

FRIENDSHIP AND INFORMANT CHARACTERISTICS ASSOCIATED WITH THE
AGREEMENT AMONG ADOLESCENT AND FRIEND RATINGS OF BEHAVIOR
PROBLEMS

by

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ABSTRACT

Although teacher and parent informants often are used to gather information regarding adolescents' emotional and behavioral functioning, research has suggested that agreement among these raters and adolescents' self-ratings tends to be low to moderate. Given that friends typically play an important role in the lives of adolescents, the present study sought to determine the relative agreement amongst adolescent self-reports and those of their friends as well as factors that might impact this agreement. In particular, a sample of 207 culturally diverse high school students were matched based on perceived friendship closeness and asked to provide ratings of their own emotional and behavioral problems as well as that of an identified friend. Additionally, adolescents provided information regarding their friendship quality, previous exposure to psychopathology in others, and social competence as well as their endorsements for etiological attributions for friends' behavior. Results revealed that adolescent self-ratings and those of their friends demonstrate high levels of agreement for both internalizing and externalizing problems. Further, raters' emotional and behavioral problems were related inconsistently to rating agreement, whereas friendship quality and other rater characteristics (i.e., previous exposure, social competence) did not demonstrate a relationship. Additionally, friends tended to provide explanations for behavior problems that varied according to the type of behavior observed. Specifically, adolescents were more likely to provide explanations that were external in nature for internalizing symptoms, whereas explanations for externalizing symptoms were both internal and external. Overall, this study provided additional support for the utility of friend informants when ratings of adolescents' emotional and behavioral problems are needed.

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CHAPTER ONE: INTRODUCTION

Extant research suggested that adolescents' emotional and behavioral functioning may be best captured by the reports of several informants (e.g., self, parent, teachers, and peers). To date, research regarding the use and utility of cross-informant ratings focused primarily on parent and teacher informants, whereas peers (and friends, in particular) have yet to be studied in great depth. It is likely that much of the cross-informant literature has focused on parents and teachers because these informants often are viewed to be the most accessible and the most accurate (Phares, 1997). Despite this perception, this research generally suggested that both parents and teachers tend to be imperfect informants, suggesting that it may be useful to explore the use of alternative sources of information, such as that provided by peers. As a result, the correspondence among peer informants, particularly friends, was examined in this study along with a variety of contextual variables that were meant to provide a further understanding of potential correspondence.

Interest in cross-informant ratings was solidified with a seminal meta-analysis completed by Achenbach, McConaughy, and Howell (1987), where agreement among various types of informants for psychological symptoms exhibited by children and adolescents (henceforth referred to collectively as "youth") was moderate at best. In particular, the average correlation between parents and youth was low ($r = .25$; Achenbach et al., 1987). More recently, much of the research conducted regarding parent-youth agreement demonstrated a similar low to moderate relationship in both rating scales and clinical interviews (e.g., Choudhury, Pimentel, & Kendall, 2003; Jensen et al., 1999; Kolko & Kazdin, 1993; Kramer et al., 2004; Lee, Elliot & Barbour, 1994; Salbach-Andrae, Klinkowski, Lenz, & Lehmkuhl, 2009). Further, although teachers often are thought by health service providers to be useful informants when judging some forms of behavior problems (e.g., hyperactivity, inattention; Loeber, Green, & Lahey, 1990), the

agreement between teacher- and youth self-reports tends to demonstrate a similarly low to moderate relationship (i.e., with regard to agreement; Achenbach et al., 1987; Epkins, 1995; van Dulmen & Egeland, 2011; Youngstrom, Loeber, & Stouthamer-Loeber, 2000).

Such low agreement among informants is problematic for a number of reasons. First, variability in ratings can lead to diagnostic and treatment confusion (De Los Reyes & Kazdin, 2005; Renk, 2005). In particular, disagreement between parents and youth was associated with discrepancies in reasons for treatment presentation (Yeh & Weisz, 2001) and treatment goals (Hawley & Weisz, 2003). Beyond treatment considerations, however, larger discrepancies among parent-youth behavior ratings also were associated with a number of long-term negative outcomes (e.g., delinquency, self-harm, behavior problems; De Los Reyes, Goodman, Kliewer, & Reid-Quiñones, 2010; Ferdinand, van der Ende, & Verhulst, 2004). These findings have broad implications for assessment practices given mental health professionals' reliance on parent and teacher informants for information about youth.

Given these findings, it is important to incorporate the viewpoint of multiple (and other) informants in order to obtain a complete and accurate picture of youth in the diagnostic process (Carlston & Ogles, 2006). Different informants often provide different information as a function of the situations in which they interact with a target youth, the perspectives of the informant, and their attributions for the behavior that is observed (Achenbach, 2011; Achenbach et al., 1987; De Los Reyes & Kazdin, 2005). In particular, informants may vary in the likelihood of noticing different behaviors, interpretations of behaviors, willingness to report various behaviors, and expectations regarding what would be considered typical behaviors (Carlston & Ogles, 2006; De Los Reyes et al., 2011; Johnston & Murray, 2003; Karver, 2006; Rettew et al., 2011). As a result, the combination of multiple informants (e.g., parents, teachers, peers) who could offer

differing perspectives from different contexts may be most useful when considering diagnostic accuracy and treatment selection (Cole, Maxwell, & Martin, 1997; Kraemer et al., 2003).

In summary, parent and teacher informants most often are used in clinical practice and research, despite their low levels of agreement with endorsements from youth who are being rated. Such discrepancies can lead to complications in assessment and treatment provision as well as negative long-term outcomes. Nonetheless, multiple informants do provide useful information and are instrumental to the clinical process. Thus, it is imperative that clinicians begin to investigate alternative informants, such as peers, who often are not considered for inclusion in the clinical process. Interestingly, peers' ratings had similar or higher agreement with ratings provided by youth themselves, parents, and teachers (Achenbach et al., 1987). In order to further investigate the utility of the friend informant, the present study considered several factors that may inhibit or enhance adolescents' reports of their friends' behavior problems. Before examining specific factors that may be related to peer informants' ratings, general information about person perception will be provided first.

Person Perception

Research regarding cross-informant ratings can be informed broadly by social psychology theories regarding person perception. Extant research within the field of person perception suggested that individuals are fairly accurate at perceiving the behavior of others (Kenny & Albright, 1987). In order for the person perception process to begin, the observer must pay attention to a target (i.e., the person being perceived). The attention of the observer is influenced theoretically by motivation, stimulus factors (e.g., novelty, salience), and cognitive factors (e.g., extreme or negative information; Green, Lightfoot, Bandy, & Buchanan, 1985). Once the observer is paying attention, behavioral categorization and attributional inference (i.e., attribution about the cause of a behavior) are utilized to judge behavior (Gilbert, Pelham, &

Krull, 1988). To make such judgments, the observer makes use of a number of cues, including the type of behavior, the situation, and past information about the target. Each of these cues can influence the other cues, and different emphasis can be placed on specific cues depending on the nature of the cue and the context. For example, cues that trigger attention (e.g., unexpected or unique cues) receive more emphasis by an observer. Further, when a cue is ambiguous (e.g., tearfulness), the observer relies significantly more on the context to judge the behavior (Trope, 1986). This process is relatively automatic and requires a great deal of cognitive effort to correct (Gilbert et al., 1988).

Once a behavior has been identified and categorized, the observer typically will attempt to produce a causal attribution for the behavior. According to covariation theory, observers utilize consensus, distinctiveness, and consistency information to achieve this attribution. Consensus information concerns whether others would act similarly if placed in the same situation, whereas distinctiveness information concerns whether the target's behavior is specific to that situation. Additionally, consistency information concerns whether the behavior remains consistent over time or when placed in similar situations. When consensus and distinctiveness are low but consistency is high, the observer is more likely to make a causal attribution to the target; however, when all three are high, the observer will likely attribute the behavior to the situation (DiVitto & McArthur, 1978; Fiske, 2004). In addition to information received from the environment, accuracy in individual person perception also rests on a number of other factors, including the observer's personal ability to judge the information as well as the salience, availability, and relevance of the information (Funder, 1995).

There also are several biases that can both interrupt and augment the person perception process. The first and most widely researched bias is correspondence bias, which refers to the

failure to take into account environmental demands when judging behavior. This bias results in an erroneously causal attribution to the target (Baron, Branscombe, & Byrne, 2008). Research implicated a number of factors that may influence whether or not this bias will occur. In particular, a lack of awareness of specific details of the situation, unrealistic expectations on the part of the observer, an overestimation of knowledge about the situation on the part of the observer, and the observer's refusal to make corrections to attributions all influence whether or not correspondence bias will be present (Gilbert & Malone, 1995). This bias is central to current conceptualizations of cross-informant discrepancies, suggesting that part of these discrepancies are due to the tendency of "other" informants (e.g., parents, teachers) to attribute behavior to dispositional traits (e.g., the Attribution Bias Context Model; De Los Reyes & Kazdin, 2005). Interestingly, more recent research investigating the judgments of behavior problems within varying contexts suggested that individuals are more likely to ignore clinically noteworthy problems if these problems exist in an environment that is positive overall (e.g., cruelty to animals in a child who has otherwise positive characteristics, such as coming from a good home or having friends). This research may suggest that the informants' overall impression of the context in which behavior problems occur may negate informants' concerns about such problems (Marsh, De Los Reyes, & Wallerstein, 2014).

An additional relevant source of bias is that of assumed similarity. This bias involves projection of the observer's traits onto the target (Human & Biesanz, 2011). Research suggested that increased familiarity with the target decreases assumed similarity and increases accuracy (Beer & Watson, 2008). This finding may suggest that, when the observer is less familiar with the target, the observer uses information about the self as a basis for judgments about the target (Human & Biesanz, 2011). The relationship between familiarity and assumed similarity may not

be constant across all possible areas of person perception, however. For example, some research suggested that perceived similarity is higher among individuals with close relationships when the information that is being judged is more important to the informant (e.g., relationship satisfaction; Lee et al., 2009). Further, assumed similarity may not always act detrimentally on accuracy in person perception. In particular, when the observer and the target are actually similar on the trait in question, then assumed similarity works to increase accuracy (Kenny & West, 2010). The assumed similarity bias has significant implications for cross-informant agreement. If the observer engages in assumed similarity bias, his or her ratings of behavior may not be accurate because these ratings would be based on the observer's own experience of problems rather than on that of the youth in question.

Given that cross-informant ratings include viewpoints from multiple informants (i.e., observers), it is necessary to also consider how the combination of the perceptions of several observers might affect the accuracy of their observations. In particular, the agreement among observers can be influenced by their acquaintance with the target actor, the frequency of the behavior across situations in which the observers are present, the observers' personal beliefs about the behavior, the presence of additional information that may influence attributions, and the communication among the observers. As would be expected, when observers were exposed to similar behavior and had similar attributions about the behavior, agreement among observers was higher (Kenny, 1991). When considering the application of this theory to clinical research, these same factors emerged as influential in the agreement among cross-informants. For example, extant research suggested that ratings of youth's behavior are influenced by the behavior itself as well as the context in which it is perceived (Achenbach et al., 1987; see De Los Reyes, 2013, for a review). Thus, it would appear that agreement would be higher when the

same behavior is observed in both the home and school environment and the observers (i.e., informants; e.g., teachers, parents) have similar beliefs about what that behavior may indicate.

Peer Informants

An understanding of the basic person perception process as suggested by the social psychology literature can be useful when considering the potential accuracy and biases of peer informants. The present study sought to understand these factors in the context of peer ratings, specifically when these ratings were provided by friends. In this study, it should be noted that “peer” refers to individuals who are familiar with the target adolescent, whereas “friend” denotes a relationship that is characterized by increased familiarity and intimacy. Peers as informants of adolescent behavior problems may be particularly useful for a number of reasons. First, the fundamental building blocks of person perception (e.g., attention, motivation, cognitive factors) may differ for peer informants. For example, according to adolescents and their parents, disagreements may be motivated by a lack of parental awareness of adolescents’ problems and differences in opinion about what constitutes behavior problems (Kramer et al., 2004). Further, given the amount of time that adolescents spend with their peers, often across different settings, behavior that is not apparent to other informants (like parents) may be more salient to peer informants (e.g., subtle social skills deficits; Johnston & Murray, 2003). Peer informants also may be privy to information that is withheld from adults and are often familiar with age-specific social norms. Such information may allow peers to more accurately judge the behavior that is exhibited by their friends (Newcomb, Bukowski, & Pattee, 1993). Finally, peers are more likely to have access to situations in which adults typically are not present (e.g., cafeterias; Swenson & Rose, 2003).

Overall, limited research suggested that youth can rate adequately the behavior of their peers in a number of areas, including social competence (Renk & Phares, 2004), behavior

problems (Achenbach et al., 1987), and aggression (Pakaslahti & Keltikangas-Järvinen, 2000). Further, peers tend to be highly consistent when rating internalizing and externalizing behavior problems (Epkins, 1994; Lauer & Renk, 2013). In the research that has been done, studies often aggregate the ratings of several peers for one target youth and thus reduce the bias from any single informant (Ledingham, Younger, Schwartzman, & Bergeron, 1982) as well as from method effects that are inherent in the measurement process (e.g., effects due to instruments and data collection; Greenbaum, Decrick, Prange, & Friedman, 1994).

Despite these implications, peer agreement in ratings of youth is often comparable to parent-youth and teacher-youth agreement (Achenbach et al., 1987). Such findings may be related to the ‘wrong’ peers serving as informants. In fact, much of the peer informant research thus far only considers the relative agreement among peers in general, rather than among friends in particular. Given that friends may play a unique role in the lives of youth, particularly adolescents, these particular peers may provide unique informant information. For example, extant research suggested that friendships demonstrate an important function in development (see Hartup & Stevens, 1997). In particular, it appeared that, as youth get older, they rely more readily on their friendships for support and companionship (Buhrmester & Furman, 1987). These relationships may be sex specific (e.g., with girls receiving more support from close friends relative to boys; Rueger, Malecki, & Demaray, 2008). Further, friendships can serve as a buffer against the development of later behavior problems in adolescents with negative family environments (Beyers & Seiffge-Krenke, 2007).

Given adolescents’ increasing reliance on friends, friends may provide more information about adolescent behavior problems than parents. Further, friends may be more likely to observe behavior problem symptoms that only occur within a social context (e.g., withdrawal, anhedonia)

because they are given more opportunity to view their peers in these situations (Swenson & Rose, 2003). Overall, limited research investigating ratings provided by friends suggested that friends do have knowledge of youth's psychological functioning but that this agreement may be affected by a number of factors (e.g., friendship quality; Swenson & Rose, 2003, 2009; Wrobel, Lachar, & Wrobel, 2005). Thus, the present study seeks to further investigate the utility of friend informants and to better understand the factors that may affect the ratings that these informants provide. These factors will be discussed further below.

Factors Affecting Friend Informant Ratings

Much work has been done to identify the factors that might be associated with ratings provided by a variety of informants (e.g., caregivers, teachers, peers). Overall, a number of factors were implicated in the agreement and disagreement of cross-informant ratings, although much of this research focused on ratings provided by parents and teachers. Specifically, youth traits (e.g., age, sex), informants' traits (e.g., behavior problems, parenting stress, personality traits), and situational traits (e.g., behavior type being rated) all were implicated when considering ratings that these informants provided. These variables will be examined further.

