing behavioral, emotional, and social plus 14 items assessing positive qualities. The adolescent rates each item based on the past 6 months using on the same 0-2 scale used for the CBCL. Similar to the CBCL, the YSR also asks the adolescent questions about his extracurricular activities, school performance, and family relationships.

The CBCL and YSR share 98 problem items regarding the adolescent that can be compared to determine parent-adolescent agreement. As described earlier in this paper, both the CBCL and YSR yield a number of scales to describe the pattern of items that the raters endorsed for the adolescent. These include broad-band scales of Internalizing, Externalizing, and Total Problems, as well as eight syndrome scales (which measure those problems that were found to fit together based on factor

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analysis), and six DSM-Oriented Scales (which contain behaviors endorsed by experts from around the world as closely matching the DSM criteria for the given disorders). Each scale yields both a raw score, as well as a *T* score; *T* scores are derived from information from the national normative sample for the CBCL and YSR and take into account the adolescent's age and gender. Cutpoints on the *T* scores allow the children to be scored as falling into one of three score categories. For instance, cutpoints on the three broad-band scales are as follows: *Normal* range (scores below the 84th percentile), *Borderline* range (scores between the 84th and 90th percentile), and *Clinical* range (scores above the 90th percentile). Thus, each scale also gives information about the deviance status of the adolescent compared to the normative sample.

Overview of Data Analysis

We compared the two samples on age, race, and Total Problems scores on the CBCL and YSR to determine if it would be appropriate to combine them for the analyses. The samples did not differ in mean age ($t(190) = -.47, p = .64$). However, they did differ in terms of racial make-up, although this may have been in part because a large number of participants in Sample A that did not report race ($\chi^2(5) = 65.84, p < .001$). We found that parents ($M = 36.52, SD = 25.24$) in Sample A indicated significantly lower Total Problems for their adolescents than did parents in Sample B ($M = 55.34, SD = 24.29$) ($t(188) = 4.91, p < .001$). Similarly, adolescents in Sample A ($M = 38.97, SD = 24.29$) also reported significantly lower Total Problems scores than adolescents in Sample B ($M = 57.35, SD = 27.11$) ($t(190) = 4.94, p < .001$). Given these significant differences in reports of both race and Total

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Problems, we kept the two samples separate for data analysis. Additionally, as a large number of analyses were run with a comparatively small sample size, a Bonferroni correction was applied such that the significance level for each set of analyses (e.g., cross-informant correlations for scale scores) was set at $p = .003$; this number was derived by taking the typical p value of .05 and dividing by 17, which is the total number of CBCL/YSR scales.

To determine if parents reported more problems about their adolescents than the adolescents reported about themselves, and to see if this varied with problem type, age group, and gender, we completed 17 mixed-model analyses of variance (ANOVAs) for each sample, one for each shared scale of the CBCL/YSR. This elucidated the differences in problem reporting between parents and adolescents across scales and allowed us to examine if and how reports of problem behaviors varied between parents and adolescents, as well as how they varied with the identified demographic variables.

We then used Pearson product moment correlations to examine the relationship between parent and adolescent reports for all 17 scales of the CBCL/YSR. This allowed us to compare the results of our study with past studies, which have mostly used Pearson's r as a measure of agreement between parents and adolescents. We then compared these correlations to determine if there were different levels of agreement between parents and their adolescents regarding different types of problems (e.g. were correlations higher between parents and their adolescents regarding externalizing problems than they were regarding internalizing problems), as well as if gender or age had an influence on how much adolescents and their parents

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agreed on problems (e.g., did older adolescents and their parents demonstrate stronger agreement than younger adolescents on externalizing problems). We used Fisher's z tests to determine whether or not the correlations differed between groups and Raghunathan, Rosenthal, and Rubin's (1996) test (designed to compare non-overlapping correlations within the same sample) to compare within-group correlations.

Using Q correlations between the average ratings for the 98 shared CBCL and YSR items, we examined how much parents overall and their adolescents overall tended to agree on low-medium-high item ratings. In contrast to our Pearson's r analyses for scale scores, which provides information about the level of association between scores across individuals, our Q correlations for mean item ratings indicate the degree of association between mean item ratings by all parents in the sample and mean item ratings by all adolescents in the sample across all 98 items. The correlation is calculated using the same formula as that for Pearson's r , with the input in this case being two sets of 98 mean items ratings based on the 0-1-2 item ratings provided by all the parents and all the adolescents. Thus, examining the mean overall Q correlations across raters for the 98 shared items provided information as to whether or not parents and adolescents agreed about the frequency with which the behaviors occur. Previous research has shown that Q correlations for mean item ratings are quite high in community samples, even when parents-adolescent dyadic agreement on scale scores is only moderate (Rescorla et al. 2013). However, this question has yet to be addressed in a clinical sample in a published study.

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We also used Q correlations to determine if parents and adolescents within each dyad agree on which items are rated low, medium, or high for the adolescent. For these Q correlations, parent X's 98 item ratings were correlated with adolescent X's 98 item ratings, yielding a Q for each dyad. This demonstrates whether or not parents and adolescents agree about the *specific problems* the adolescent is experiencing. We examined these values across the Internalizing, Externalizing, and Total Problems scales of the CBCL and YSR. We also correlated the dyadic Q correlations on the Internalizing and Externalizing Problems scales to determine if a stronger relationship between parent-adolescent scores on one measure was related to a stronger relationship on the other scale. Because each dyad has a Q , we can convert these Q s to Fisher's z scores and use ANOVA to compare the z -scores to determine if the levels of agreement vary by problem type, age, and gender.

Finally, we examined how well parents and their adolescents agree on the adolescent's deviance status using cross-tabs for the Total Problems scale of the CBCL/YSR. Agreement was defined as both CBCL and YSR scores in the elevated range (i.e. above the 84th percentile) or both CBCL and YSR scores falling in the non-elevated range (i.e. at or below the 84th percentile). This demonstrated if parents and their adolescents agreed as to whether or not the adolescent is demonstrating a level of problems which deviate from the norm for their age and gender. As in Rescorla et al. (2013), we looked at overall percent agreement, as well as examining percent agreement between the parent and the adolescent when the adolescent expresses a score in the elevated range (sensitivity), as well as the level of parent agreement when the adolescent expresses a score in the non-elevated range

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(specificity). We also examined Positive Predictive Value (when the parent indicates an elevated range score, what percent of the time does the adolescent agree), as well as Negative Predictive Value (when the parent indicates a non-elevated range score, what percentage of the time does the adolescent agree).