Age

Overall, research regarding informant age and accuracy is unclear, particularly for peer informants. Specifically, some research suggested that older youth tend to judge behavior problems more harshly but are less likely to apply negative labels in a broad fashion (Hoffman, Marsden, & Kalter, 1977; Whalen, Henker, Dotemoto, & Hinshaw, 1983), whereas additional research suggested that there are no differences among younger and older informants in the ratings that they provide (Ledingham et al., 1982). Any relationship between age and peer informant ratings is likely due to cognitive and developmental differences. Limited research suggested that methods for judging behavior do vary as a function of age. For example, younger

children base judgments on more concrete cues, such as behavior. These judgments may rely on comparisons to other children as well as on general norms. As children develop, they become more sophisticated in their judgments of behavior, moving from behavioral comparisons to judgment based on psychological constructs (e.g., personality, behavior characteristics). Finally, comparisons among psychological constructs develop into comparisons of psychological characteristics of others and to norms (Barenboim, 1981). Thus, adolescents are likely more sophisticated in their judgments of their peers' behavior.

In addition to the relationship of informant age and the actual ability to make accurate judgments, research regarding cross-informant discrepancies as a function of youth age also must be considered. Overall, research regarding agreement between parent-youth behavior ratings as a function of age was equivocal. For example, some research suggested that disagreement is greater for young children than for adolescents (Salbach-Andrae et al., 2009). In contrast, other research suggested that agreement is lower for older children (Achenbach et al., 1987; Breland-Noble & Weller, 2012). Still other research suggested that there is no influence of age on agreement (Yeh & Weisz, 2001). In fact, parents often were seen as less credible when providing information regarding adolescents' functioning relative to information about the functioning of younger children (Youngstrom et al., 2011). Given the increased reliance on friends during adolescence (Swenson & Rose, 2003), use of friend informants may be particularly important for this age group.

In summary, adolescents are likely more sophisticated in their judgments of the behavior of those around them. Further, some research suggested that disagreement among parent-youth informant ratings may be much higher for adolescents relative to younger children. Given

adolescents' increased judgment abilities and reliance on friends during this time period, this age group was examined in the present study.

Sex

Research regarding the relationship between informant sex and ratings is also unclear. In particular, although some research suggested that there are no differences between male and female peer informant accuracy (Marsden & Kalter, 1976), contrasting research supported the notion that either males or females may be more accurate, depending on the behavior that is being rated (Peets & Kikas, 2006; Spitzer & Cameron, 1995). For example, Lauer and Renk (2013) found that male adolescents provided significantly higher ratings of externalizing behavior problems when judging a vignette that portrayed externalizing behavior problems. Although this finding could be interpreted as increased accuracy, it also could implicate the tendency of males to rate youth with behavior problems more negatively relative to females (Fox, Buchanan-Barrow, & Barrett, 2008; O'Driscoll, Heary, Hennessy, & McKeague, 2012; Peterson, Mullins, & Ridley-Johnson, 1985). Further, this tendency would be consistent with extant theories regarding the development of moral reasoning, which suggested that males tend to consider more abstract justice-related factors when judging behavior as compared to females who are more care- and relationship-oriented (Donenberg & Hoffman, 1988). These sex-related differences in moral development were associated with increased empathy and perspective taking in females (Van der Graaff, Branje, De Wied, Hawk, Van Lier, & Meeus, 2014) and may be related to accuracy of ratings. Thus, the effect of sex on the accuracy of peer ratings remains unclear.

Given the present study's focus on friend informants, informant sex also must be considered within the interaction between sex and friendship quality. When considering same-sex friendships, females tend to engage in more self-disclosure than males (see Rose & Rudolph,

2006, for review; Swenson & Rose, 2009) and to evidence more intimacy and emotional closeness in their friendships (Black, 2000; Johnson, 2004). Further, males are significantly less likely than females to prompt their friends to disclose their problems (Rose, Swenson, & Robert, 2009) but do not necessarily have more negative expectations about engaging in their own self-disclosure (Rose et al., 2012). Thus, although males tended to achieve intimacy in their relationships via other means (e.g., intimacy-related activities; McNelles & Connolly, 1999), they may have less information to make accurate judgments regarding behavior problems in their friends. Given this dearth of information, it is not surprising that agreement among male youth's friend ratings tends to be lower relative to that of female youth (Swenson & Rose, 2003).

Although much of the research on the interaction among friendship quality and sex focuses on same-sex friendship dyads, it is important to also consider mixed-sex friendship dyads. Studies focusing specifically on mixed-sex dyads find that these friendships are not uncommon, particularly in older adolescents (Kuttler, La Greca, & Prinstein, 1999). Interestingly, the impact of mixed-sex friendships on friendship quality and psychological functioning appears to vary across the sexes. For example, males who identify close female friends report higher friendship quality and self-esteem, whereas females who identify close male friends do not report a difference in friendship quality (Kuttler, et al., 1999; Solomon, 2006; Thomas & Daubman, 2001). This lack of differentiation in friendship quality between same- and mixed-sex friendship dyads for females is likely due to the tendency of females to rate all friendships positively (Lempers & Clark-Lempers, 1993). Further, some research suggested that mixed-sex friendships do have drawbacks, including less perceived support (Hand & Furman, 2009) and an increase in risky behavior for females (Poulin, Denault, & Pedersen, 2011).

In summary, previous research was unclear as to whether male or female peer informants were more accurate, although this research suggested that females tend to be more accepting of their peers with behavior problems. Because of the emphasis on friend informants in the present study, however, the present study sought to understand how sex may interact with friendship quality to produce more accurate ratings. Overall, previous research suggested that male friend informants may be less accurate in their ratings relative to female friend informants (with some exceptions noted), but research was extremely limited.

Race/Ethnicity

Much of the research regarding the effect of race and ethnicity on informant ratings focused on the relationship of these variables to parent and teacher ratings. This research demonstrated that ratings vary according to the race or ethnicity of the youth being rated, although the direction of the effects was unclear. For example, according to Carlston and Ogles (2009), Hispanic parent-youth discrepancies were significantly lower than discrepancies among parent-youth ratings from African American and Caucasian families. In contrast, additional research suggested that Caucasian parent-youth agreement was significantly higher than Hispanic parent-youth agreement and African American parent-youth agreement (Roberts, Alegria, Roberts, & Chen, 2005). Thus, although it was unclear as to which group tended to demonstrate greater agreement, research unequivocally suggested that there are differences among the groups.

In order to further understand how race may be related to friend ratings, research regarding the relationship between teacher informant ratings and race also may be informative. Evidence regarding effects of race and ethnicity on teacher informant ratings was less uncertain. Overall, teachers rated externalizing behaviors higher and internalizing behavior problems lower in African American youth (Epstein, March, Connors, & Jackson, 1998; Fabrega, Ulrich, & Loeber,

1996; Lau et al., 2004; Youngstrom et al., 2000). Further, teachers rated Asian/Pacific Islander adolescents as having fewer externalizing problems relative to other racial and ethnic groups (Lau et al., 2004). Thus, a clear relationship between race/ethnicity and teacher informant ratings existed. To date, however, no research directly addressed the relationship of race and peer informant ratings more broadly or friend informant ratings specifically. Given the differences among different racial and ethnic groups with regard to friendship intimacy and self-disclosure (e.g., Schwartz, Galliher, & Domenech Rodríguez, 2011), this variable was examined further within the context of friend informant research.

Acquaintanceship and Friendship Quality

When considering the relationship between friendship and informant ratings, it is important to take the acquaintanceship effect under consideration. This effect refers to the propensity for agreement among self- and other-ratings to increase in tandem with familiarity of the observer with the target. This increased familiarity likely would lead to an increase in opportunities to observe the behavior that is being rated and consequently lead to greater agreement (Beer & Watson, 2010; Blackman & Funder, 1998). Thus, adolescents who are considered to be friends with a target adolescent may be more accurate in their ratings based on their closer relationship. Further, the acquaintanceship effect already was implicated in parent ratings of youth behavior. For example, Kroes, Veerman, and De Bruyn (2010) found that mothers who rated the behavior of their own children provided higher ratings of behavior problems than independent informants who were unfamiliar with the children. Further, maternal ratings of familiar children were similar to the ratings provided by other caretakers who were familiar with the children (i.e., group care workers). In contrast, when the mothers judged the behavior of unfamiliar children, they provided ratings that were similar to the independent informants. These results suggested that the mothers were more accurate informants of their

children's behavior because they had more exposure to the children's behavior in a variety of situations and thus were more familiar with them. Interestingly, the acquaintanceship effect was not demonstrated with the group care workers, who reported elevated levels of behavior problems for both familiar and unfamiliar children (Kroes et al., 2010).

In order to conceptualize the increase in accuracy as a function of the acquaintanceship effect, the quality of the relationship between the informant and target adolescent should be considered. In the parent informant literature, this quality was addressed through research on the effects of competence and conflict within the parent-youth relationship. Extant literature suggested that decreases in parental competence and increases in conflict within the parent-youth relationship were associated with higher rates of reporting discrepancies of behavior problems (Kolko & Kazdin, 1993; Penney & Skilling, 2012; Treutler & Epkins, 2003; Youngstrom et al., 2000). Further, increases in parental communication and engagement were associated with increases in agreement among parent-youth reports (Treutler & Epkins, 2003; Van Roy, Groholt, Heyerdahl, & Clench-Aas, 2010). Thus, the quality of the relationship between parents and youth clearly was related to the agreement of the ratings that they provided.

Considering the importance of friendship in adolescence (Buhrmester & Furman, 1987), it was likely that friendship quality also would be related to friend informant ratings. High quality friendship was characterized by support, loyalty, and intimacy (see Berndt, 2002). Intimacy in friendships, which tends to increase with age, is achieved and sustained by a number of methods, including self-disclosure, activities, gossip, and conversation (McNelles & Connolly, 1999). Research to date demonstrated a relationship between friendship quality and friend informant ratings. For example, when friendship was perceived to be higher in quality according to the friend informant, agreement was higher for all types of behavior problems

(Swenson & Rose, 2003, 2009). Further, lower friendship quality was associated with significantly higher self-friend discrepancies in the report of deviant and risky health behavior (Prinstein & Wang, 2005). At least part of this relationship appeared to be driven by increased self-disclosure within the friendship (Swenson & Rose, 2009).

Overall, previous research on the acquaintanceship effect suggested that increased familiarity led to increased accuracy and that this effect was demonstrated to some extent within the cross-informant literature. One way to assess the presence of an acquaintanceship effect within a friendship is to consider the quality of that friendship. Previous research suggested that friendship quality may impact the accuracy of friend informant ratings and may be influenced by self-disclosure. The present study sought to understand the contribution of friendship quality within the context of other relevant friend informant variables.

Exposure

When considering possible sources for previous exposure to behavior problems, friend informants may be most likely to receive this exposure through family members (e.g., siblings, parents). Although little research examined this topic to date, extant research demonstrated a number of negative outcomes in youth who had siblings and parents who experienced behavior problems (e.g., increased risk for behavior problems, substance use, lower quality of life, increased stress; Areemit, Katzman, Pinhas, & Kaufman, 2010; Chilcoat & Breslau, 1997; Dia & Harrington, 2006; Kilmer, Cook, Taylor, Kane, & Clark, 2008). Such effects likely occur through a number of mechanisms (e.g., lower parenting quality, sibling aggression; Epkins & Dedmon, 1999; Goodman & Brumley, 1990). From a theoretical perspective, repeated exposure to behavior problems was likely to create a schema, or a cognitive formation that organized beliefs about a concept (Fiske, 2004), of disordered behavior. Given that schemas influenced

how an individual attended to, interpreted, and remembered information (Fiske, 2004), this schema may lead to more or less accuracy when judging others' behavior problems.

Research with siblings suggested that youth were able to accurately rate their siblings' behavior problems, although these reports may be related to sibling-specific relationship factors (i.e., sibling rivalry, affection; Epkins & Dedmon, 1999). Thus, there was some circumscribed evidence that informants who were exposed to behavior problems were able to rate behavior accurately. Nonetheless, this study did not directly address whether exposure to behavior problems actually influenced ratings. As a result, it was unclear whether this exposure helped or hindered accuracy in ratings. Additional research that directly examined the relationship between exposure to behavior problems and accuracy of peer informant ratings did not demonstrate a connection between the two (Lauer & Renk, 2013). Lauer and Renk (2013) could not address this relationship adequately, however, because their sample had a limited amount of previous exposure to psychopathology. Thus, the present study sought to further investigate this friend informant factor to clarify its relationship with informant ratings.

Behavior Problems

When considering the relationship between informants' own behavior problems and informant ratings, extensive research with parents' behavior problems and ratings of their children may provide helpful information. One aspect of parents' behavior problems, depression, received the most research attention. Yet, despite this attention, there were no clear conclusions drawn regarding whether parents' depression detrimentally affected parents' ratings of behavior problems in their children and which behavior problem ratings may be affected specifically. In particular, some research suggested that parent informants rated their children more negatively overall and reported more behavior problems when parents were depressed (Barbin et al., 2002; Berg-Nielsen, Vika, & Dahl, 2003; Chi & Hinshaw, 2002; Chilcoat &

Breslau, 1997; Ehrlich, Cassidy, & Dykas, 2011; Renouf & Kovacs, 1994). Although this research examined primarily mothers, fathers demonstrated a similar pattern of responding (Renk et al., 2007). Further, research suggested that parents' depressive symptoms had a moderate effect on the level of parent-adolescent disagreement for behavior problems (Youngstrom et al., 2000).

Researchers long debated whether parents' depression distorted parent informant ratings due to parents' tendency to project their own depressed feelings on to their youth (i.e., the projection hypothesis; Kroes, Veerman, & De Bruyn, 2003; Moretti, Fine, Haley, & Marriage, 1985) or whether depressive symptoms allowed parents to view their youth's behavior problems more accurately (Conrad & Hammen, 1989). Interestingly, other forms of parent behavior problems also were implicated as affecting parents' ratings of youth behavior problems. For example, both global psychopathology and anxiety were associated with informant discrepancies (Chilcoat & Breslau, 1997; Moreno, Silverman, Saavedra, & Phares, 2008; Niditch & Varela, 2011; Treutler & Epkins, 2003). Thus, it is important to consider the informant's own level of behavior problems when judging the accuracy of the ratings that they provide.

Limited research investigating the effect of existing behavior problems on ratings provided by peers suggested that peers' behavior problems also may impact the ratings that they provide regarding youth's behavior problems. In particular, youth who reported higher levels of behavior problems for themselves also reported higher levels of behavior problems in their friends and peers (Crowley & Worschel, 1993; Prinstein & Wang, 2005; Swenson & Rose, 2009). Further, there was some indication that perceived similarity was driving these ratings. For example, Epkins (1994) found that school children who rated themselves more highly on a trait (i.e., aggression, anxiety, or depression) also rated other children more highly on that same

trait. This same pattern was not evident when these children rated other children on different traits. These findings could suggest that these children were projecting their own behavior problems onto the children whom they were rating.

In an effort to determine the degree to which perceived similarity biases friend informant ratings of behavior problems, Swenson and Rose (2009) investigated self-friend agreement utilizing the Actor-Dependence Model. This model considered the effects of informant characteristics while also taking into account the effects that each member of the friendship had on each other (Kenny & Acitelli, 2001). Results of this study revealed that, although friend informants were biased strongly by assumed similarity in their ratings of behavior problems, they continued to be rather accurate in their ratings. Such findings provided initial support for examining behavior problems as an important factor in understanding peer informant ratings.