Results

Informant Differences in Scale Scores

Mean *T* scores for CBCL and YSR scores for both samples are shown in Table 1. Scores for adolescents in Sample B tended to be higher than scores for adolescents in Sample A across most scales. As noted above, the two samples differed significantly on Total Problems score.

To determine if parents reported more problems about their adolescents than the adolescents reported about themselves, and to see if this varied with problem type, age, and gender, we completed 17 mixed-model ANOVAs for each sample, one for each of the CBCL/YSR scales. Results of the repeated measures ANOVAs examining differences in parent and adolescent raw scores for adolescent behavior across the scales of the CBCL and YSR are shown in Table 2. Contrary to the Rescorla et al. (2013) findings for community samples, we did not find significant differences between parents and their adolescents' ratings across most of the CBCL and YSR scales. There were significant informant effects for the Somatic Complaints scale in both samples and the Thought Problems scale in Sample A, with adolescents' ratings yielding higher scores than their parents' ratings. With the exception of these three significant informant effects, there were no main effects for informant found for the ANOVAs. We noted few main effects for gender or age on the different scales. In

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Sample A, there were no significant main effects of age or gender. In Sample B, we found that girls had higher scores than boys on Internalizing, Anxious/Depressed, Withdrawn /Depressed, and Somatic Complaints scales.

With regards to interactions, we found several age-based interactions that were significant or approached significance. We found effect sizes that approached significance in Sample A on the Internalizing ($F(1, 100) = 8.32, p = .005, \eta^2 = .08$), Externalizing ($F(1, 100) = 8.84, p = .004, \eta^2 = .08$), and Total Problems ($F(1, 100) = 9.55, p = .003, \eta^2 = .09$) scales, as well as on the DSM-Affective Problems scale ($F(1, 100) = 8.24, p = .005, \eta^2 = .08$), such that younger adolescents tended to rate themselves lower than their parents and older adolescents tended to rate themselves higher than their parents on these scales. The same effect was found to be significant on the Anxious/Depressed ($F(1, 100) = 11.23, p = .001, \eta^2 = .10$) and DSM-Anxiety Problems ($F(1, 100) = 10.52, p = .002, \eta^2 = .10$) scales in Sample A, but this was not found in Sample B. There were no significant interactions involving gender for any of the scales.

Correlations for Scale Scores

We used Pearson product moment correlations to examine the relationship between parent and adolescent raw scores for the 17 scales of the CBCL/YSR. This is the measure that has been most frequently used to examine the relationship between parent and adolescent scores in previous studies. Correlations for both the broad-band and narrow-band scales of the YSR and CBCL are shown in Table 3. We found significant, moderate correlations similar to those found in previous studies on Total Problems ($r = .46$ in Sample A, $r = .35$ in Sample B), as well as Internalizing ($r = .48$

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in Sample A, $r = .43$ in Sample B) and Externalizing Problems ($r = .37$ in Sample A, $r = .39$ in Sample B). Thus, to a moderate degree, those adolescents whose parents endorsed higher raw scores also tended to endorse higher raw scores for themselves. Notably, unlike in some studies, we did not find differences in the levels of correlation between the Internalizing and Externalizing Problems scales; when compared using Raghunathan, Rosenthal, and Rubin's modification of the Fisher's r -to- z transformed test, the levels of correlation were similar for both scales.

With regards to the eight syndrome scales, large ranges were seen in the levels of correlation between the different scales, ranging from .26 for the Attention Problems and Somatic Problems scales to .60 on the Social Problems and Rule-Breaking Behavior scales in Sample A, and from .26 on the Attention Problems and Aggressive Behavior scales to .60 for the Rule-Breaking Behaviors scale in Sample B. When compared using Raghunathan, Rosenthal, and Rubin's modification of the Fisher's r -to- z transformed test, there were significant differences between the highest correlations and lowest correlations in both samples. Specifically, in Sample A, the Social Problems and Rule-Breaking Behaviors parent-adolescent correlations were significantly higher than the Attention Problems and Somatic Problems parent-adolescent correlations, and in Sample B, the Rule Breaking parent-adolescent correlation was higher than the Attention Problems and Aggressive Behavior parent-adolescent correlations.

Smaller differences were seen between the correlations on the six DSM-oriented scales, with ranges from .26 on the Oppositional Defiant Problems scale to within the .40 range on the Affective Problems, Somatic Problems, and Conduct

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Problems scales in Sample A, and correlation coefficients in the .39 (ADHD Problems) to .60 (Oppositional Defiant Problems) range in Sample B. None of these differences were found to be significant when tested using Raghunathan, Rosenthal, and Rubin's modification of the Fisher's *r*-to-*z* transformed test.

Comparisons in correlations between boys and girls across the scales are shown in Table 4. There were no significant differences between the correlation scores of males and females in Sample B, when tested using Fisher's *z*. Although we found that girls tended to show less agreement with their parents on several scales in Sample A, this effect was only significant on the Rule-Breaking Behavior scale ($p < .001$).

Comparisons of correlations between older and younger adolescents across the scales are shown in Table 5; comparisons were made using Fisher's *z*. While there were no significant differences in the levels of correlations between the age groups given our stringent cutoff point for significance, correlations for the older adolescents trended toward being higher than those for younger adolescents in both samples on several scales.

Cross-Informant Mean Item Rating Agreement

To examine whether adolescents and their parents tended to agree on low, medium, and high ratings for each item, we calculated *Q* correlations between the average ratings of the 98 shared CBCL and YSR items. This provides information about the level of association between mean item ratings for parents across items and mean item ratings for adolescents across items. The *Q* correlations for the mean item ratings were very high in both samples (.82 in Sample A and .83 in Sample B). This

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suggests that there was strong agreement between parents and adolescents in general on the items that received low, moderate, and high ratings. Given that high mean item ratings indicate problems that are commonly endorsed (and low mean item ratings indicate items that are rarely endorsed), the mean item ratings are an index of problem frequency or prevalence.

This conclusion is supported by examination of the most commonly endorsed items on the CBCL and YSR (i.e., those with the highest mean ratings), as well as the least commonly endorsed items on the CBCL and YSR (i.e. those with the lowest mean ratings). Of the top 25 most commonly endorsed items on the CBCL and the top 25 most commonly endorsed items on the YSR (that is, the items with the highest mean item ratings for each group), there were 13 items in common in Sample A (Table 6) and 17 in common in Sample B (Table 7). Additionally, it is notable that 11 of the 13 items found in common between the CBCL and YSR for Sample A were also found in common for Sample B, suggesting that the most commonly endorsed items were similar between the two samples. Shared items included “Argues a lot,” “Fails to finish things he/she starts,” “Can’t concentrate/pay attention for long,” “Impulsive or acts without thinking,” and “Inattentive or easily distracted.” Thus, those items that tended to have high levels of endorsements from parents also tended to have high levels of endorsements from adolescents and there was similarity between these items for the two samples.

We also examined the least frequently endorsed items for both parents and adolescents (that is to say those items with the lowest mean item ratings on the CBCL and YSR) and found that the least commonly endorsed items among parents also

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tended to be the least commonly endorsed items among adolescents. We found that parents and adolescents agreed on 19 of the 25 least commonly endorsed items in Sample A (Table 8) and 15 of the 25 least commonly endorsed items in Sample B (Table 9). Similar to the list of most common items, we found that 12 of the 15 items found on the list for Sample B were also found on the list for Sample A, suggesting that the least commonly endorsed items were similar between the two samples (e.g., “Wishes to be of the opposite sex,” “Sets fires,” and “Uses drugs for nonmedical purposes”). Thus, those items that tended to have low levels of endorsements from parents also tended to have low levels of endorsements from adolescents and there was similarity between these items for the two samples.

Dyadic Q Correlation for Item Ratings

To examine the degree to which each parent-adolescent dyad agreed about the specific problems that the adolescent was experiencing, we calculated dyadic Q correlations for the Internalizing, Externalizing, and Total Problems scales. For the Total Problems dyadic Q , parent X's 98 item ratings were correlated with adolescent X's 98 item ratings, yielding a Q score for each dyad that represents agreement around ratings for each problem. For the Internalizing and Externalizing dyadic Q s, only the items on those scales were used. We found that dyadic agreement between parents and adolescents varied widely within both samples for all three sets of items, with some dyads agreeing very well (e.g., $Q = .80$) and other agreeing very poorly (e.g., $Q = -.33$). Overall mean agreement (i.e., mean of dyadic Q s in the sample) was low-to-modest for all three scales: Internalizing (Sample A $M = .27$, $SD = .25$, Sample B $M = .15$, $SD = .25$), Externalizing (Sample A $M = .37$, $SD = .23$, Sample B

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$M = .31$, $SD = .23$), or Total Problems (Sample A $M = .34$, $SD = .18$, Sample B $M = .22$, $SD = .21$) scales. Thus, while parents and adolescents agreed in general about what the more and less common problems were, individual dyads varied widely in how well they agreed about the specific problems the adolescent was experiencing.

We then converted the correlations to Fishers z scores and used ANOVAs to test effects of age, gender, and problem type (Internalizing vs. Externalizing) on dyadic agreement. We found that there were no differences in Total Problems dyadic Q scores between boys and girls in Sample A ($F(1, 95) = .34$, $p = .56$) or Sample B ($F(1, 95) = .006$, $p = .94$). Similarly, we found no differences between older and younger adolescents in Total Problems dyadic Q scores in Sample A ($F(1, 94) = 1.05$, $p = .31$) or Sample B ($F(1, 95) = 2.26$, $p = .14$). Thus, it appears that neither gender nor age influenced the degree to which parents and their adolescents agreed about specific problems overall.

We also used repeated measures ANOVAs to determine if there were differences in dyadic agreement about Internalizing and Externalizing problems in either sample and to examine if these differences varied with gender or age group. We found that the differences between Internalizing and Externalizing problems dyadic Q scores approached significance in Sample A ($F(1, 75) = 7.30$, $p = .009$, $\eta^2 = .09$) and were statistically significant in Sample B ($F(1, 85) = 16.97$, $p < .001$, $\eta^2 = .17$), such that agreement tended to be higher on Externalizing Problems than Internalizing Problems. There was no main effect of gender on Internalizing and Externalizing dyadic Q scores in Sample A ($F(1, 75) = .25$, $p = .62$, $\eta^2 = .003$) or Sample B ($F(1, 85) = 1.03$, $p = .31$, $\eta^2 = .01$). Similarly, there was no main effect of

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age group on dyadic Q scores in Sample A ($F(1, 75) = 3.03, p = .09, \eta^2 = .04$) or Sample B ($F(1, 85) = .25, p = .41, \eta^2 = .005$).

Finally, when we examined the correlations between parents and their adolescent's dyadic Q scores, we found that there was a small relationship between Internalizing and Externalizing Problems dyadic Q scores in Sample A ($r(79) = .27, p = .02$), but that no such relationship existed in Sample B ($r(94) = .15, p = .17$). Thus it does not appear that high agreement about one type of problem was necessarily indicative of high agreement about the other.

Cross-Informant Agreement on Deviance Status

In our final analysis, we wanted to examine whether or not parents and their adolescents agreed as to whether the adolescent was demonstrating an elevated-range Total Problems score or not. This provides information as to whether or not the parent and adolescent agree that the child is demonstrating a greater than average number of problems. We are considering the YSR score the outcome score for the purposes of running decision statistics. Elevated-range scores are defined as scores that are one SD above the mean scores of the age and sex-matched normative population.

Overall, parents tended to be more likely than their adolescents to endorse elevated-range scores, with 37.5% of parents endorsing elevated-range scores for their adolescents in Sample A and 68.1% of parents endorsing elevated-range scores for adolescents in Sample B. This compares with 22.9% of adolescents in Sample A and 45.4% of adolescents in Sample B endorsing elevated-range scores for themselves.