Although biases often are unwanted when studying rating accuracy, some researchers suggested that assumed similarity bias actually may increase accuracy. In particular, when individuals are in close relationships, they are more likely to be similar. Thus, if the informant is influenced by assumed similarity, the ratings that they provide may be more accurate, despite being based on their own characteristics, because these characteristics are similar to those of the person being rated (Kenny & West, 2010). When applying this theory to friend informants, it may be helpful to consider the role of homophily (i.e., the tendency to seek out peers with similar traits; Romero & Epkins, 2008). Because both typically developing youth and youth who experience behavior problems tend to seek out others who are similar to them (Goodwin, Mrug, Borch, & Cillessen, 2012; Kupersmidt, DeRosier, & Patterson, 1995; Sijtsema, Lindenberg, & Veenstra, 2010), assumed similarity actually may increase the accuracy of friend informant

ratings. Although limited previous research indicated that friends' accuracy was not driven by assumed similarity (Swenson & Rose, 2009), this link was not explored adequately.

In summary, extensive research in the parent informant literature suggested that parents' own level of behavior problems was associated with the ratings that they provide. Although limited research suggested that this relationship may not exist in the peer informant research (Lauer & Renk, 2013; Swenson & Rose, 2003), the majority of research suggested that it did. Further, assumed similarity bias also may play a role in this relationship and actually may contribute to increased accuracy, particularly in friends who may be similar to each other. Thus, this friend informant characteristic was studied here.

Social Competence

Social competence, which is characterized by the ability to interact and build relationships with others, develops early in life and is associated with a number of positive long-term outcomes (e.g., higher self-esteem, lower behavior problems; Choudhury, Blakemore, & Charman, 2006; Larson, Whitton, Hauser, & Allen, 2007). Social competence is likely driven, at least in part, by the social-information processing model. As part of this model, social interactions can be compartmentalized beginning with the accurate encoding and interpretation of cues followed by the selection, production, and evaluation of behavioral responses to social information (Crick & Dodge, 1994).

In line with this model, youth who were more socially competent demonstrated better recognition of facial expressions and more knowledge of appropriate emotional responses (Custrini & Feldman 1989; Dunsmore, Noguchi, Garner, Casey, & Bhullar, 2008; Leppänen & Hietanen, 2001) as well as increased emotion understanding (Cassidy, Werner, Rourke, Zubernis, & Balaraman., 2003). Perceived social competence also was associated with greater peer competence, increased maturity, and better social skills (McElhaney, Antonishak, & Allen,

2008). Further, peers tended to reject youth who experienced difficulty with the interpretation of emotional cues and nonverbal social information (Garner & Lemerise, 2007; Nowicki & Duke, 1992; Rieffe, Villanueva, & Meerum Terwogt, 2005). Thus, informants who are higher on both actual and perceived social competence may demonstrate better understanding and accuracy when rating behavior problems. Although previous research suggested that there is no relationship between perceived social competence and peer informant ratings (when rating depicted scenarios; Lauer & Renk, 2013), this research was very limited. Given the relationship between friendship quality and perceived social competence (Rubin et al., 2004), it was thought to be helpful to consider this variable within the context of friend informant ratings in this study.

Behaviors Being Rated

Clearly, each of the characteristics that have been discussed thus far refers to the friend informant who will be providing ratings. Nonetheless, it is also important to understand the behaviors that these friend informants are rating as well. As a result, internalizing and externalizing behavior problems in friends will be discussed next.

Internalizing Behavior Problems

Internalizing behavior problems generally refer to problems that are internal to youth (e.g., depression, anxiety, social withdrawal). Typically, these problems are more difficult to rate accurately due to their covert nature (Achenbach, 2011). Because informants tend to perceive these problems to be less problematic (Ivens & Rehm, 1988; Liljequist & Renk, 2007; Schrepferman, Eby, Snyder, & Stropes, 2006), informants may be less likely to report them. Further, youth may be less likely to share these problems with parents and teachers, thus leaving them unaware of the severity of these symptoms (Moretti et al., 1985). Regardless of the reason, internalizing behavior problems often prompted lower levels of agreement among informant reports (Cai, Kaiser, & Hancock, 2004; Kramer et al., 2004; Moreno et al., 2008). This lack of

agreement regarding internalizing behavior problems can be concerning, particularly because these behavior problems can extend to very serious issues, such as suicidal ideation (Connor & Reuter, 2009; Klaus, Mobilio, & King, 2009; Lewis et al., 2014).

Although it was apparent that parent informants and youth disagree on the amount of internalizing behavior problems that may be present for youth, the direction of these disagreements tends to be unclear. For example, some research suggested that parent informants overreported these problems (Ivens & Rehm, 1998; Krain & Kendall, 2000; Salbach-Andrae et al., 2009). In contrast, additional research suggested that youth actually reported more of these problems than parent informants (Angold, Weissman, John, & Merikangas, 1987; Moretti et al., 1985; Penney & Skilling, 2012; Pereira et al., 2014). Additionally, this relationship may be complicated further by the sex of the youth being rated. For daughters, some research suggested that female adolescents reported higher levels of internalizing behavior problems relative to parents' reports (Penney & Skilling, 2012), whereas other research suggested that daughters and parents actually agreed on the overall level of internalizing behavior problems but disagreed on the specific problems that were identified (Carlston & Ogles, 2009). For sons, the picture also was complicated, with some research suggesting that males reported similar levels of internalizing behavior problems relative to their parents (Youngstrom et al., 2000) and additional research suggesting that parents rated sons as more severe across all behavior problems, including internalizing behavior problems (Carlston & Ogles, 2009).

Given the difficulties inherent in parent informants' ratings of internalizing behavior problems, it may be necessary to consider alternative informants (e.g., peers, teachers), particularly in ratings of internalizing behavior problem. In fact, research suggested that youth were able to detect internalizing behavior problems in peers (Lauer & Renk, 2013; Verduin &

Kendall, 2008). Further, peers demonstrated good agreement with both teachers- and self-reports of depression and anxiety (Epkins & Meyers, 1994; Happonen et al., 2002). Beyond the accuracy of peers in general, friend informants in particular also demonstrated accuracy in rating youth internalizing behavior problems (Swenson & Rose, 2003). Thus, friend informants may prove to be particularly vital when considering the presence of internalizing behavior problems in adolescents and thus should be considered further.

Externalizing Behavior Problems

Externalizing behavior problems are characterized by difficulties that are external to the youth (e.g., aggression, hyperactivity, impulsivity) and typically affect those around youth to a greater extent than do internalizing behavior problems. These problems tend to be more overt in nature and thus typically prompt greater agreement among informants (Achenbach, 2011; Penney & Skilling, 2012; Renk et al., 2007; Salbach-Andrae et al., 2009; Stokes, Pogge, Wecksell, & Zaccario, 2011). Further, externalizing behavior problems and ratings tend to demonstrate more stability over time (Verhulst & van der Ende, 1991).

Although these findings may indicate that parent informants alone may be adequate when considering externalizing behavior problems (Ledingham et al., 1982), some research suggested that disagreement between parents and youth may increase with youth age (Verhulst & van der Ende, 1991). The direction of these discrepancies was unclear, however, with some research suggesting that parents reported more externalizing behavior problems than did adolescents (Carlston & Ogles, 2009; Salbach-Andrae et al., 2009) and contrasting research suggesting an opposite relationship (i.e., adolescents reporting more externalizing behavior problems than their parents; Barker, Bornstein, Putnick, Hendricks, & Suwalsky, 2007; Seiffge-Krenke & Kollmar, 1998; van der Ende & Verhulst, 2005).

Given this disagreement among informant ratings for adolescents, peer and friend informants may again be important to consider. Previous research suggested that peers were able to easily detect externalizing behavior problems (Lauer & Renk, 2013; Younger, Schwartzman, & Ledingham, 1985). Further, friend informants demonstrated higher agreement with self-ratings for externalizing behavior problems relative to internalizing behavior problems, and this agreement appeared to be unaffected by friendship factors, such as relationship quality (Swenson & Rose, 2003). Given friend informants' potential utility in rating externalizing behavior problems in adolescents, however, their abilities in this area deserved further attention.

Etiology

In addition to the actual behavior that was rated by friend informants, the present study also sought to understand how various informant characteristics were associated with friend informants' ratings of etiological attributions. Given the relationship between perceived responsibility for behavior problems and a lack of competence among peers (Swords, Heary, & Hennessy, 2011), it was important to understand the etiological explanations that adolescents consider, particularly in the context of friendship.

Overall, previous research indicated that attributions for the causes of behavior problems appear to change throughout development. In particular, young children were more likely to supply explanations that involve physical or medical factors, poor parenting, peer difficulties, or internal factors inherent to the individual exhibiting the behavior (Fox et al., 2008; Kalter & Marsden, 1977). In middle childhood, children tended to become more adept at perceiving behavior problems and more sophisticated in their etiological attributions for such problems (Coie & Pennington, 1976). For example, although many of the etiological attributions that children in middle childhood generate were external (e.g., inadequate parenting, poor family relationships, media), these children also were able to recognize that severe behavior problems

could have a different etiological cause than more mild behavior problems (Fox et al., 2008; Kalter & Marsden, 1977; Roberts, Beidleman, & Wurtele, 1981). Adolescents continued to be adept at identifying behavior problems and began to consider how these behaviors may violate social norms (Coie & Pennington, 1976). Although these adolescents were the least consistent in their etiological attributions, research suggested that adolescents utilized psychological and internal explanations more often as they aged (Boxer & Tisak, 2003; Chassin & Coughlin, 1983).

Additionally, ratings of etiological attributions may differ according to the sex of the youth and the type of behavior problems that are being rated. For example, Hennessy and Heary (2009) found that youth provide more external etiological attributions (e.g., parenting, death in the family, poor role models) for externalizing behavior problems (i.e., ADHD). Lauer and Renk (2013) found similar results for externalizing behavior problems being depicted in vignette format, but the picture proved more complicated for internalizing behavior problems. In particular, adolescents rated internal etiological attributions highest for males demonstrating internalizing behavior problems (Lauer & Renk, 2013). Thus, although youth provided both internal and external explanations for behavior problems (Swords, Hennessy, & Heary, 2011), these explanations may vary according to the sex of the youth and the type of behavior problem(s) being rated.

Thus, overall, research to date suggested that youth's etiological attributions for behavior problems remain somewhat unclear. Further, these attributions rarely have been considered within the context of friendships or friend informant ratings. Given the differences among close friendships and peer relationships in general and the potential rejection that can result from internal etiological attributions (Swords et al., 2011), the effect of friendship and friendship quality should be further investigated in this population.

Methods of Measurement for Peer Ratings

Finally, before embarking on a study of friend informants, some consideration should be given to the method of measuring friend informant ratings. One common method, peer nomination, developed from extant research regarding sociometric status. As part of this method, peers are provided with a list of their classmates and are asked to nominate the classmates that best match the trait in question. For example, the Peer Nomination Inventory of Depression (PNID; Lefkowitz & Tesiny, 1980) utilized such questions as “Who often plays alone?” to determine which children may be experiencing depressive symptomatology. Although several peer nomination measures exist that deal with specific behavior problems (e.g., aggression; Masten, Morison, & Pelligrini, 1985), more recent measures were created to address a broader range of symptoms. In particular, both the Multidimensional Peer Nomination Inventory (MPNI; Pulkkinen, Kaprio, & Rose, 1999) and the Peer-Report Measure of Internalizing and Externalizing Behavior (PMIEB; Weiss, Harris, & Catron, 2002) address several domains of behavior (e.g., internalizing and externalizing behavior problems).

Although these measures typically result in agreement among informants that are comparable to scores obtained from rating scales (e.g., Lefkowitz & Tesiny, 1980), some researchers suggested that this method of peer measurement was far from perfect. In particular, because peers are asked to rate their classmates as a whole, youth who exhibit extreme behavior problems are more likely to be selected. Thus, it is likely that clinical information about youth who may be experiencing behavior problems that are not the most salient among their classmates may be absent. Further, this method of measurement reduces the clinical utility of obtaining peer ratings for a particular youth who may be receiving an evaluation. Because the entire class is the focus of the nomination inventory, it is difficult to receive information about a specific youth, unless that youth is the most problematic in the class. More importantly to the aims of the

present study, the type of friendship between the youth being rated and the peer providing the ratings is not taken into account (Swenson & Rose, 2003). Because friendship quality appeared to be related to the accuracy of the ratings (Swenson & Rose, 2003, 2009), the ratings provided by an entire class or group of peers may not prove to be as useful as the rating provided by a close friend.

Despite research support for the utility of friend informant ratings in clinical evaluations, there are currently no rating scale measures for peer informants that resemble those that are used with other informants (e.g., Behavior Assessment Scale for Children, Child Behavior Checklist, Conners' Rating Scales). Rather than developing a new measure, it appeared to be more efficient to adapt an already existing and well-validated measure. One such measure, the *Teacher's Report Form* (Achenbach & Rescorla, 2001), may be particularly well-suited for use in the friend and peer informant population. Although this measure was designed for teachers and school staff, the content of the items pertain to school behavior and may be appropriate for other individuals who view behavior in this setting (e.g., peers, friends). Thus, the present study also sought to investigate the use of this measure with friend informants.

Beyond the method of gathering information from self-ratings and those of friend informants, consideration also must be paid to the metric of agreement amongst ratings. Much of the research on cross-informant ratings utilized correlations between self-ratings and those of informants as a metric for agreement. Although correlations were useful in providing overall agreement on the rated severity of symptoms by each informant, they did not provide more nuanced information regarding the extent of the differences amongst ratings (Carlston & Ogles, 2009). Additional methods for determining agreement utilized discrepancies amongst ratings that were provided on similar symptoms, typically through comparison of raw scores,

standardized scores, or standardized residuals (De Los Reyes & Kazdin, 2004). In order to compare differences in raw scores, similar item scores or scale scores were subtracted from each other. Likewise, to obtain standardized difference scores, similar item scores or raw scores were standardized (i.e., placed on the z distribution) and subtracted from each other. Finally, in order to compare standardized residuals, one informant's rating, serving as the independent variable, was used to predict the other informant's rating as the dependent variable. The predicted values based on this regression then were subtracted from the actual obtained values to calculate the residual difference, which then was standardized to aid in interpretation.

Because these metrics were used somewhat interchangeably in the cross-informant literature, De Los Reyes and Kazdin (2004) conducted a direct comparison of these methods to determine the degree of similarity among them. Results revealed that standardized difference scores may be the most useful metric when determining relative differences among informant ratings. In particular, standardized difference scores were correlated equally with the ratings provided by each informant, produced consistent estimates of relationships between rating discrepancies and informant characteristics, and were equally distinguishable from each informant's ratings when investigating relationships among ratings and informant characteristics. In contrast, residual difference scores were affected by the correlation amongst informant ratings so that a low correlation between ratings resulted in residuals that were indistinguishable from the ratings provided by one of the informants. Further, raw scores were less useful because they were influenced by the variance of the ratings that were provided so that ratings with greater variance were more influential on the difference score (De Los Reyes & Kazdin, 2004). Given this research, the various metrics of agreement were compared for the present study to determine which method was the most useful in capturing agreement amongst raters.