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In Sample A, we found that when adolescents indicated elevated range scores, parents agreed in 63.63% of cases (Sensitivity). Similarly, when adolescents' ratings yielded a score in the non-elevated range, their parents agreed in 70.27% of cases in Sample A (Specificity). Agreement was even higher when parents' ratings yielded non-elevated range scores, with adolescents agreeing 86.67% of the time in this sample (Negative Predictive Value). However, agreement tended to be low when parents expressed elevated range scores; we found only 38.89% adolescent agreement when parents expressed elevated scores (Positive Predictive Value). Thus, it appears that when either the parent or adolescent endorsed a normal-range score for the adolescent, there was a high likelihood of agreement between the parent and the child. Additionally, when the child endorsed an elevated Total Problems score, there was also a fairly strong likelihood of agreement. However, adolescents did not appear very likely to agree with their parents when the parents indicated the child was demonstrating a greater than average number of problems.

In Sample B we found that when adolescents indicated elevated range scores, parents agreed in 81.82% of cases (Sensitivity). However, when adolescents' ratings yielded a score in the non-elevated range, their parents agreed in only in 44.00% of cases in Sample B (Specificity). When parents indicated elevated-range Total Problems scores, adolescents agreed in 56.25% of cases (Positive Predictive Value). Agreement tended to be higher when parents' ratings yielded non-elevated range scores, with adolescents agreeing with their parents 73.33% of the time regarding non-elevated range scores (Negative Predictive Value). In Sample B, it appears that adolescents and their parents were quite likely to agree that the child was

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experiencing a high number of problems when the adolescent endorsed an elevated range Total Problems score, but that agreement was much less likely when the parents endorsed a higher than average number of problems. When parents reported that their adolescent was experiencing a non-elevated Total Problems score, their child was likely to agree with them; however, when the child reported a non-elevated range score, their parents agreed with them less than half of the time.

When we compare the samples, we see that there are some similarities and differences in the rates of agreement. When parents expressed that their adolescents were experiencing a normal range score for Total Problems, the adolescents were quite likely to agree with them in both samples. However, when parents expressed that their adolescents were experiencing an elevated-range score for Total Problems, adolescents were not as likely to agree, particularly in Sample A. These results make sense, given that in both samples, a majority of children endorsed non-elevated-range scores for themselves and that parents had a higher rate of endorsement of elevated-range Total Problems *T* scores than adolescents did. Notably, when adolescents endorsed elevated-range scores, parental agreement was fairly high (Sample A) to very high (Sample B), which, once again, makes sense given the higher rates of parental endorsement of elevated-range Total Problems scores. The strongest contrast we see between the two samples is when children endorsed non-elevated-range Total Problems scores; while parents tended to agree with this assessment in Sample A, agreement was less than 50% in Sample B. This may have to do with the contrast we see between the two groups of parents; while fewer than 40% of parents in Sample A reported elevated-range Total Problems scores for their adolescents, almost 70% of

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parents in Sample B reported elevated-range Total Problems scores for their adolescents. This is consistent with the fact that Sample A children were referred for a variety of learning and emotional/behavioral concerns, whereas Sample B children were all referred for mental health issues.

Discussion

In this study, we used data from two clinic-referred samples to examine several different aspects of parent-adolescent agreement. The data analyzed were parents' reports of their adolescent's emotional and behavioral problems on the Child Behavior Checklist and adolescents' reports of their own problems on the Youth Self-Report. Following the analytical model used in Rescorla et al. (2013), we examined parent-adolescent agreement about adolescent problems with a wider variety of methods than have previously been used within clinical populations and to examine how the age and gender of the adolescent might influence agreement. Additionally, as most previous studies have only examined agreement at the broad-band scale level (i.e. Internalizing, Externalizing, and Total Problems scales), we hoped to add to the knowledge base around agreement for the narrow-band scales of the CBCL and YSR (i.e. the syndrome and DSM-Oriented scales).

Previous studies have found that parents tend to report more problems about their children than their children do about themselves in clinical samples (e.g. Carlston & Ogles, 2009; De Los Reyes et al., 2011; Handwerk et al., 1999; Lohaus & Vierhaus, 2014; Rey, 1992; Salbach-Andrae, Klinkowski, et al., 2009; Salbach-Andrae, Lenz, et al., 2009), the opposite of what is typically found in population samples (Rescorla et al., 2013). Somewhat surprisingly, therefore, we did not find

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many significant differences between parents and their adolescents in the level of problems they reported; in fact, in the few instances where we did find differences, the adolescents in our sample reported more problems than their parents did about them. The lack of differences found here may have been due in part to the small size of our sample compared to the larger samples used in many studies of the same phenomenon. However, this also speaks to the potential for children and their parents to have fairly similar assessments of the child's problems within certain clinical populations.

In one of our samples, we also found a trend for a significant interaction between problem reporting and age; specifically, younger adolescents reported lower levels of problems than their parents on Internalizing, Externalizing, and Total Problems scales, as well as on the Anxious/Depressed, DSM-Affective, and DSM-Anxiety scales, whereas older adolescents reported more problems than their parents did on these scales. In previous studies, many researchers have found no effects of age on agreement in clinical populations (Carlston & Ogles, 2009; De Los Reyes et al., 2011; Garber et al., 1998; Karver, 2006; Kolko & Kazdin, 1993; Kramer et al., 2004; Yeh & Weisz, 2001); this result highlights that this lack of effect may be due in part to an interaction effect that may not be detected in correlational analyses. It may also speak to a potential shift in the knowledge and expression of problems over the course of adolescence that may be noteworthy.

Our moderate parent-adolescent correlations were at the higher end of what has been found in previous studies, ranging from about .40 -.50 on the broad-band scales, .30 -.60 on the syndrome scales, and .30 -.60 on the DSM-oriented scales.

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Interestingly, we did not find higher parent-adolescent correlations for externalizing symptoms over internalizing symptoms, which contrasts with what has been found in many other studies of clinical samples (Kolko & Kazdin, 1993; Lacalle et al., 2012; Rey, 1992; Salbach-Andrae, Klinkowski, et al., 2009; Salbach-Andrae, Lenz, et al., 2009; Verhulst & Ende, 1991; Youngstrom et al., 2003; Youngstrom et al., 2000), but is consistent with the Rescorla et al. (2013) finding. Additionally, other studies of clinical samples have also found the opposite effect, that is to say, stronger agreement for internalizing symptomatology over externalizing symptomatology (Berg - Nielsen et al., 2003; Handwerk et al., 1999), suggesting that they may not necessarily be consistency in this finding across clinical populations.

Our results for agreement on the syndrome scales were different from those found in some previous studies (e.g., Handwerk et al. 1999, De Los Reyes et al., 2011), but previous results have also been somewhat inconsistent with each other. The best agreement in our study in both samples was found on one of the externalizing scales (Rule Breaking Behavior); however, in one of the samples, the other externalizing scale (Aggressive Behavior) had one of the lowest correlations. We did find that the Attention Problems scale had the lowest correlation in both samples, suggesting that when one reporter indicates an elevation in this area, this conclusion may not be supported by the other reporter.

With regards to gender and age differences, we found few differences, due in part to our stringent criterion for significance. Notably, in one of our samples, we found that girls trended toward having lower agreement with their parents than boys did on several scales, which contrasts with a previous study where particularly high

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levels of agreement were found between girls and their parents (Ferdinand et al. 2006). More in line with some previous studies of adolescents, both samples did show a trend towards higher correlations between older adolescents and their parents over younger adolescents and their parents for several of the correlations (Berg - Nielsen et al., 2003; Salbach-Andrae, Klinkowski, et al., 2009).

Our Q correlations provided information about item-level agreement between parents and adolescents, a type of cross-informant agreement reported in the Rescorla et al. (2013) international CBCL-YSR study but not included in most cross-informant agreement research. As in Rescorla et al. (2013), we found very high Q correlations. This suggests that parents and adolescents tended to agree about which items received low, medium, and high ratings. This was supported by an examination of the most and least frequently endorsed items by both reporters; we found a great deal of overlap between parents and their children on both the most and least common items.

Dyadic Q correlations, which indicate dyad-level agreement on individual item ratings, were much lower, however, and showed a great deal of variation. This suggests that while the sample as a whole agreed about which items received low, medium, and high ratings, parents and adolescents in each dyad did not necessarily agree about the specific problems the adolescent was experiencing. Interestingly, we did find a trend for higher dyadic Q correlations for externalizing versus internalizing problems, which suggests that adolescents and their parents are more likely to agree about acting-out behaviors at the item level than they are to agree about more inwardly focused problems at the item level. This is somewhat in line with the previous findings regarding correlations (although those were at the scale level, not

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the item level), suggesting that agreement is higher for those behaviors that are more apparent over those that are less so.

Finally, when examining differences in endorsement of elevated-range Total Problems scores between parents and their children, we found that overall, parents were more likely than their children to endorse elevated-range scores. Upon further examination, we found a fairly high degree of Sensitivity, such that parents tended to agree when their children expressed elevated range scores, as well as Negative Predictive Value, such that adolescents tended to agree when their parents indicated non-elevated range scores. However, when parents endorsed elevated range scores, their adolescents were less likely to agree (Positive Predictive Value). And while parents in Sample A were fairly likely to agree with their adolescent's assessment of a non-elevated-range score, this was much less likely in Sample B (Specificity). Although it is a different metric for examining agreement than is usually used, this is consistent with previous research in that it shows a way in which parents are more likely to endorse problem behaviors for clinic-referred adolescents than the adolescents are for themselves and that agreement around problematic behaviors may not necessarily be high.

Research and Clinical Implications

Some of our findings closely mirror those of other clinical sample studies. While we did not find the expected differences between parents and their adolescents on raw scores in our ANOVA analyses, the correlations we found suggest similar relationships between the scale scores as have been found in previous studies and support the conclusion that we can expect moderate levels of correlation between

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parents and their children's scores on measures of adolescent behavior at the sample level. Additionally, our finding that children are not particularly likely to agree with their parents on elevated-range total problems scores is also consistent with some previous research with clinical samples.

The use of Q correlations to examine levels of agreement across the sample has not been frequently done in previous studies of clinical samples. The results we obtained mirror those of Rescorla et al.'s (2013) international comparisons of population samples, suggesting that, at the sample level, parents and their adolescent children are likely to agree on what items are the most and least commonly endorsed. Unsurprisingly, those items that may be more often reflective of developmentally appropriate teenage behaviors (e.g., "Argues a lot" or "Impulsive; acts without thinking") appear to be more commonly endorsed than those that might be indicative of more severe psychopathology (e.g., "Runs away from home" or "Sets fires"). Thus while it appears from the low dyadic Q scores that agreement around items might be variable across dyads, this study provides evidence that, in general, adolescents and their parents in clinical samples are likely to demonstrate high agreement around which items are most and least common.

Our study also has some implications for clinical practice. Overall, we found some support of the previous findings that adolescents and their parents demonstrate only a modest level of agreement regarding the child's problems. This, in and of itself, is useful for clinicians to know when they are evaluating adolescents. While we did not find that adolescents and their parents differed significantly in their scores on most broad or narrow-band scales, the modest r s that we found suggest that there is

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unlikely to be a very high correspondence between adolescent and parent scores across the scales of the YSR and CBCL. This appears to be particularly salient at the item level. Although there may be general agreement at the sample level about which items are more likely than others to be endorsed, it is unlikely that individual parents and their adolescent children are going to show a high degree of agreement regarding the specific items endorsed for the adolescent. However, this varies widely across dyads.

Additionally, our decision statistics analysis points to variations in parent-adolescent agreement that may be important at the individual level. Our findings that adolescent agreement is likely if the parent indicates a non-elevated score and that parental agreement is likely if the child indicates an elevated range score set up some expectation that this would be the case with most dyads in clinical samples, and hence that a different result might be particularly notable. This may also give some indication as to the severity of the referral; if elevated scores from the child are less likely than elevated scores from the parent and the parent and child agree on the elevated score, for example, it may speak to more severe psychopathology. Furthermore, our decision statistics allow clinicians to know that they should not necessarily expect adolescents to agree with their parent's elevated range scores or for parents to agree with their children's "normal" self-scores.

Examining the most commonly endorsed and least commonly endorsed items may also be of some utility at the individual level. It is notable that several of the items that appeared on our lists of most commonly endorsed items were also on the list of the items of the most commonly endorsed items in the multi-society

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community sample (e.g., “Argues a lot,” “Has trouble concentrating or paying attention,” “Stubborn, sullen, or irritable”) (Rescorla et al., 2013). This suggests that these are items that may be fairly common across both clinical and non-clinical samples and will likely need to be the target of further assessment to determine if they are clinically significant or manifestations of developmentally appropriate adolescent behaviors. By the same token, knowing which items are less likely to be endorsed may indicate that if these items *are* endorsed on the CBCL and YSR, they may be particularly notable.