The Present Study

Given the impact of cross-informant disagreement on long-term outcomes, clinical assessment, and treatment selection, it was important to investigate potential alternative informants that could augment the assessment process. As a result, the present study focused on friends as potential informants and the factors that may influence friends' judgments of behavior problems and attributions for etiological origins of behavior problems. In examining cross-informant correspondence between adolescents' self-ratings and those provided by their friends, it was expected that overall agreement in these ratings would be higher for externalizing behavior problems than for internalizing behavior problems.

Further, it was expected that both individual and relationship characteristics would be related to the agreement that was noted between adolescent self-ratings and those provided by their friends. In particular, it was expected that increased friendship quality, closeness, social competence, and previous exposure to psychopathology as well as informant female sex would be associated with increased agreement among adolescent self-ratings and the ratings of friend informants. In contrast, it was expected that informant behavior problems would be associated with decreased agreement. Further, it was expected that each of these individual and relationship variables would provide predictive value in understanding the correspondence between adolescent self-ratings and those provided by their friends. With regard to etiological explanations, it was expected that friend informants would provide more external attributions for increased externalizing behavior problem ratings of the target adolescent but would provide both internal and external attributions for increased internalizing behavior problem ratings of the target adolescent.

Uniqueness of the Present Study

Given the potential utility of friend informants in the evaluation and treatment of behavior problems, the factors that may be related to these ratings deserved further exploration. Very limited research regarding friend informants indicated that they may provide accurate and potentially useful information but that this information may be related to factors that are inherent to friendship (e.g., friendship quality) and the friend informant (e.g., friend informants' behavior problems; Swenson & Rose, 2003, 2009). The present study sought to expand the investigation of these factors in relation to friend informants' ratings of peers' behavior problems and etiological attributions of these behavior problems. This study examined variables that traditionally were investigated with parent and teacher informants in the past (e.g., race) as well as other potentially influential factors (e.g., social competence, previous exposure). Although some of these factors were investigated in conjunction with peer ratings of behavior problems presented in a vignette format (Lauer & Renk, 2013), no previous study investigated these factors in the context of adolescent self-ratings and those provided by friend informants.

A secondary aim of this study was to investigate the potential utility of including friends in the clinical assessment process. No measure to date was created for use with friend informants. The present study utilized an already well-established measure (i.e., the Teacher's Report Form; Achenbach & Rescorla, 2001) to assess symptoms as reported by friend informants. Although this measure was intended for use with teachers and other school personnel, friends also view adolescents' behavior in school settings and meet the developmental requirements to adequately understand the measure (i.e., a fifth grade reading level).

Finally, this study was novel in its statistical treatment of adolescent self-ratings and those provided by friend informants. In particular, this study used hierarchical linear modeling (HLM) in order to investigate the impact of peer informant and friendship characteristics on a

metric of agreement between adolescent self-ratings and those provided by their peers. HLM was an appropriate choice for statistical analysis when research data were placed into groups or nests within one or more larger contexts (e.g., students nested within classrooms or classrooms nested within schools). In the present study, participants were “nested” into self-selected friendship dyads and provided reciprocal ratings about each other. Conceptually, this structure as well as the interpersonal relationship amongst members of each friendship dyad suggested that the data collected from each rater would result in nonindependence (i.e., the ratings provided by each informant were more similar to each other than to raters who were not included in the friendship dyad; Kenny, Kashy, & Cook, 2006). Failure to account for this nonindependence in the use of analyses that treated each rater as an individual unit (i.e., ANOVA, multiple regression) would result in the violation of the assumptions of these tests (i.e., independence). Although nonindependence of ratings was likely present in much of the cross-informant research, very few studies employed HLM, and no study of peer or friend informants to date utilized standardized difference scores as a metric of agreement amongst ratings. The present study addressed this gap in the literature.

CHAPTER TWO: METHOD

Participants

Given the complexity of hierarchical linear modeling, it was difficult to determine a specific sample size via a more traditional power analysis. Nonetheless, research suggested that at least 50 groups are required to attain sufficient power for a multi-level analysis (Maas & Hox, 2004, 2005). Thus, at least 50 friend dyads were sought in the present study. A sample was sought that contained a relatively equal number of male and female informants who represented a wide range of racial and ethnic groups and who received parental permission to participate in this study. No further sample restrictions were imposed.

A total of 207 adolescents from two public high schools in the Central Florida area participated in this study. The sample was composed of 65 male and 142 female adolescents with a mean age of 16.57-years ($SD = .96$ -years). Approximately 31 percent of participants were Caucasian (non-Hispanic; 31.4%), with the remaining participants endorsing a number of other racial and ethnic backgrounds (i.e., 30.9% were Black/non-Hispanic, 17.4% were Hispanic, 7.7% were Biracial, 4.8% were Black Hispanic, 4.8% were Asian, 1.0% were Middle Eastern, 1.0% were Indian, 0.5% were Native American, and 0.5% identified themselves as belonging to some other racial background). Participants were sampled evenly across grades, with 36.2% from the Tenth Grade, 33.4% from the Eleventh Grade, and 30.4% from the Twelfth Grade.

With regard to maternal employment and education, 84.1% indicated that their mother was employed currently, and many participants endorsed that their mother obtained some college or training in a vocational school (32.4%). Participant endorsements of remaining maternal education levels fell across a broad range of categories (i.e., 1.9% had mothers who completed less than the Seventh Grade, 0.5% had mothers who completed junior high school, 8.2% had mothers who completed some high school education, 17.9% had mothers who were high school

graduates, 19.8% had mothers who were college graduates, 16.9% had mothers who held a graduate degree, and 2.4% did not provide a response). With regard to paternal employment and education, participants reported that 84.5% of their fathers were employed currently and that many of their fathers had completed a high school degree (26.1%). The remaining paternal education levels fell broadly across categories (i.e., 3.4% had fathers who completed less than Seventh Grade, 1.0% had fathers who completed junior high school, 8.2% had fathers who had some high school, 21.3% had fathers with some college/vocational school, 19.8% had fathers who were university graduates, 15.5% had fathers with a graduate degree, and 4.8% did not provide a response). With regard to parental marital status, 46.4% of participants reported that their parents were currently married, 26.6% reported that their parents were divorced, 15.9% reported that their parents were separated, 6.8% reported that their parents lived together but were unmarried, 3.9% reported some other parental relationship status, and 0.5% did not provide a response to this question.

In order to determine the presence of differences amongst participants from each school, comparisons of demographic variables were conducted. These comparisons revealed a significant difference amongst adolescents' sex ($X^2(1) = 4.19, p < .04$), grade ($X^2(2) = 10.04, p < .01$), and race ($X^2(1) = 5.5, p < .02$), with adolescents from High School A being more likely to be female, in the Tenth Grade, and Caucasian relative to adolescents from High School B. Although these variables will be included in future analyses in order to determine the impact of these differences on outcomes, school membership will not be included in order to preserve the impact of these variables on the dependent variable. Specifically, inclusion of sex, grade, and race as well as school membership may remove too much of the variance associated with these

variables and thus obscure any potential impact of the demographic variables on outcome variables (Miller & Chapman, 2001).

Measures Related to Adolescent Informants' Ratings of their Friends

Attribution of Friends' Behavior Problems. In order to assess adolescents' perceptions of their friends' behavior problems, the *Teacher's Report Form* (TRF; Achenbach & Rescorla, 2001) was used. This 113-item widely used scale assesses the emotional and behavioral functioning of school-age youth. Adolescents rated how well each item described their target friend on a Likert-type scale, range from 0 (*Not true of them*) to 2 (*Very true of them*). For this study, the first several questions regarding areas of competency were eliminated due to the likelihood that friend informants would not have adequate information to complete these items. Internalizing Behavior Problems and Externalizing Behavior Problems scores were obtained by summing respective TRF items from these scales (i.e., based on the Achenbach scoring system) that corresponded with similar items on the *Youth Self-Report*. See Table 1 for comparable items. The intact TRF had adequate reliability and validity in assessing the presence of internalizing and externalizing behavior problems in youth from the perspectives of teachers and other informants (Achenbach & Rescorla, 2001). In the present sample, the Internalizing Behavior Problems ($\alpha=0.89$) and Externalizing Behavior Problems ($\alpha=0.91$) scales demonstrated adequate internal consistency.

Etiological Explanation. In order to assess the etiological explanations for friends' behavior problems, the *Children's Attributions About Psychological Problems in Their Peers Scale* (CAPPP; Swords, Hennessy, & Heary, 2011) was used. This recently developed scale is comprised of 12 items that assess various attributions that youth may make for their friends' behavior problems. Adolescents were asked to rate the likelihood of each item causing their friends' behavior problems on a scale of 1 (*Disagree a lot*) to 4 (*Agree a lot*). Items then were

divided into four subscales that represent different domains of etiological attributions: School, Family, Volition, and Recent Life Stress. All of these subscales were used in the present study to determine how adolescents apply etiological explanations to friends who may be experiencing different types of behavior problems. Initial investigation of the measure's psychometric properties revealed adequate internal reliability, inter-item correlation, and content validity. In the present study, the Volition and Recent Life Stress scales demonstrated adequate internal reliability ($\alpha = 0.78$ and $\alpha = 0.75$, respectively). In contrast, the Family ($\alpha = 0.56$) and School ($\alpha = 0.56$) scales demonstrated poorer internal reliability. Nonetheless, these results were similar to those presented in the initial validation of this measure, with the lower reliability likely being due to the fewer number of items represented on the Family and School Factors scales (Swords et al., 2011).

Friendship Quality. In order to assess friendship quality among adolescents and the friends whom they are rating, the *Network of Relationships-Relationship Quality Version* (NRI-RQV; Buhrmester & Furman, 2009) was used. This 30-item scale measures positive and negative relationship qualities across several types of relationships (e.g., parents, friends, boyfriends/girlfriends, siblings). Adolescents were asked to rate the frequency with which each item occurs on a 5-point Likert type scale ranging from 1 (*Never or hardly at all*) to 5 (*Always or extremely much*). Several subscale scores can be derived from the measure (i.e., Companionship, Intimate Disclosure, Pressure, Satisfaction, Conflict, Emotional Support, Criticism, Approval, Dominance, and Exclusion), with each subscale being composed of three items. In addition, two more general factor scales (i.e., Closeness and Discord) can be computed by obtaining the mean of several subscales. This study utilized the Closeness factor score as an indication of positive friendship quality. This measure demonstrated adequate reliability in previous studies

(Buhrmester & Furman, 2009). The internal reliability of the Closeness scale also was adequate for the present study ($\alpha = 0.93$).

Friend Identification. In order to compose the friendship dyads, adolescents were asked to provide the first and last name of five friends who attended school with them. For each identified friend, adolescents then rated their degree of closeness to that friend on a Likert-type scale that ranged from 1 (*Not close at all*) to 5 (*Extremely close/best friends*).

Measures Relevant to Adolescent Informants' Self-Ratings

Adolescent Behavior Problems. In order to assess the level and type of behavior problems present in the adolescent informants themselves, the *Youth Self-Report* (YSR; Achenbach & Rescorla, 2001) was utilized. This 120-item scale assesses the social and behavioral development of adolescents aged 11- to 18-years. Adolescents rated how well each item described them on a Likert-type scale that ranged from 0 (*Not true of them*) to 2 (*Very true of them*). Scores for Internalizing Behavior Problems, Externalizing Behavior Problems, and Total Behavior Problems as well as narrow-band and *DSM*-oriented scale scores can be derived from this measure. As with the TRF, Internalizing Behavior Problems and Externalizing Behavior Problems scale scores were obtained by summing respective YSR items that corresponded to similar items on the TRF based on the Achenbach scoring system. The intact YSR has adequate reliability and validity in assessing a broad range of behavior problems in adolescents and is one of the most widely used measures of adolescents' internalizing behavior problems and externalizing behavior problems (Achenbach & Rescorla, 2001). In the present sample, the Internalizing Behavior Problems ($\alpha = 0.86$) and Externalizing Behavior Problems ($\alpha = 0.82$) scales demonstrated adequate internal reliability.

Adolescent Perceived Social Competence. In order to assess the level of adolescent informants' self-rated social competence, the *Harter Self-Perception Profile for Adolescents* (SPPA; Harter,

1988) was used. This scale was recommended for use with adolescents who were in Ninth through Twelfth Grade and consists of 45 items that measure competence in nine areas: Scholastic Competence, Social Competence, Athletic Competence, Physical Appearance, Job Competence, Romantic Appeal, Behavioral Conduct, Close Friendship, and Global Self-Worth. For each item, the participant must choose which of two statements more closely resembles him- or herself and then must decide whether that statement is *Really True for Me* or *Sort of True for Me*. Items are scored on a 4-point scale, with higher mean scores reflecting greater self-perceived competency in the domain. For the purposes of this study, the Social Competence scale was used. The intact SPPA had adequate internal consistency reliability, ranging from 0.74 to 0.93, with four independent sample groups (Harter, 1988). The social competence scale demonstrated adequate internal reliability in the present study ($\alpha = 0.80$).

Previous Exposure to Psychopathology. In order to assess adolescent informants' previous exposure to other individuals' experience of behavior problems, participants completed the *Family and Personal History Questionnaire*. This measure was based on a measure used in Lauer and Renk (2013) to investigate the effects of previous exposure to psychopathology on ratings of peer behavior problems. The current measure was modified for this study. In particular, this measure inquired about the presence of other individuals in adolescents' lives who experienced behavior problems and adolescents' relationship to these individuals. In addition, adolescents were asked to rate the severity of behavior problems as experienced by the individual closest to them who exhibits such problems, the effect of the behavior problems on the adolescents' life, and the treatment received (including therapy, hospitalization, and medication) by that individual. Finally, adolescents were asked if they ever received a psychiatric diagnosis and/or treatment for behavior problems themselves. Severity of behavior problems was rated on

a Likert-type scale ranging from 1 (*Not Severe At All*) to 5 (*Very Severe*). The effect on adolescents' life also was rated on a Likert-type scale ranging from 1 (*Not At All*) to 5 (*A Lot*). All remaining questions were yes/no or free response. In order to calculate a Total Severity score, severity ratings were summed with all other positive endorsements (e.g., indication of "yes" to the presence of a behavior problem or formal diagnosis in a family member, each selected family member or friend). Thus, the Total Severity score ranged from 0 to 21.

Adolescent Demographics. A demographics questionnaire inquired about adolescent informants' demographic characteristics (e.g., age, sex, race/ethnicity, characteristics relevant to SES).

Procedure

Phase 1: School Recruitment. Once approval was obtained from the Institutional Review Board (IRB) at the University of Central Florida and from the Orange County Public School System, the teachers of psychology classes at three local high schools were contacted to request participation. (Two of these schools agreed to participation.) Classrooms with adolescents in both regular and advanced placement psychology classes participated in the study.

Phase 2: Participant Recruitment. The primary researcher spent one class period speaking with adolescents in the classes of the teachers who agreed to participate at each respective school that was involved with this study. The nature of the project was explained and adolescents were provided with an overview of study requirements. Adolescents were given two permission forms to take home, one to be kept by their parents or guardians as documentation and one to be signed and returned to the classroom teacher.

Phase 3: Data Collection. Once permission slips had been returned, the research team consisting of the primary graduate student researcher and either a graduate or undergraduate research assistant returned to the school for data collection. The data collection process took

place on two separate days. On the first day, the research team reviewed the purpose of the project, and each adolescent was asked to provide their assent to participate. Once assent had been discussed, the packet of questionnaires was distributed to the adolescents. As part of this packet, each adolescent completed the *Demographics Questionnaire*, *Youth Self-Report*, *Self Perception Profile for Adolescents*, *Previous Exposure to Psychopathology Questionnaire*, and *Friend Identification* form.