The low dyadic Q scores and large amount of variation in this area also has important implications at the individual level. Although it is possible that children and their parents show a high degree of agreement at the item level, our results show that this is not the case for many dyads. This may be due to differences in the level of knowledge about the adolescent’s internal experience and lack of salience of some behaviors, which is supported by the trend towards higher dyadic Q scores for externalizing over internalizing behaviors. This may also be due, at least in part, to different interpretations of the adolescent’s behaviors between the parent and the adolescent or different interpretations of what a “problematic” behavior is. Thus, while it may be important to examine which items are endorsed (particularly if items with a low base-rate are endorsed), clinicians should not expect that parents and their children are going to agree at this level. The large variations in dyadic agreement that we saw may also have treatment implications; as discrepancies have been shown in the past to predict poorer treatment outcomes, clinicians should be aware that those dyads where the Q correlations were low or even negative (e.g., $-.30$) may be quite far

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apart in their assessment of the adolescent's behavior. In these cases, evaluators and clinicians may want to take special care to conduct further assessment with parents and adolescents and communicate with them about why the discrepancy might be so large.

The effect of the adolescent's age on the results we obtained may also be important for clinicians to be aware of. For several of the ANOVAs, we found that older adolescents tended to report more problems than their parents, while younger adolescents reported fewer problems than their parents. This suggests that older adolescents in particular may have additional information to contribute to the evaluative picture, over and above what their parents provide. Additionally, the trend that we found for older adolescents to agree more with their parents than younger adolescents suggests that they may be more forthcoming or insightful about emotional and behavioral issues than younger adolescents, at least on checklist measures. Thus, being particularly attuned to problem reports from older adolescents, even if they are discrepant from the reports of their parents, may provide additional nuance to the clinical picture.

Limitations

The size of the samples in the current study was a major limitation. While our model for the statistical methods used in this study (Rescorla et al., 2013) featured almost 28,000 parent-adolescent dyads, we were limited to only about 200 dyads. Thus, the statistical power of our analyses was limited and thus we did not find effects where a study with a larger sample might have done. We were further limited by the fact that the two samples differed significantly in the level of problems that

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were endorsed both for and by the child, as well as in certain demographic aspects, making it inadvisable for us to combine the two groups. Not only does this limit our sample size, it also highlights that although two samples might be considered to come from the same broad grouping (i.e. from an outpatient “clinical” sample), there may still be significant differences in group characteristics that may have an influence on agreement. Although we do not have data about specific diagnoses or clinical histories of the children in Sample B, it is likely that these children are experiencing a higher degree of psychopathology than children in Sample A. As diagnosis and severity of psychopathology have been found to have an effect on agreement (e.g., De Los Reyes et al., Handwerk et al., 1999, Salbach-Andrae et al., 2008, Youngstrom et al., 2004), limited conclusions may be drawn about clinical samples on the whole from the particular samples we used in this study. Finally, although race, ethnicity, and cultural background have been found to have an influence on parent-child agreement (e.g., Carlson and Ogles, 2009, Lau et al., 2004, Rescorla et al. 2013), the lack of diversity or information about sociocultural background in our samples prevented us from being able to examine the influence of these factors on parent-child agreement.

Future Directions

While a large-scale study examining these diverse ways of measuring agreement in a non-clinical population has already been done (Rescorla et al., 2013), to our knowledge there are no published studies examining parent-adolescent agreement about adolescent problems in clinical samples using these diverse ways of measuring agreement. The sample limitations of our study highlight the importance of

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drawing from larger and more diverse clinical samples to test these different types of agreement. Additionally, given that we have seen how agreement may look different across various clinical samples (especially those which may differ in severity or type of psychopathology), in both this study and in others, it may be important to define and examine more specific subsets of clinical groups with respect to parent-adolescent agreement.

Additionally, examining the impact of the various types of agreement seen here on treatment outcomes could be particularly valuable. Studies of the impact of parent-child agreement about child problems on therapy or other outcomes have been few and far between and none that we know of have examined the impact of these various types of agreement on outcomes. However, those studies that have examined the impact of discrepancies on behavioral and treatment outcomes in adolescents have found that higher levels of discrepancy between parents and children have been associated with poorer outcomes. In order to understand the value of examining parent-child agreement at the individual level and using this diverse set of methods, we need to develop a better understanding of how agreement might affect treatment planning, as well as the course and outcome of clinical treatment. Additionally, a greater understanding of these factors in clinical populations may help to facilitate communication between parents, adolescents, and clinicians around problem behaviors and treatment goals, as well as to improve the assessment of problem behaviors in adolescents.

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Table 1*Mean CBCL and YSR T-Scores for All Scales*

Scale	Sample A		Sample B	
	CBCL Mean (<i>SD</i>)	YSR Mean (<i>SD</i>)	CBCL Mean (<i>SD</i>)	YSR Mean (<i>SD</i>)
Broad-band Scales				
Internalizing	57.15 (11.99)	52.54 (11.84)	62.94 (10.88)	59.00 (11.14)
Externalizing	52.23 (10.67)	48.58 (9.23)	60.73 (11.26)	57.08 (10.75)
Total Problems	56.24 (10.84)	51.64 (10.93)	63.43 (9.62)	59.25 (10.25)
Syndrome Scales				
Anxious Depressed	59.32 (10.59)	56.66 (9.20)	62.50 (9.77)	59.52 (8.82)
Withdrawn Depressed	59.59 (9.64)	55.63 (7.60)	65.05 (10.58)	61.09 (9.35)
Somatic Problems	56.97 (7.95)	55.99 (7.72)	60.29 (9.85)	58.76 (8.47)
Social Problems	58.05 (9.51)	55.80 (7.87)	61.01 (8.26)	59.06 (8.45)
Thought Problems	58.14 (8.44)	56.21 (7.50)	62.47 (8.73)	58.64 (7.66)
Attention Problems	60.65 (8.44)	59.24 (9.41)	64.34 (10.87)	61.60 (11.36)
Rule-Breaking Behavior	54.55 (6.17)	53.20 (5.37)	60.84 (7.90)	57.24 (7.28)
Aggressive Behavior	56.29 (7.48)	53.38 (5.30)	62.86 (10.61)	59.65 (9.52)
DSM-Oriented Scales				
Affective Problems	60.46 (9.67)	56.38 (7.90)	64.59 (9.65)	60.51 (9.19)
Anxiety Problems	58.98 (10.09)	55.63 (7.41)	60.77 (8.78)	57.11 (7.61)
Somatic Problems	55.80 (7.42)	56.01 (7.24)	59.73 (10.78)	60.29 (9.85)
ADHD Problems	58.28 (7.12)	58.05 (7.51)	62.03 (8.75)	60.79 (8.45)
ODD Problems	56.89 (7.75)	53.91 (5.71)	61.79 (9.21)	58.08 (7.95)
Conduct Problems	54.67 (6.35)	53.31 (5.38)	62.18 (8.37)	59.26 (8.85)