Adolescents then were matched based on peer nomination procedures that have been used in previous research (Parker & Asher, 1993; Swenson & Rose, 2009). In particular, adolescents were matched according to their rated closeness with respective peers, with priority given in the following order: pairs where each friend selected the other as their closest friend, pairs where one friend indicated a very close friendship and the other friend a less close friendship, or pairs where each friend both indicate a friendship that is less close. Adolescents who were unable to be paired (e.g., those who did not receive a reciprocal selection or the friend who they selected had already been paired with an adolescent in a higher priority friendship) rated a randomly selected friend from the list that they provided.

One hundred sixty-two of the 207 adolescents who participated in the study were matched successfully to another adolescent who also participated. Of these adolescents, 124 were placed into reciprocated matches, resulting in 62 dyads. Within these dyads, 41 dyads were composed of female friends, 11 were composed of male friends, and 10 were composed of mixed-sex friends. Thirty-eight of the remaining adolescents who could not be matched into a reciprocated dyad were placed in an unreciprocated match (i.e., they were matched with a friend who had been matched previously to a higher-ranking friend). The remaining 45 adolescents could not be placed into any match because he or she did not list an adolescent who was

participating in the study in their list of friends and thus were matched to a randomly selected friend on their list.

On the second day of data collection, adolescents completed the *Teacher's Report Form* (about their friend's behavior), the *Etiology Questionnaire*, and the *Friendship Quality Measure*. The name of the assigned friend was attached to each packet of questionnaires, and participants were instructed to respond to questionnaire items based on their knowledge of that friend. After completion of the survey packet, the friend names were detached from the packet so that data remained anonymous.

The first day of data collection took approximately 45 minutes to complete, whereas the second day of data collection took approximately 15 minutes to complete. After completing the second questionnaire packet, adolescents were thanked for their participation, and information about psychological services, if needed, was made available. The primary graduate student researcher and research team were available during data collection to answer questions.

CHAPTER THREE: RESULTS

Means and standard deviations are provided in Table 2 so that findings may be put into context. Overall, participants' mean Internalizing Behavior Problems and Externalizing Behavior Problems scale scores on the Youth Self-Report fell within the Nonclinical range. It should be noted, however, that a portion of adolescents fell within the Clinical range (i.e., 25% on Internalizing Behavior Problems and 18% on Externalizing Behavior Problems), indicating that these adolescents endorsed a level of symptoms that could be indicative of clinical impairment. With regard to perceived social competence, adolescents' mean score on the Harter Social Competence subscale fell within one standard deviation of the mean score obtained from the normative sample for this measure and is considered to be average. Thus, the majority of participants in the current sample did not report any significant behavior problems or social difficulties. Adolescents' report of their previous exposure to psychopathology was relatively low, with 39% of adolescents reporting no exposure at all. This frequency indicated that many adolescents had not experienced a significant degree of exposure to psychopathology in familiar individuals.

With regard to friendship characteristics, adolescents reported overall positive relationships, as evidenced by higher mean scores on the NRI-RQV and ratings of friendship closeness provided for identified friends. For both of these measures, mean scores were significantly higher than the mid-point of the scale (NRI-RQV: $t(196) = 3.31, p = .001$; closeness: $t(158) = 8.44, p < .001$).

Analysis of Informant Symptom Endorsements

Given the large degree of variance in ratings of internalizing and externalizing behavior problems that were provided by friend informants, frequencies of item endorsement were examined. On the internalizing behavior problems scale, items that were characterized by a low

frequency of endorsement (i.e, 85% of raters endorsed “not true”) included “cries a lot,” “fears going to school,” “feels worthless or inferior,” “feels dizzy or lightheaded,” “feels too guilty,” and “refused to talk” as well as many of the physical symptoms (i.e., aches/pains, nausea, eye problems, rashes/skin problems, stomachaches, and vomiting). On the externalizing behavior problems scale, items that were characterized by low frequency of endorsement included “cruelty, bullying, or meanness to others,” “destroys his/her own things,” “destroys property belonging to others,” “disobedient at school,” “breaks school rules,” “gets in many fights,” “physically attacks people,” “screams a lot,” “threatens people,” and “smokes, chews, or sniffs tobacco.”

In order to determine if there was a difference amongst male and female friend informants with regard to the behavior problems that they endorse, frequencies also were analyzed by sex of the informant. For male informants on the internalizing behavior problems scale, items that were reported with low frequency included “cries a lot,” “fears certain things,” “fears going to school,” “fears he/she might think or do something bad,” “feels no one loves them,” “feels worthless or inferior,” “feels dizzy or lightheaded,” “feels too guilty,” physical problems (i.e., aches/pains, nausea, eye problems, rashes/skin problems, stomachaches, and vomiting), “refuses to talk,” “underactive, slow moving, or lacks energy,” and “unhappy, sad, or depressed.” For female informants, low endorsements included “fears going to school,” “feels worthless or inferior,” “feels dizzy or lightheaded,” “feels too guilty,” physical symptoms (i.e., aches/pains, eye problems, rashes/skin problems, stomachaches, and vomiting), and “refuses to talk.”

With regard to the externalizing behavior problems scale, male informants demonstrated low endorsements on “cruelty, bullying, or meanness to others,” “destroys his/her own things,”

“destroys property belonging to others,” “disobedient at school,” “breaks school rules,” “gets in many fights,” “lying or cheating,” “physically attacks others,” “screams a lot,” “suspicious,” “teases a lot,” “temper tantrums or hot temper,” “seems preoccupied with sex,” “threatens people,” “smokes, chews, or sniffs tobacco,” “truancy or unexplained absence,” “unusually loud,” and “uses alcohol or drugs for nonmedical purposes.” For female informants, low frequency endorsements were found for “destroys his/her own things,” “destroys property belonging to others,” “disobedient at school,” “gets in many fights,” “physically attacks others,” and “smokes, chews, or sniffs tobacco.”

Metrics of Agreement

Although previous research suggested that standardized difference scores were the most representative estimate of agreement, it was important to investigate whether this metric would be most appropriate for the present study using the same procedures as those outlined in De Los Reyes and Kazdin (2004). Specifically, in order to evaluate the metrics of agreement that were used commonly in cross-informant research, these metrics (i.e., correlation, raw difference scores, standardized differences scores, and standardized residual difference scores) were compared. To aid in clarity, ratings provided by adolescents about their own functioning will be called “self-ratings” and ratings provided by adolescents about their friends will be referred to as “informant ratings.” Correlations amongst these metrics as well as self- and informant ratings are provided in Table 3.

Correlations. Thus, to examine the correspondence between adolescent self-ratings and those provided by their friend informants, correlations were examined first. Results of these analyses revealed that there were significant correlations between self-ratings and informant ratings for both internalizing behavior problems ($r = .44, p < .01, d = .98$) and externalizing behavior problems ($r = .45, p < .01, d = 1.00$). Although this metric provided information regarding the

significance of the relationship among ratings, it did not provide any information regarding the magnitude of the difference in ratings (Carlston & Ogles, 2009).

Mean Differences. Given the limitations of correlational analyses in understanding the differences between self-ratings and those provided by other informants, metrics composed of difference scores were examined to provide this more nuanced information. As detailed in De Los Reyes and Kazdin (2004), these metrics were correlated with self-ratings and those provided by informants to determine the degree of bias in each metric.

In order to create raw difference scores, Internalizing Behavior Problems scales were created separately for the YSR and TRF by summing internalizing items (based the Achenbach scoring system) that were consistent across the YSR and TRF to create a total self-rating Internalizing Behavior Problems scale and informant rating Internalizing Behavior Problems scale. The informant-rating Internalizing Behavior Problems scale then was subtracted from the self-rating Internalizing Behavior Problems scale to create raw difference scores. This same procedure was completed with the Externalizing Behavior Problems scale using externalizing items (based on the Achenbach system) that were consistent across the YSR and the TRF. Results revealed that the raw difference scores and original symptom scores were correlated for both rating sources for internalizing behavior problems (self ratings: $r = .69, p < .01$; informant ratings: $r = -.36, p < .01$) and externalizing behavior problems (self ratings: $r = .49, p < .01$; informant ratings: $r = -.56, p < .01$). As noted by De Los Reyes and Kazdin (2004), raw difference scores can be affected by the degree of variance in the source ratings, which was evident in these results. In particular, the variation in self-ratings and those provided by informants for externalizing behavior problems was relatively consistent, which resulted in a raw difference score that was correlated more evenly across each of these rating sources. In contrast,

the variance for self-ratings and those for informants of internalizing behavior problems was more discrepant, resulting in an uneven pattern of correlation between the raw internalizing difference score and the source ratings (i.e., a stronger correlation between the raw difference scores for self-ratings than for informant ratings). Thus, because the raw difference score was not equally representative of all rating sources for both internalizing and externalizing behavior problems, it was not considered as the best possible outcome measure for later analyses.

Next, standardized residual difference scores were created by regressing informant ratings (serving as the independent variable) onto self-ratings (serving as the dependent variable) for the Internalizing Behavior Problems and Externalizing Behavior Problems scales. Predicted values from this regression then were subtracted from the actual obtained values to create residual scores that then were standardized to aid in interpretation. Correlational analyses revealed significant bias on this metric toward self-ratings for both the internalizing behavior problems (self-ratings: $r = .90, p < .01$; informant ratings: $r = .00, p > .05$) and externalizing behavior problems (self-ratings: $r = .90, p < .01$; informant ratings: $r = .00, p > .05$). These results were consistent with the results obtained by De Los Reyes and Kazdin (2004) and suggested that the heavy influence exerted by self-ratings on the standardized residual difference score makes these two scores statistically indistinguishable. Thus, because inclusion of the standardized residual difference score would be redundant with inclusion of the self-rating score, it did not provide any novel information and was not considered as the best possible outcome measure for later analyses.

Finally, to create standardized difference scores, the Internalizing Behavior Problems and Externalizing Behavior Problems scale scores created from self-ratings (i.e., via the YSR) and informant ratings (i.e., via the TRF) were standardized (i.e., placed on the z distribution) before

being subtracted from each other. In other words, standardized self-ratings and standardized informant ratings were subtracted from each other for the Internalizing Behavior Problems scale. This procedure then was repeated for the Externalizing Behavior Problems scale. In contrast to the raw difference score and the standardized residual difference score, the standardized difference score was relatively consistent in its correlation with all rating sources for both internalizing behavior problems (self-ratings: $r = .54, p < .01$; informant ratings: $r = -.52, p < .01$) as well as externalizing behavior problems (self-ratings: $r = .51, p < .01$; informant ratings: $r = -.52, p < .01$) scales. Because the standardized difference score demonstrated the least bias towards either rating source (i.e., the correlations were relatively consistent across rating sources and behaviors rated).

In summary, several types of difference scores were considered with regard to their equal representation of both rating sources. Results of these analyses revealed that standardized residual difference scores represented the most biased metric of agreement due to a strong correlation with self-ratings. Although raw difference scores for externalizing behavior problems represented a relatively unbiased estimate of agreement for externalizing behavior problems, agreement for internalizing behavior problems was biased toward self-ratings due to the higher degree of variance in self-ratings of internalizing behavior problems. Finally, standardized difference scores were found to be correlated equally with both rating sources across behavior problem presentations, indicating that the standardized difference score represented both rating sources equally. Because of this pattern, standardized difference scores were considered the best estimate of agreement amongst these sources and were used as the outcome variable in all further analyses.

In order to investigate whether agreement between adolescent self-ratings and those of their friend informants were significantly different for reports of internalizing behavior problems and externalizing behavior problems, the standardized difference score from these two scales were compared via a paired samples t-test. This comparison revealed no significant difference in average agreement between adolescent self-ratings and those of their friend informants for internalizing behavior problems ($M = -.02, SD = 1.08$) or externalizing behavior problems ($M = .12, SD = 1.05$), $t(152) = 1.54, p < .13$.

Correlation Analyses

So that relationships among predictor variables (i.e., adolescent self-ratings of internalizing behavior problems and externalizing behavior problems, friend informant ratings of internalizing behavior problems and externalizing behavior problems, adolescents' previous exposure to psychopathology, ratings of friendship quality and closeness) and outcome variables (i.e., agreement on internalizing behavior problems and externalizing behavior problems, etiological attributions) could be examined, correlation analyses were conducted. See Table 4.

Agreement Between Adolescent Self-Ratings and Those of Friend Informants. Adolescent self-ratings of externalizing behavior problems and self-informant agreement (i.e., the outcome measure for internalizing symptoms) for internalizing behavior problems were related significantly ($r = -.22, p < .01$). Interestingly, no other predictor variables were related to self-informant agreement for internalizing or externalizing behavior problems. This lack of correlation may be due to the difficulties in estimation of the Pearson product-moment correlation for dyadic data (Kenny, et al., 2006). Thus, it may be beneficial to also consider the relationships among informant ratings and predictor variables.

In particular, adolescent self-ratings of internalizing behavior problems ($r = .30, p < .01$) and externalizing behavior problems ($r = .23, p < .01$) as well as previous exposure to

psychopathology ($r = .16, p < .05$) all were related significantly to informant ratings of internalizing behavior problems. Similarly, adolescent self-ratings of internalizing behavior problems ($r = .21, p < .01$) and externalizing behavior problems ($r = .33, p < .01$) were related significantly to informant ratings of externalizing behavior problems.

Etiological Attributions. Adolescent self-ratings of internalizing behavior problems were related significantly to their endorsements of school ($r = .18, p < .01$), family ($r = .16, p < .05$), and recent life stress ($r = .26, p < .01$) factors as explanations for these behavior problems. Further, adolescent self-ratings of externalizing behavior problems were related significantly to endorsements of school ($r = .18, p < .01$), volition ($r = .16, p < .05$), and life stress ($r = .17, p < .05$). Informant ratings of externalizing behavior problems also were related significantly to endorsements of school ($r = .32, p < .01$) and volition factors ($r = .40, p < .01$), whereas informant ratings of both internalizing behavior problems and externalizing behavior problems were related significantly with endorsements of family factors ($r = .17, p < .05$, and $r = .22, p < .01$, respectively) and recent life stress ($r = .46, p < .01$, and $r = .21, p < .01$, respectively). Finally, previous exposure to psychopathology was related significantly to endorsements of family ($r = .16, p < .05$) and recent life stress factors ($r = .30, p < .01$) as etiological explanations of behavior problems.

Differences Across Demographic Groups

A series of MANCOVAs were conducted to examine differences among demographic variables and adolescents' friendship quality, friendship closeness, exposure severity, adolescent self-ratings of internalizing and externalizing behavior problems, perceived social competence, informant ratings of internalizing behavior problems and externalizing behavior problems, and etiological attributions.

Adolescent Sex. Female adolescents ($M = 2.62, SD = .69$) reported significantly lower levels of perceived social acceptance relative to males ($M = 3.10, SD = .78; F(1, 138) = 13.37, p < .001$). Further, female adolescents ($M = 18.06, SD = 8.95$) reported significantly higher levels of internalizing behavior problems for themselves than did male adolescents ($M = 13.59, SD = 7.07, F(1, 138) = 8.54, p < .004$). Female adolescents ($M = 11.55, SD = 5.68$) also reported significantly higher levels of previous exposure to psychopathology in others than did male adolescents ($M = 9.11, SD = 5.59, F(1, 138) = 6.15, p < .01$). Finally, female adolescents ($M = 5.56, SD = 2.45$) reported significantly lower endorsements of the volition factor as an etiological attribution for behavior than did male adolescents ($M = 6.57, SD = 2.54, F(1, 138) = 4.98, p < .03$).

Friend Dyad Sex Composition. With regard to the sex composition of the friendship dyad (i.e., dyads composed of only females, only males, or one male and one female), adolescents who were in mixed-sex dyads ($M = 6.88, SD = .223$) reported significantly higher endorsements of volition factors for etiological attributions than those who were part of female only dyads ($M = 5.44, SD = 2.51, F(2, 137) = 3.91, p < .02$). There also was a significant effect of dyad type on previous exposure to psychopathology, $F(2, 137) = 4.36, p < .02$, although post hoc analyses did not reveal significant differences across dyad groups. Notably, a significantly higher score for adolescents from female-only dyads ($M = 11.86, SD = .5.7$) relative to mixed-sex dyads ($M = 8.88, SD = 5.13$) did approach significance ($p < .06$). Similar to the effects of adolescent sex, adolescents who were part of male-only dyads reported significantly higher social acceptance ($M = 3.13, SD = .82$) than did adolescents who were part of female-only dyads ($M = 2.62, SD = .67, F(2, 137) = 5.62, p < .01$). Adolescents who were part of male-only dyads ($M = 12.75, SD =$

7.62) also reported significantly lower internalizing behavior problems for themselves than did female-only dyads ($M = 18.57$, $SD = 8.95$, $F(2, 137) = 6.19$, $p < .003$).

Adolescent Grade. Given the difference among schools in the current sample, the effects of grade level on predictor and outcome variables also was investigated. Overall, adolescents in their senior year reported significantly lower perceived social acceptance ($M = 2.45$, $SD = .63$) than adolescents in their sophomore year ($M = 2.83$, $SD = .66$) or junior year ($M = 2.93$, $SD = .87$, $F(2, 137) = 4.48$, $p < .01$). Additionally, adolescents in their sophomore year reported significantly higher levels of friendship quality ($M = 3.36$, $SD = .83$) than adolescents in their junior year ($M = 2.95$, $SD = .79$, $F(2, 137) = 4.32$, $p < .02$).

Adolescent Race and Ethnicity. There were no significant differences amongst racial or ethnic groups with regard to adolescents' ratings of friendship quality ($F(8, 131) = .89$, $p < .53$), friendship closeness ($F(8, 131) = .99$, $p < .45$), their own exposure severity ($F(8, 131) = .101$, $p < .43$), their own internalizing behavior problems ($F(8, 131) = .57$, $p < .80$), their own externalizing behavior problems ($F(8, 131) = .27$, $p < .97$), their own perceived social competence ($F(8, 131) = .36$, $p < .94$), their friend's internalizing behavior problems ($F(8, 131) = .78$, $p < .62$), their friends' externalizing behavior problems ($F(8, 131) = .32$, $p < .96$), rating agreement for internalizing behavior problems ($F(8, 131) = .85$, $p < .56$), rating agreement for externalizing behavior problems ($F(8, 131) = .45$, $p < .89$), or etiological attributions (School: $F(8, 131) = .97$, $p < .46$; Family: $F(8, 131) = 1.35$, $p < .22$; Volition: $F(8, 131) = .55$, $p < .82$; Recent Life Stress: $F(8, 131) = .85$, $p < .57$). Because adolescents' race and ethnicity demonstrated no significant relationships, this variable was excluded from further analyses.

Hierarchical Linear Modeling (HLM)

Participant Selection. As previously discussed, hierarchical linear modeling (HLM) is most appropriate when data can be conceptualized as occurring at multiple levels in a hierarchical

manner. This particular analysis readily lends itself for use with dyadic data because individuals can be viewed as “nested” within pairs. In the present study, HLM represented the most appropriate tool for statistical analysis because adolescents were matched with friends and ratings were provided reciprocally.

Although attempts were made to successfully match all adolescents in this study to a reciprocated pair, such matching was not always possible due to a number of reasons (e.g., selected friends had been matched previously to a higher ranked friend, selected friends did not participate in the study). Because many of the predictor variables were considered within the context of the dyad and thus required scores from both members of the pair, only data from individuals who were placed within a reciprocated pair were appropriate for inclusion in the HLM analyses ($n = 124$; 62 dyads).

In order to screen for any differences among adolescents who were placed into a reciprocated dyad and those who were not, individual characteristics amongst included and excluded participants was examined. Adolescents who were placed into reciprocated matches reported significantly higher closeness to their matched partner (reciprocated: $M = 3.94$, $SD = 1.02$; unreciprocated $M = 3.03$, $SD = 1.10$; $F(1, 157) = 20.92$, $p < .001$) as well as significantly higher friendship quality with their partner (reciprocated: $M = 3.24$, $SD = .85$; unreciprocated: $M = 2.68$, $SD = .72$; $F(1, 151) = 12.40$, $p < .001$). Such findings were not surprising given that matching procedures were based on rated degree of closeness, with match priority given to friends who endorsed closer friendships. Additionally, males were significantly less likely to be placed into a reciprocated match ($\chi^2(1) = 4.24$, $p < .04$), suggesting that results based on adolescent sex may need to be interpreted with some caution. There were no significant differences in adolescent self-ratings of their own internalizing behavior problems ($F(1, 157) =$

2.84, $p < .09$), their self-ratings of their own externalizing behavior problems ($F(1, 157) = .01, p < .92$], their informant ratings of friends' internalizing behavior problems ($F(1, 151) = .09, p < .77$), their informant ratings of friends' externalizing behavior problems ($F(1, 151) = 3.23, p < .07$), previous exposure to psychopathology ($F(1, 157) = .22, p < .64$), perceived social competence ($F(1, 154) = .87, p < .35$), or race and ethnicity ($\chi^2(1) = .58, p < .45$).

Model Specification and Data Preparation. Given that HLM takes multiple levels of data into account, predictor variables can be classified according to whether they occur at the individual person level (i.e., level 1) or at the group level (i.e., level 2). In the present study, variables that were specific to the adolescent were considered as level 1 variables. These variables included demographic variables (i.e., sex, grade level) and measures of their own functioning (i.e., self-ratings of internalizing behavior problems and externalizing behavior problems, previous exposure to psychopathology, and social competence). Variables that were relevant to the dyad were considered as level 2 variables. These variables included adolescents' rated degree of closeness, friendship quality, and dyad type (i.e., females only, males only, or mixed-sex). To determine whether each member's ratings of closeness and friendship quality should be entered separately, members' ratings on these variables were compared. Results revealed that there were no significant differences between each dyad member's rating of closeness ($t(61) = -.31, p < .76$) or friendship quality ($t(57) = -1.97, p < .07$) as it relates to the other member of the dyad. In order to increase power and aid in interpretation, the ratings provided by each member of the dyad for these variables was averaged and were entered as one level 2 variable.

As part of this analysis, consideration also must be given to the categorization of variables as fixed or random. This categorization referred to whether the slope or intercept of a variable was thought to remain the same or vary across the group level (i.e., level 2 variables;

Field, 2005). Given that the number of random variables allowed in a model was restricted by the number of level 1 units within each level 2 group (i.e., there must be more units than random variables), there can be only one random variable included for dyadic data. Thus, all variables were entered as fixed variables with a random overall intercept (Kenny, et al., 2006).

In order to find the best fit to the data, it was recommended that the model be built by adding each predictor variable, beginning with level 1 predictors and followed by level 2 predictors. Each time a new predictor was added to the model, improvement in the model was determined by the log-likelihood statistic or degree of unexplained observations after the model was fit. Thus, the change in log-likelihood from the old and new models was assessed for significance (Field, 2005). Variables that were not significant or did not improve the model were removed before adding in additional variables (Nezlek, 2012). A maximum likelihood method for estimating model parameters was used because it produced a better estimate of fixed variables and allowed models to be compared to assess improvement in model fit (Field, 2005). Finally, it was recommended that level 1 variables be centered around the grand mean (i.e., subtraction of the variable mean from each score). Grand mean centering can aid in interpretability for variables that do not have a meaningful zero point, can reduce multicollinearity amongst predictor variables, and can result in more stable predictors (Field, 2005). Given these benefits, all level 1 ordinal variables were centered around the grand mean.

Nonindependence in Ratings of Behavior Problems. Although the dyadic nature of the data collected in this study suggested that HLM would be the most appropriate statistical analysis, it also was important to investigate the degree of nonindependence among outcome variables. The intraclass correlation (ICC) is an estimate of the independence of outcome variables from the grouping variable. In particular, a significant ICC indicates that observations for members

within the group are more similar to observations for individuals outside of the group (Garson, 2013). It also is recommended that these tests be more liberal than standard significance tests (i.e., use of an alpha of .20) because nonindependence can be difficult to detect and the consequences of ignoring nonindependence can be significant (e.g., bias in variance and degrees of freedom; Kenny et al., 2006). In the present study, there was a significant ICC for agreement of both internalizing behavior problems ($r_p = -.15, p = .06$) and externalizing behavior problems ($r_p = -.34, p < .001$). Thus, it was important to take the dyadic nature of the data into account through the use of HLM.

HLM for Internalizing Behavior Problems. Predictor variables were entered in the following order based on previous research and variable type: self-ratings of internalizing behavior problems, self-ratings of externalizing behavior problems, previous exposure to psychopathology, and perceived social competence (i.e., level 1 measurements of informant functioning); sex and grade (i.e., level 1 demographic variables); friendship quality and degree of closeness (i.e., level 2 friendship quality); and sex dyad (i.e., level 2 demographic variable). In the model with the best fit, self-ratings of internalizing behavior problems ($F(1, 86.57) = 16.14, p < .001$) significantly predicted self-informant agreement on internalizing behavior problems. Although self-ratings of externalizing behavior problems ($F(1, 100.52) = 1.47, p < .23$), perceived social acceptance ($F(1, 102.29) = 1.85, p < .18$), and average relationship quality ($F(1, 32.31) = 3.38, p < .08$) did not predict agreement significantly, they significantly improved the fit of the model and, thus, were included. Results revealed that increased self-ratings of internalizing behavior problems were associated with a decrease in agreement ($b = -.04, t(86.57) = -4.02, p < .001$). See Table 5 for measures of goodness of fit and predictor estimates for each model.

To further investigate the relationship between predictor variables and the ratings of internalizing behavior problems that were provided by informants, an additional model was created with raw informant ratings of internalizing behavior problems serving as the dependent variable.

Predictor variables were entered in the same manner. In the model with best fit, self-ratings of internalizing behavior problems ($F(1, 112.81) = 10.96, p < .001$) significantly predicted informant ratings of internalizing behavior problems. Additionally, perceived social competence ($F(1, 110.34) = .57, p < .45$), sex ($F(1, 89.54) = 3.25, p < .08$), and friendship quality ($F(1, 49.33) = 1.64, p < .21$) significantly improved the model, despite their lack of significance as predictors. Analysis of significant predictors revealed that increased self-ratings of internalizing behavior problems ($b = .21, t(112.81) = 3.31, p < .001$) were associated with an increase in informant ratings of internalizing behavior problems. See Table 6 for model parameters and goodness of fit.

HLM for Externalizing Behavior Problems. For this model, predictor variables were entered in the following order: self-ratings of externalizing behavior problems, self-ratings of internalizing behavior problems, previous exposure to psychopathology, and perceived social competence (i.e., level 1 measurements of informant functioning); sex and grade (i.e., level 1 demographic variables); friendship quality and degree of closeness (i.e., level 2 friendship quality); and sex dyad (i.e., level 2 demographic variable). Results of the final model revealed that there were no significant predictors for externalizing behavior problems self-informant agreement. See Table 7 for measures of goodness of fit and parameter estimates for this model.

In order to better understand the relationship between rater and friendship characteristics and the ratings of externalizing behavior problems that were provided by informants, an additional model was created with raw informant ratings of externalizing behavior problems

serving as the dependent variable. Predictor variables were entered in the same manner. In the model with best fit, self-ratings of externalizing behavior problems ($F(1, 109.04) = 19.85, p < .001$), rater sex ($F(1, 85.17) = 5.23, p < .03$), and rated degree of closeness [$F(1, 53.11) = 7.80, p < .01$] all served as significant predictors. Additionally, perceived social competence ($F(1, 105.75) = .80, p < .37$), friendship quality ($F(1, 56.46) = 2.85, p < .10$), and grade ($F(2, 79.86) = 1.57, p < .21$) significantly improved the model, despite their lack of significance as predictors. Analysis of significant predictors revealed that increased self-ratings of externalizing behavior problems ($b = -.28, t(109.04) = 4.46, p < .001$) and friendship closeness ($b = 2.75, t(53.11) = 2.79, p < .01$) was associated with an increase in informant ratings of externalizing behavior problems, whereas male sex was associated with a decrease ($b = -2.87, t(85.17) = -2.29, p < .03$). See Table 8 for model parameters and goodness of fit.

Etiological Attributions

Additional analyses were conducted to investigate the hypothesis that friend informants would provide more external attributions for externalizing behavior problems but would provide both internal and external attributions for internalizing behavior problems. First, it was necessary to determine the proper analysis to address this hypothesis given that adolescents provided ratings of etiological attributions for their assigned friend. Specifically, in order to determine whether ratings of etiological attributions should be considered in the context of HLM, the degree of nonindependence amongst the rating scales of the CAPPP was investigated. Results of the ICC revealed a lack of significant correlation amongst school ($r = -.01, p < .54$), family ($r = -.03, p < .63$), volition ($r = -.01, p < .54$), and family stress factors ($r = -.02, p < .58$). Given this lack of nonindependence, the ratings of etiological attributions can be investigated with a less complex statistical analysis utilizing data collected from all participants.

Multivariate Analysis of Covariance (MANCOVA). To investigate the relationship between predictor variables and ratings of etiology, predictors that were related significantly to etiological attributions were entered into a 2 (adolescent sex) X 3 (composition of sex dyads) multivariate analysis of covariance with self-ratings of internalizing and externalizing behavior problems, informant ratings of internalizing and externalizing behavior problems, and previous exposure serving as the covariates and the four rating scales of the CAPP subcales serving as dependent variables (i.e., volition, life stress, family factors, and school factors).

Friend informant ratings of internalizing behavior problems ($F(4, 129) = 9.87, p < .001$, partial $\eta^2 = .23$) and externalizing behavior problems ($F(4, 129) = 8.25, p < .001$, partial $\eta^2 = .20$) as well as previous exposure to psychopathology ($F(4, 129) = 3.73, p < .01$, partial $\eta^2 = .10$) all served as significant covariates. There were no significant main effects of sex ($F(4, 129) = .49, p < .74$, partial $\eta^2 = .02$) or sex dyad ($F(8, 260) = .74, p < .66$, partial $\eta^2 = .02$) on endorsements of etiological attributions. Further examination of the effect of informant ratings of internalizing behavior problems revealed a significant positive effect on Recent Life Stress ($F(1, 132) = 24.43, p < .001$, partial $\eta^2 = .16$). Regarding friend informant ratings of externalizing behavior problems, there was a significant positive effect on School Factors ($F(1, 132) = 17.87, p < .001$, partial $\eta^2 = .12$) and Volition ($F(1, 132) = 16.78, p < .001$, partial $\eta^2 = .11$). Finally, examination of the effect of ratings of previous exposure to psychopathology revealed a significant positive effect on Recent Life Stress ($F(1, 132) = 9.36, p < .003$, partial $\eta^2 = .07$).