Note. All YSR and CBCL scales are standardized to have a Mean of 50 and a Standard Deviation of 10.

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Table 2

Effect Sizes for ANOVA Comparing CBCL and YSR Raw Scores for Broad-band and Narrow-band Scales

Factor	Informant (<i>p</i>)	Gender (<i>p</i>)	Age (<i>p</i>)	Informant (<i>p</i>)	Gender (<i>p</i>)	Age (<i>p</i>)
Broad-band Scales						
Internalizing	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	.15 (<.001)	(<i>ns</i>)
Externalizing	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Total Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Syndrome Scales						
Anxious/Depressed	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	.13 (<.001)	(<i>ns</i>)
Withdrawn/Depressed	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	.10 (.002)	(<i>ns</i>)
Somatic Complaints	.10 (.001)	(<i>ns</i>)	(<i>ns</i>)	.10 (.002)	.10 (.002)	(<i>ns</i>)
Social Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Thought Problems	.09 (.003)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Attention Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Rule-Breaking Behavior	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Aggressive Behavior	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
DSM-Oriented Scales						
Affective Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Anxiety Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Somatic Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
ADHD Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
ODD Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)
Conduct Problems	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)	(<i>ns</i>)

Note: Effect sizes are reported in terms of η^2 . Effect sizes are only reported for significant effects ($p < .003$).

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Table 3

Mean Parent-Adolescent Correlations on the Broad-band and Narrow-band Scales of the CBCL and YSR

Scale	Sample A		Sample B	
	Mean <i>r</i>	<i>p</i>	Mean <i>r</i>	<i>p</i>
Broad-band Scales				
Internalizing	0.48	<.001	0.43	<.001
Externalizing	0.37	<.001	0.39	<.001
Total Problems	0.46	<.001	0.35	<.001
Syndrome Scales				
Anxious/Depressed	0.57	<.001	0.48	<.001
Withdrawn/Depressed	0.39	<.001	0.37	<.001
Somatic Complaints	0.26	0.008	0.46	<.001
Social Problems	0.60	<.001	0.57	<.001
Thought Problems	0.39	<.001	0.39	<.001
Attention Problems	0.26	0.008	0.26	0.008
Rule-Breaking Behavior	0.60	<.001	0.60	<.001
Aggressive Behavior	0.26	<.001	0.26	<.001
DSM-Oriented Scales				
Affective Problems	0.40	<.001	0.46	<.001
Anxiety Problems	0.36	<.001	0.41	<.001
Somatic Problems	0.44	<.001	0.51	<.001
ADHD Problems	0.37	<.001	0.39	<.001
ODD Problems	0.26	0.007	0.60	<.001
Conduct Problems	0.43	<.001	0.48	<.001

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Table 4

Mean Parent-Adolescent Correlations of CBCL and YSR Raw Scores By Gender

Factor	Sample A				Sample B			
	Male Mean (n=62)	p	Female Mean (n=42)	p	Male Mean (n=47)	p	Female Mean (n=48)	p
Broad-band Scales								
Internalizing	0.54	<.001	0.26	0.10	0.34	0.02	0.56	<.001
Externalizing	0.49	<.001	0.13	0.43	0.50	<.001	0.67	<.001
Total Problems	0.45	<.001	0.20	0.21	0.22	0.14	0.52	<.001
Syndrome Scales								
Anxious/Depressed	0.58	<.001	0.32	0.04	0.29	0.05	0.49	<.001
Withdrawn/Depressed	0.42	0.001	0.30	0.06	0.20	0.19	0.41	0.004
Somatic Complaints	0.50	<.001	0.39	0.01	0.43	0.003	0.50	<.001
Social Problems	0.68	<.001	0.42	0.006	0.31	0.04	0.53	<.001
Thought Problems	0.52	<.001	0.20	0.21	0.21	0.16	0.26	0.08
Attention Problems	0.15	0.25	0.41	0.007	0.36	0.01	0.49	<.001
Rule-Breaking Behavior	0.69	<.001	-0.01	0.93	0.58	<.001	0.62	<.001
Aggressive Behavior	0.30	0.02	0.20	0.21	0.43	0.003	0.61	<.001
DSM-Oriented Scales								
Affective Problems	0.54	<.001	0.15	0.33	0.20	0.18	0.50	<.001
Anxiety Problems	0.53	<.001	0.10	0.54	0.44	0.002	0.37	0.009
Somatic Problems	0.46	<.001	0.42	0.007	0.51	<.001	0.46	0.001
ADHD Problems	0.35	0.006	0.41	0.007	0.36	0.01	0.48	0.001
ODD Problems	0.40	0.001	0.01	0.95	0.60	<.001	0.61	<.001
Conduct Problems	0.52	<.001	0.06	0.73	0.46	<.001	0.50	<.001

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Table 5

Mean Parent-Adolescent Correlations of CBCL and YSR raw scores by Age Group

Factor	Sample A				Sample B			
	Younger Mean (n=40)	<i>p</i>	Older Mean (n=64)	<i>p</i>	Younger Mean (n=45)	<i>p</i>	Older Mean (n=50)	<i>p</i>
Narrow-band Scales								
Internalizing	0.44	0.004	0.47	<.001	0.36	0.007	0.65	<.001
Externalizing	0.14	0.38	0.51	<.001	0.48	0.001	0.69	<.001
Total Problems	0.38	0.02	0.39	0.001	0.29	0.06	0.53	<.001
Syndrome Scales								
Anxious/Depressed	0.46	0.003	0.57	<.001	0.30	0.04	0.60	<.001
Withdrawn/Depressed	0.34	0.03	0.39	0.001	0.11	0.5	0.54	<.001
Somatic Complaints	0.47	0.002	0.45	<.001	0.50	0.001	0.53	<.001
Social Problems	0.64	<.001	0.51	<.001	0.31	0.04	0.52	<.001
Thought Problems	0.44	0.004	0.38	0.002	0.02	0.92	0.35	0.01
Attention Problems	0.31	0.06	0.27	0.04	0.23	0.27	0.57	<.001
Rule-Breaking Behavior	0.43	0.006	0.64	<.001	0.52	0.002	0.63	<.001
Aggressive Behavior	0.09	0.6	0.39	0.002	0.44	0.02	0.63	<.001
DSM-Oriented Scales								
Affective Problems	0.51	0.001	0.34	0.006	0.22	0.14	0.56	<.001
Anxiety Problems	0.37	0.02	0.42	0.001	0.34	0.02	0.48	.002
Somatic Problems	0.42	0.008	0.45	<.001	0.50	0.001	0.53	<.001
ADHD Problems	0.41	0.009	0.36	0.003	0.38	0.01	0.42	0.002
ODD Problems	0.18	0.27	0.35	0.004	0.59	<.001	0.63	<.001
Conduct Problems	0.17	0.3	0.51	<.001	0.45	0.002	0.52	<.001

Note. Younger adolescents are those adolescents between the ages of 11 and 13. Older adolescents are those adolescents between the ages of 14 and 18.

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Table 6

Items Shared Between Lists of Most Commonly Endorsed Problems for the CBCL and YSR in Sample A

Item	Parent Mean Rating	Adolescent Mean Rating
4. Fails to finish things he/she starts*	1.02	0.68
8. Can't concentrate, can't pay attention for long*	1.00	1.19
78. Inattentive or Easily Distracted*	1.00	1.00
3. Argues a lot*	0.89	0.85
86. Stubborn, sullen, or irritable*	0.88	0.75
112. Worries*	0.8	0.73
41. Impulsive or acts without thinking*	0.69	0.71
17. Daydreams or gets lost in his/her thoughts*	0.68	0.92
71. Self-conscious or easily embarrassed*	0.66	0.63
9. Can't get his/her mind off certain thoughts; obsessions*	0.64	0.92
32. Feels he/she has to be perfect	0.64	0.7
87. Sudden changes in mood or feelings*	0.6	0.68
44. Bites fingernails	0.55	0.68

Note. Items marked with an asterisk (*) are found on both Sample A and Sample B lists of most commonly endorsed items.

PARENT-ADOLESCENT CROSS-INFORMANT AGREEMENT

Table 7

Items Shared Between Lists of Most Commonly Endorsed Problems for the CBCL and YSR in Sample B

Item	Parent Mean Rating	Adolescent Mean Rating
3. Argues a lot*	1.25	1.14
4. Fails to finish things he/she starts*	1.19	0.81
8. Can't concentrate, can't pay attention for long*	1.06	1.21
41. Impulsive or acts without thinking*	1.04	1.08
87. Sudden changes in mood or feelings*	1.03	1.13
9. Can't get his/her mind off certain thoughts; obsessions*	1.02	0.96
78. Inattentive or easily distracted*	1.01	1.16
86. Stubborn, sullen, or irritable*	0.99	0.96
95. Temper tantrums or hot temper	0.98	0.95
69. Secretive, keeps things to self	0.97	1.06
10. Can't sit still, restless or hyperactive	0.93	0.96
71. Self-conscious or easily embarrassed*	0.92	0.75
42. Would rather be alone than with others	0.87	0.88
17. Daydreams or gets lost in his/her thoughts*	0.85	0.98
112. Worries*	0.79	0.91
90. Swearing or obscene language	0.75	0.97
63. Prefers being with older kids	0.69	1.06

Note. Items marked with an asterisk (*) are found on both Sample A and Sample B lists of most commonly endorsed items.

PARENT-ADOLESCENT CROSS-INFORMANT AGREEMENT

Table 8

Items Shared Between Lists of Least Commonly Endorsed Problems for the CBCL and YSR in Sample A

Item	Parent Mean Rating	Adolescent Mean Rating
99. Smokes, chews, or sniffs tobacco*	.09	.09
56h. Other physical problems*	.09	.08
37. Gets in many fights	.09	.14
2. Drinks alcohol without parents' approval*	.09	.14
20. Destroys his/her own things	.09	.08
91. Talks about killing self	.08	.12
57. Physically attacks people*	.07	.07
97. Threatens people	.07	.10
96. Thinks about sex too much*	.06	.10
101. Truancy, skips school*	.05	.05
56g. Vomiting, throwing up*	.05	.12
81. Steals at home*	.04	.05
18. Deliberately harms self or attempts suicide	.04	.06
105. Uses drugs for nonmedical purposes*	.03	.06
82. Steals outside the home	.02	.03
67. Runs away from home*	.02	.04
72. Sets fires*	.01	.04
70. Sees things that aren't there	.01	.11
110. Wishes to be of the opposite sex*	.00	.05

Note. Items marked with an asterisk (*) are found on both Sample A and Sample B lists of least commonly endorsed items.

Table 9

Items Shared Between Lists of Least Commonly Endorsed Problems for the CBCL and YSR in Sample B

Item	Parent Mean Rating	Adolescent Mean Rating
57. Physically attacks people*	.27	.22
81. Steals at home*	.23	.13
101. Truancy, skips school*	.21	.19
56d. Problems with eyes	.18	.33
67. Runs away from home*	.18	.16
96. Thinks about sex too much*	.17	.22
40. Hears sounds or voices that aren't there	.13	.27
56g. Vomiting, throwing up*	.13	.19
99. Smokes, sniffs, or chews tobacco*	.11	.17
2. Drinks alcohol without parents' approval*	.10	.13
56h. Other physical problems*	.09	.03
105. Uses drugs for nonmedical purposes*	.07	.13
72. Sets fires*	.03	.13
110. Wishes to be of the opposite sex*	.02	.12

Note. Items marked with an asterisk (*) are found on both Sample A and Sample B lists of least commonly endorsed items.