CHAPTER FOUR: DISCUSSION

Previous research suggested that information regarding adolescent emotional and behavioral functioning was likely best provided by several informants (Carlston & Ogles, 2006). Traditionally, clinicians looked to parents and teachers to provide a perspective on behavior problems beyond the adolescent's own self-report. Although adult informants can provide valuable information, the agreement among the reports of teachers and parents with adolescents was typically moderate at best (e.g., Achenbach et al., 1987). Given the implications for diagnostic clarity, treatment selection, and long-term outcomes (De Los Reyes & Kazdin, 2005; Ferdinand, et al., 2004), it was important to look to other sources of information for an additional perspective on adolescent behavior.

One source of information that often was overlooked was that of the friend informant. Given friends' access to adolescents in situations where parents or teachers may not be present and their knowledge of relevant social norms (Kramer et al., 2004; Swenson & Rose, 2003), friend informants may provide valuable information regarding adolescents' behavior problems. Although agreement between adolescent self-ratings and those of their friends was documented to be good (Swenson & Rose, 2009), it was important to consider the interpersonal and informant factors that may impact this agreement as well as friends' attributions for behavior problems. Consequently, the present study investigated the agreement between adolescent self-ratings and those of friend informants on internalizing and externalizing behavior problems as well as etiological attributions for these behaviors in adolescents. Further, characteristics related to the nature of the friendship between informants and characteristics inherent to informants also were investigated in relationship to agreement and etiological attributions.

For the present study, the hypothesis that agreement for externalizing behavior problems would be significantly higher than agreement for internalizing behavior problems was not

supported. Previous research with parent ratings suggested that externalizing behavior problems typically resulted in higher agreement given the more salient nature of these symptoms (Achenbach, 2011; Penney & Skilling, 2012). This same effect was demonstrated for friend informants (Swenson & Rose, 2003), although the research was significantly more limited regarding these informants. The findings of the present study may suggest that adolescent friend informants were able to rate both internalizing and externalizing behavior problems to the same degree. This finding also was supported by the low rate of relative difference between ratings provided by adolescents themselves and those provided by their friends for behavior problems, suggesting that the agreement between these informants was high. Given this similar agreement across behavior problems, friend informants may be particularly useful for providing information regarding adolescents' behavior problems that historically were more difficult for parent and teacher informants to rate.

Further, it was expected that both individual and relationship characteristics, such as increased friendship quality, closeness, social competence, previous exposure, and female sex, would be related to better agreement between adolescent self-ratings and those provided by their friends. This hypothesis also was not supported. It was interesting that friendship quality and closeness did not impact the agreement between these informants nor the ratings provided by friend informants, as previous research implicated relationship quality as significantly impacting agreement (Swenson & Rose, 2009; although, in this study, informant dyads were prioritized based on friendship quality, meaning that these dyads were likely to be close friends). Further, previous research implicated informant sex as an additional factor when considering agreement between informants, particularly for ratings provided by youth (Lauer & Renk, 2013). These factors also were related closely to each other, given the significant differences in disclosure

amongst sexes (Johnson, 2004; Swenson & Rose, 2009). In the present study, male and female adolescents reported similar levels of friendship quality, and the friendship quality reported by the sample overall was relatively positive. Thus, the lack of less quality relationships and variation in relationship quality among the sexes may have neutralized any effect of this variable on agreement. In future examination, it may be useful to utilize data from only female dyads, as the inclusion of both mixed sex and male only dyads may have obscured findings related to relationship quality given the lower frequency with which these dyads occurred in the present study. Nonetheless, prior to the present study, there was limited research regarding the impact of friendship quality on the provision of behavior problem ratings by adolescents and no research looking at the actual effect of friendship quality on agreement.

Although relationship quality did not associate significantly with informant agreement, perceived closeness in the friendship was related significantly to ratings of externalizing behavior problems. Notably, this finding was inconsistent with previous research on friendship quality and symptoms ratings, which suggested that ratings of externalizing behavior problems were not impacted by such factors (Swenson & Rose 2009). In the study conducted by Swenson and Rose (2009), however, friendship quality was operationalized by disclosure rather than by a rating of perceived closeness. Thus, the degree of perceived closeness may be related specifically to ratings of externalizing behavior problems while not necessarily showing associations with the agreement regarding these problems. This finding may suggest that adolescents who are rating close friends are able to provide information that is consistent with the information provided by their target friend, regardless of relationship quality.

Additionally, rater sex also was related significantly to ratings of externalizing behavior problems such that female informants provided significantly higher ratings. Further,

examination of item endorsements revealed that males endorsed an appreciably more limited range of items relative to females. Previous research suggested that males were more likely to provide higher ratings of externalizing behavior problems when looking more generally at peers (Lauer & Renk, 2013) and that they were more likely to rate behavior negatively (Fox et al., 2008). It appears that the males in the present study were less likely to endorse a broad range of behavior problems in general, which may suggest that they either perceived fewer of these behavior problems as problematic or that these behavior problems were less noticeable to them. With regard to externalizing behavior problems in particular, this finding was supported by research suggesting that externalizing behavior problems were associated more typically with males (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). Thus, males in the present study may have viewed externalizing behavior problems as particularly more normative and less extreme, especially within the context of friendship, and thus provided lower or less clinically concerning ratings.

Two additional characteristics that were targeted in the present study included social competence and previous exposure to psychopathology. Although these two characteristics were thought theoretically to be related to the ratings of behavior problems provided by friends and peers as well as to agreement between these informants, a previous study and now the present study, both completed with peer raters (Lauer & Renk, 2013), did not provide evidence for such relationships. Given the lack of support for these factors in the present study, these results may suggest that adolescents' social competence and their previous experiences with other individuals who had behavior problems were not related to their ratings of their friends' behavior problems.

In contrast, the hypothesis that informant behavior problems would be associated with decreased agreement was supported partially. Specifically, informants' internalizing behavior problems were related significantly to reduced agreement regarding internalizing behavior problems, whereas a similar relationship was not present for externalizing behavior problems. Previous research suggested that informant ratings may be biased when there were existing behavior problems in the informant him or herself (Epkins, 1994). In particular, some research suggested that friend informants were biased by their own behavior problems but that they also were more accurate (Kenny & West, 2010; Swenson & Rose, 2009). In addition, other research suggested that perceived similarity was important due to the tendency for individuals to seek out others who were similar (Romero & Epkins, 2008). In other words, the bias that may result from the presence of behavior problems in informants themselves was not as problematic because these same behavior problems were more likely to be present within the adolescent who was being rated. In the present study, this finding was observed inconsistently across ratings. In particular, informants' internalizing behavior problems was related to a significant decrease in agreement for internalizing behavior problems. Further, adolescent self-ratings of internalizing behavior problems also was related significantly to increased informant reports of internalizing problems. This pattern of results suggested that the presence of internalizing behavior problems for the informant may have negatively biased their ratings of their friends' internalizing behavior problems.

In contrast, informants' externalizing behavior problems did not impact the agreement between adolescent self-ratings and those of informants on externalizing behavior problems. In fact, informants' externalizing behavior problems were related significantly to increased reports of externalizing behavior problems. Thus, although the presence of informant externalizing

behavior problems was related to increased reports of externalizing behavior problems, these reports appeared to be “accurate” in that they agreed with the ratings provided by the target adolescent. Overall, these results may suggest that the presence of bias may be more or less helpful depending on the type of behavior problems that was being reported. If the behavior problems were internalizing in nature, then bias may impact negatively the relative accuracy of these ratings. In contrast, behavior problems that were externalizing in nature may not suffer from the same negative impact of bias. This differential relationship may be due to the tendency for individuals who have externalizing behavior problems to seek out other individuals who have similar symptoms (i.e., homophily; Fortuin, van Geel, & Vedder, 2015). Interestingly, adolescents with internalizing behavior problems may not demonstrate this same tendency.

With regard to etiological explanations for behavior, the hypothesis that friend informants would provide more external attributions for externalizing behavior problems but would provide both internal and external attributions for internalizing behavior problems was supported partially. In particular, adolescents endorsed significantly higher ratings of life stress factors as explanations for internalizing behavior problems. In contrast, school factors and volition endorsements were significantly higher for externalizing behavior problems. Thus, adolescents endorsed external factors related to events in their friends’ life for internalizing behavior problems, whereas ratings of both internal (i.e., volition) and external (i.e., school factors) factors were related to externalizing behavior problems. These results were somewhat contrary to results of previous research, which suggested that youth were more likely to endorse external attributions for externalizing behavior problem and a combination of internalizing and externalizing attributions for internalizing behavior problems (Hennessy & Heary, 2009; Lauer & Renk, 2013). Much of this research was based on ratings of vignette characters or peers rather

than friends in particular, however. Although friendship quality did not impact etiological attributions, it was possible that informants' increased familiarity with the target did play a role in their perception of causes for behavior problems.

Interestingly, correlational analyses suggested that informant externalizing behavior problem ratings were related significantly to all etiological attributions, whereas informant internalizing behavior problems ratings were related only to life stress. This pattern may suggest that the overt behaviors associated with externalizing behavior problems were attributed more easily to one of the etiological causes proposed in this study, whereas internalizing behavior problems were more implicit to raters and thus not attributable to many of the etiological causes from which raters were allowed to choose. Further, these ratings also could reflect the way in which the study was explained to participants (i.e., that they would be rating how their friend was behaving), which emphasized external behaviors rather than internal symptoms or processes. Overall, however, adolescents may view internalizing behavior problems in particular as caused by events that are beyond a friend's control, whereas externalizing behavior problems may be perceived to be a function of both the environment and the friend's intrinsic characteristics.

Adolescents' increased emphasis on external etiological attributions for both internalizing and externalizing behavior problems in the present study also could be related to the sample that was used in this study (i.e., high school students enrolled in psychology classes). As discussed in more detail in the limitations section, adolescents who took this class may possess characteristics that are unique to them. In the case of etiological attributions, these adolescents' increased understanding of the myriad factors that can affect mental health may have created a different mental model of emotional and behavioral problems than that which exists in "typical"

adolescents. Thus, a more sophisticated knowledge of information pertaining to psychology may have increased the likelihood that the adolescents in this study would attribute the cause of emotional and behavioral problems to factors that were external to the individual.

Additionally, adolescents who experienced previous exposure to psychopathology endorsed significantly higher levels of life stress as an etiological explanation. It was possible that adolescents who have experience with family and friends with behavior problems perceived these experiences to cause life stress in general. This life stress then was related to the developmental of behavior problems. Thus, although previous exposure may not impact the behavior problem ratings that were provided by adolescents, it may impact their explanation for the behavior problems that they perceived. Notably, no additional informant characteristics were related to their etiological attributions, suggesting that the types of behavior problems that were displayed played the most important role in the causes that were endorsed for a given observed behavior problem. Further, other factors that theoretically appeared to be important, such as friendship quality, did not necessarily serve to change the perception of these adolescents with regard to the cause of different behavior problems.

Beyond these hypotheses, the present study also sought to utilize an alternative statistical treatment of cross-informant data. Beginning with the metric of agreement, this study provided additional support for the use of standardized difference scores in future investigations of cross-informant ratings. In particular, the standardized difference value provided a metric that was correlated most consistently with the ratings from which it was derived. This finding was important because a measure of agreement that was correlated too closely with one source would not provide any statistical value beyond that source rating. Although this lack of bias was important in the present study, it should be noted that the standardized difference score also has

the potential to “mask” meaningful information. Specifically, the standard deviation in friend informant ratings was quite large across both types of behavior problem presentation, suggesting wide variations in the scores that were provided by informants. Standardization of these scales may have taken attention away from this large fluctuation.

Further, the present study also utilized hierarchical linear modeling (HLM) to investigate the variables of interest, with special consideration paid to the dyadic nature of the data. Few, if any, studies utilized this method of analysis, despite the fact that the very nature of the data lent itself to increased risk for nonindependence. Given the impact of nonindependence on tests that are utilized typically to evaluate cross-informant ratings, HLM will likely be a valuable tool for future investigations in this research domain.

An additional aim of this study was to investigate the relevance of utilizing an already existing measure of behavior problems in a new way. Previous research that examined friend informants in a similar manner utilized an adapted version of the Youth Self-Report (YSR) to reflect ratings of a friend (even though the YSR is meant to be used as a self-report). Although the use of the YSR was helpful, some of the items on the YSR were more internal in nature and not readily observable to others (e.g., “I have trouble sleeping”). In contrast, items on the Teacher’s Report Form (TRF; as used in the present study) are meant to be visible outwardly and are behaviors that are typically present in the school environment. Although there was no previous research examining the use of the TRF in an adolescent sample, the present study demonstrated good internal reliability for this measure. This finding suggested that this measure may be helpful for peer ratings, although the items that were selected were only those that were the most similar across the different informants examined in this study.

Despite its utility in the present study, examination of specific item ratings for friend informants revealed that there were several items on the TRF that demonstrated a very low frequency of endorsement. This finding likely suggested that there were certain items on the TRF that teachers would be more likely than adolescents to endorse. Ultimately, it would be most beneficial to develop a measure meant specifically for the purpose of friend ratings of adolescents' behavior problems. Given the utility of friend informants, it may be useful for a well-validated measure for these informants to be included in clinical evaluations.

Limitations and Future Directions

The results of the present study must be interpreted in light of its limitations, many of which were related to sample characteristics. In particular, adolescents in this study reported friendships that were very positive and close in nature. Given the lack of significant effects for friendship quality, the lack of variation in positive friendship characteristics may have played a role. Additionally, the majority of adolescents who participated in this study were female. Further, significantly more male adolescents were unable to be matched successfully to friends who also were included in the study, resulting in significantly more female only dyads relative to male only or mixed-sex dyads. As previously noted, this distribution of sex dyads also could have impacted the variation in friendship quality, as this characteristic can vary among different types of dyads. Additionally, the present study did not exclude relationships that were romantic in nature, although "friendships" were targeted in all study materials. Because these relationships were not excluded, it is unknown how many of the dyads in the present study were linked romantically. Research suggested that romantic partners can be accurate in their rating agreement in adults (Foltz, Morse, & Barber, 1999), although this research has not explored adequately this type of relationship in adolescent and informant agreement. Nonetheless, the classification of a relationship as romantic or friendly should be taken into account.

Finally, although a representative sample of adolescents was sought, data for this study were collected from adolescents enrolled in high school level psychology classes. Given that this class was an elective, adolescents who choose to enroll in this type of class could possess characteristics that set them apart from other adolescents, whether those characteristics were intrinsic to the adolescent (i.e., increased interest in topics of a psychological nature) or learned (i.e., class material related to psychological symptoms).

Future research should address these limitations in order to gain a better understanding of the informant characteristics investigated in the present study, particularly given the differences between this study's findings and those of previous research. In particular, it may be helpful to seek a sample that represents relationships that are of both high and low quality as well as equally representative of all types of dyad combinations. Further, it may be helpful for future studies to investigate more nuanced measures of friendship quality, including support and disclosure. Such research may reveal that these aspects of friendship quality demonstrate an impact on informant agreement, rather than overall positive friendship quality. Additionally, the present study restricted agreement to self-ratings and those provided by friends only, with these ratings not providing information regarding the differences in agreement with other informants (i.e., teachers and parents). Although friends can be perceived as providing "accurate" information regarding salient social norms, future research should aim to determine whether these ratings are in agreement with the perception of other informants as well as more objective clinical measures.

Conclusions

The present study sought to investigate the relationship amongst informant characteristics, relationship factors, and agreement among behavior problem ratings as well as etiological attributions for behavior provided by friend informants. Overall, results of this study

indicated that agreement between adolescent self-ratings and those of their friend informants was high across behavior problem presentations and that very few informant or relationship characteristics impacted these ratings. Although previous research investigated the impact of some of these factors on ratings provided by friend informants, the present study extended the research by investigating whether these factors were related to the actual agreement of the ratings provided by adolescents and their friends. Not only was it necessary to determine characteristics that may impact informant ratings, it also was important to understand whether these ratings were in agreement with the target adolescent's own self-ratings and whether the target adolescent's own self-ratings could be considered "accurate." Nonetheless, understanding not only the perception of the target adolescent but also whether or not this perception agreed with the perception of a close friend could provide good clinical information. This information also was particularly important given the ever changing social norms that are present for adolescents and that lack of access that other informants may have to information that may be of clinical relevance (i.e., substance use, social behaviors). Further, research regarding the utility of adolescent informants may be especially important when considering attempts to reach particularly troubled adolescents (i.e., those more likely to engage in acts of extreme violence). Given that these adolescents often go unnoticed by adult informants, adolescents can be a particularly vital resource in identifying these individuals so that appropriate interventions can be put into place.

APPENDIX A: TABLES

Table 1. Comparable Questions from the YSR and TRF

Internalizing Scale		Externalizing Scale	
<i>Youth Self-Report</i>	<i>Teacher Report Form</i>	<i>Youth Self-Report</i>	<i>Teacher Report Form</i>
There is very little that I enjoy	There is very little that he/she enjoys	I argue a lot	Argues a lot
I cry a lot	Cries a lot	I am mean to others	Cruelty, bullying, or meanness to others
I am afraid of certain animals, situations, or places, other than school	Fears certain animals, situations, or places other than school	I try to get a lot of attention	Demands a lot of attention
I am afraid of going to school	Fears going to school	I destroy my own things	Destroys his/her own things
I am afraid I might think or do something bad	Fears he/she might do something bad	I destroy things belonging to others	Destroys property belonging to others
I feel that I have to be perfect	Feels he/she has to be perfect	I disobey at school	Disobedient at school
I feel that no one loves me	Feels or complains that no one loves him/her	I don't feel guilty after doing something I shouldn't	Doesn't seem to feel guilty after misbehaving
I feel worthless or inferior	Feels worthless or inferior	I break rules at home, school, or elsewhere	Breaks school rules
I would rather be alone than with others	Would rather be alone than with others	I get in many fights	Gets into many fights
I am nervous or tense	Nervous, high-strung, or tense	I hang around with kids who get in trouble	Hangs around with others who get in trouble
I am too fearful or anxious	Too fearful or anxious	I lie or cheat	Lying or cheating
I feel dizzy or lightheaded	Feels dizzy or lightheaded	I physically attack people	Physically attacks people
I feel too guilty	Feels to guilty	I would rather be with older kids than kids my own age	Prefers being with older children or youths
I feel overtired without good reason	Overtired without good reason	I scream a lot	Screams a lot
Physical problems: Aches or pains	Physical problems: Aches or pains	I am stubborn	Stubborn, sullen, or irritable
Headaches	Headaches	My moods or feelings change suddenly	Sudden changes in mood or feelings

Internalizing Scale		Externalizing Scale	
<i>Youth Self-Report</i>	<i>Teacher Report Form</i>	<i>Youth Self-Report</i>	<i>Teacher Report Form</i>
Nausea	Nausea, feels sick	I am suspicious	Suspicious
Problems with eyes	Eye problems	I swear or use dirty language	Swearing or obscene language
Rashes or other skin problems	Rashes or other skin problems	I tease others a lot	Teases a lot
Stomachaches	Stomachaches	I have a hot temper	Temper tantrums or hot temper
Vomiting, throwing up	Vomiting, throwing up	I think about sex too much	Seems preoccupied with sex
I refuse to talk	Refuses to talk	I threaten to hurt people	Threatens people
I am secretive or keep things to myself	Secretive, keeps things to self	I smoke, chew, or sniff tobacco	Smokes, chews, or sniffs tobacco
I am self-conscious or easily embarrassed	Self-conscious or easily embarrassed	I cut classes or skip school	Truancy or unexplained absence
I am too shy or timid	Too shy or timid	I am louder than other kids	Unusually loud
I don't have much energy	Underactive, slow-moving, or lacks energy	I use drugs for nonmedical purposes	Uses alcohol or drugs for nonmedical purposes
I am unhappy, sad, or depressed	Unhappy, sad, or depressed		
I keep from getting involved with others	Withdrawn, doesn't get involved with others		
I worry a lot	Worries		

Table 2. Sample Means and Standard Deviations

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Actual Range</i>	<i>Possible Range</i>
Participant Characteristics				
Age	16.61	.95	15-19	15-19
Social Competence	14.02	3.66	5-20	5-25
Exposure Severity	6.21	5.67	0-19	0-23
Friendship Characteristics				
Friendship Quality	3.20	0.84	1.47-5.00	1-5
Perceived Friendship Closeness	3.74	1.10	1-5	1-5
Self and Informant Ratings				
Self-Ratings of Internalizing Problems	15.71	8.63	0-39	0-58
Self-Ratings of Externalizing Problems	13.14	6.32	2-33	0-52
Informant Ratings of Internalizing Problems	8.24	6.78	0-26	0-58
Informant Ratings of Externalizing Problems	7.71	6.39	0-27	0-52
Outcome Variables				
Standardized Difference Score-Internalizing	-.02	1.08	-2.80-3.30	-4.00-4.00
Standardized Difference Score-Externalizing	.12	1.05	-2.84-2.34	-4.00-4.00
CAPPP School Factors	3.54	1.36	2-8	2-8
CAPPP Family Factors	6.94	2.29	3-12	3-12
CAPPP Volition	5.99	2.62	3-12	3-12
CAPPP Life Stress	7.31	2.53	4-14	4-16

Note. Standardized difference score means were calculated based on participants that were included in dyad-based analyses. Positive values represent higher symptoms reported by the target adolescent being rated, whereas negative values represent higher symptoms reported by the friend informant.

Table 3. Metrics of Agreement

	1	2	3	4	5	6	7	8	9	10
1. Internalizing Self-Ratings	--									
2. Externalizing Self-Ratings	.33**	--								
3. Internalizing Friend Informant Ratings	.44**	.06	--							
4. Externalizing Friend Informant Ratings	.16	.45**	.26**	--						
5. Raw Internalizing Difference Scores	.69**	.31	-.36**	-.04	--					
6. Raw Externalizing Difference Score	.17	.49**	-.20*	-.56**	.33**	--				
7. Internalizing Standardized Difference Score	.54**	.28**	-.52**	.11	.98**	.36**	--			
8. Externalizing Standardized Difference Score	.20*	.51**	-.19*	-.52**	.36**	.98**	.37**	--		
9. Internalizing Standardized Residuals Score	.90**	.36**	.00	.05	.94**	.28**	.85**	.31**	--	
10. Externalizing Standardized Residuals Score	.31**	.90**	-.07	.00	.37**	.83**	.37**	.83**	.37**	--

Note. * $p < .05$; ** $p < .01$

Table 4. Correlations among Predictors and Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Self-Ratings of Internalizing Behavior Problems	--													
2. Self-Ratings of Externalizing Behavior Problems	.34**	--												
3. Perceived Social Acceptance	-.47**	.02	--											
4. Previous Exposure to Psychopathology	-.37**	.16*	-.20*	--										
5. Friendship Quality	-.10	.07	.24**	.00	--									
6. Perceived Friendship Closeness	-.13	.09	.20*	-.06	.75**	--								
7. Friend Informant Ratings of Internalizing Behavior Problems	.30**	.23**	-.11	.16*	.14	.11	--							
8. Friend Informant Ratings of Externalizing Behavior Problems	.21**	.33**	-.14	.14	-.00	.14	.40**	--						
9. Standardized Difference Score- Internalizing	-.10	-.22**	-.03	.07	-.10	-.13	-.53**	-.22**	--					
10. Standardized Difference Score- Externalizing	-.14	-.13	.02	.09	.03	-.11	-.22**	-.55**	.37**	--				
11. CAPP School Factor	.22**	.13	-.06	.10	-.08	.06	.00	.33**	-.21**	-.05	--			
12. CAPP Family Factor	.18*	-.05	-.16	.25**	.03	-.08	.10	.19*	-.03	-.06	.27**	--		
13. CAPP Volition Factor	.13	.15	-.03	-.06	-.07	.04	.12	.36**	.16*	-.17*	.44**	.22**	--	
14. CAPP Recent Life Stress	.31**	.06	-.14	.35**	.06	-.08	.45**	.19*	.03	-.20*	.23**	.45**	.34**	--

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

Table 5. Model Parameters and Fit for Internalizing Behavior Problem Agreement

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7¥	Model 8	Model 9
Fixed Components									
Intercept	-.03	-.03	-.04	-.04	.02	.10	.86	1.06*	.96
Self-Ratings of Internalizing Behavior Problems	-.03**	-.03**	-.03**	-.04***	-.04***	-.04***	-.04***	-.05***	-.05***
Self-Ratings of Externalizing Behavior Problems		-.02*	-.02	-.02	-.02	-.02	-.02	-.01	-.02
Previous Exposure			.02						
Perceived Social Acceptance				-.22	-.17	-.20	-.19	-.18	-.16
Sex (male)					-.22				
Grade (Sophomore)						-.21			
Grade (Junior)						-.17			
Relationship Quality							-.28	-.02	-.35*
Degree of Closeness								-.26	
Sex Dyad (Female)									-.31
Sex Dyad (Male)									.25
Deviance (-2LL)	343.90	340.28	338.71	330.45**	329.55	329.77	318.40**	316.96	315.15

Note * $p < .05$, ** $p < .01$, *** $p < .001$, ¥Final model

Table 6. Model Parameters and Fit for Internalizing Behavior Problems Ratings

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7¥	Model 8	Model 9
Fixed Components									
Intercept	8.41***	8.36***	8.39***	8.41***	9.21***	8.93***	5.60	5.48	2.09
Self-Ratings of Internalizing Behavior Problems	.18**	.14*	.17**	.19**	.20**	.20**	.21**	.21***	.19**
Self-Ratings of Externalizing Behavior Problems		.10							
Previous Exposure			.03						
Perceived Social Acceptance				.85	1.32	1.25	.71	.69	.79
Sex (male)					-2.90*	-2.84*	-2.63	-2.66	.60
Grade (Sophomore)						.67			
Grade (Junior)						-.13			
Relationship Quality							1.07	.90	1.03
Degree of Closeness								.17	
Sex Dyad (Female)									.03
Sex Dyad (Male)									4.073
Deviance (-2LL)	787.34	785.49	787.26	769.42**	765.39*	765.03	735.69**	735.66	732.05

Note * $p < .05$, ** $p < .01$, *** $p < .001$, ¥Final model

Table 7. Model Parameters and Fit for Externalizing Behavior Problems Agreement

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7¥	Model 8	Model 9
Fixed Components									
Intercept	.15*	.15	.15	.16	.14	.27	.62	.76*	.83*
Self-Ratings of Externalizing Behavior Problems	-.01	-.01	-.02*	-.02	-.02	-.01	-.01	.00	-.01
Self-Ratings of Internalizing Behavior Problems		-.01							
Previous Exposure			.01						
Perceived Social Acceptance				-.03	-.04	.00	.04	.07	.02
Sex (male)					.08				
Grade (Sophomore)						-.14			
Grade (Junior)						-.17			
Relationship Quality							-.14	.06	-.15
Degree of Closeness								-.20	
Sex Dyad (Female)									-.24
Sex Dyad (Male)									-.21
Deviance (-2LL)	324.71	323.92	324.20	317.96**	317.80	317.38	308.15**	306.44	307.13

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, ¥Final model

Table 8. Model Parameters and Fit for Externalizing Behavior Problems Ratings

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8¥	Model 9
Fixed Components									
Intercept	7.61***	7.65***	7.57***	7.58***	8.31***	6.63***	4.22	2.95	1.66
Self-Ratings of Externalizing Behavior Problems	.30***	.29***	.29***	.32***	.30***	.29***	.30***	.28***	.29***
Self-Ratings of Internalizing Behavior Problems		.03							
Previous Exposure			.14						
Perceived Social Acceptance				-.70	-.12	-.33	-.57	-.69	-.63
Sex (male)					-2.64*	-2.92*	-2.51	-2.87*	-2.81
Grade (Sophomore)						1.87	1.61	1.64	1.63
Grade (Junior)						3.01*	3.10*	2.54	2.44
Relationship Quality							.73	-2.16	-2.27
Degree of Closeness								2.75**	2.91**
Sex Dyad (Female)									1.41
Sex Dyad (Male)									1.18
Deviance (-2LL)	761.92	761.57	759.58	741.07**	736.67*	732.28	710.08**	702.58**	701.81

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, ¥Final model

APPENDIX B: IRB PERMISSION LETTERS



University of Central Florida Institutional Review Board
 Office of Research & Commercialization
 12201 Research Parkway, Suite 501
 Orlando, Florida 32826-3246
 Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: UCF Institutional Review Board #1
 FWA00000351, IRB00001138

To: Brea-Anne M. Lauer

Date: March 12, 2013

Dear Researcher:

On 3/12/2013, the IRB approved the following human participant research until 3/11/2014 inclusive:

Type of Review: UCF Initial Review Submission Form
 Project Title: Characteristics Associated with Adolescent and Friend Agreement of Behavior Problems
 Investigator: Brea-Anne M Lauer
 IRB Number: SBE-13-09154
 Funding Agency:
 Grant Title:
 Research ID: n/a

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 3/11/2014, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewska, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 03/12/2013 02:33:28 PM EST

IRB Coordinator



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138
To: Brea-Anne M. Lauer
Date: January 27, 2014

Dear Researcher:

On 1/27/2014, the IRB approved the following human participant research until 1/26/2015 inclusive:

Type of Review: IRB Continuing Review Application Form
Project Title: Characteristics Associated with Adolescent and Friend Agreement of Behavior Problems
Investigator: Brea-Anne M Lauer
IRB Number: SBE-13-09154
Funding Agency:
Grant Title:
Research ID: n/a

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form cannot be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 1/26/2015, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 01/27/2014 04:38:09 PM EST

IRB Coordinator



University of Central Florida Institutional Review Board
Office of Research & Commercialization
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Orlando, Florida 32826-3246
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www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138
To: Brea-Anne M Lauer
Date: January 12, 2015

Dear Researcher:

On the IRB approved the following modifications / human participant research until 01/11/2016 inclusive:

Type of Review: Submission Response for IRB Continuing Review Application
Form Expedited Review
Project Title: Characteristics Associated with Adolescent and Friend
Agreement of Behavior Problems
Investigator: Brea-Anne M Lauer
IRB Number: SBE-13-09154
Funding Agency:
Grant Title:
Research ID: n/a

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form cannot be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 01/11/2016, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Patria Davis on 01/12/2015 09:59:53 AM EST

IRB Coordinator

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