The relationship between anxiety and impairment in clinic-referred youth with ODD:

The role of cumulative family risk

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(ABSTRCT)

The co-occurrence of anxiety disorders (ADs) and disruptive behavior disorders affects a substantial proportion of children and may cause significant impairment in functioning. Approximately 40% of clinic-referred youth with oppositional defiant disorder (ODD) meet criteria for an AD (Greene et al., 2002). In spite of the frequent co-occurrence of these disorders, there is little research examining the presence of AD in clinic-referred samples of youth with ODD. Thus, the purpose of the current study was to 1) examine the phenomenology of clinic-referred youth with ODD/AD as compared to youth with ODD alone, and 2) explore the role of cumulative family risk (CFR) in predicting level of impairment in youth with comorbid ODD/AD as compared to youth with ODD alone. There was mixed support for distinct clinical profiles among youth with ODD/AD as compared to youth with ODD alone: youth with ODD/AD had higher levels of anxiety, internalizing symptoms, and parent psychopathology whereas youth with ODD alone had higher levels of conduct problems, hyperactivity, and attention difficulties. However, there was little support for the role of CFR in predicting impairment in youth with ODD/AD. Future research should enlist a multi-informant, multi-contextual approach in examining the role of CFR in predicting impairment levels for youth with comorbid ODD/AD.

Dedication

I dedicate this work to the love of my life, Tommy. My husband, you are my source of strength, joy, and inspiration. Thank you for your patience, support, and love. Sharing a life with you is by far my greatest accomplishment.

I also dedicate this work to my mother. I love you and am so grateful for you.

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INTRODUCTION

The co-occurrence of anxiety and disruptive behavior disorders affects a substantial proportion of children and may cause significant impairment in functioning. Epidemiological data suggest 11.3% of children meet criteria for oppositional defiant disorder (ODD) and 9.9% of children meet diagnostic criteria for an anxiety disorder (AD) (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). In addition, the comorbidity of ODD and ADs are three times more often than what would be expected by chance in epidemiological samples (Angold, Costello, & Erkanli, 1999). Moreover, large subsets of clinic-referred youth with ODD have co-occurring ADs. In clinic-referred samples, 40% of youth with ODD also met criteria for an AD (Greene et al., 2002).

Maser and Cloninger (1990) suggested that children with comorbid ODD/AD diagnoses might display increased levels of symptomatology and impairment, higher levels of psychosocial adversity, and ongoing adjustment problems. Furthermore, these children may be at greater risk of developing more severe psychopathology than children with either diagnosis alone (Biederman, Newcorn, & Sprich, 1991; Kendall, Brady, & Verduin, 2001; Ollendick & King, 1994). On the other hand, some researchers have suggested that the co-occurrence of AD and conduct problems in youth may result in less psychopathology (e.g., lower rates of aggression, less involvement in violent crime) than in youth without an AD (Hinshaw, Lahey, & Hart, 1993). Given the discrepancies in the

literature, it is unclear whether the presence of AD in youth with ODD serves as a risk or protective factor in impairment and outcome.

It is possible that youth with a comorbid ODD/AD profile may display varying levels of impairment dependent upon associated contextual variables. At this time, there has been very little research on the phenomenology of clinic-referred youth with comorbid ODD/AD; thus, knowledge of potential differences between the groups is sparse. Additionally, there have been no recent studies that have addressed the influence of contextual variables on clinical impairment. However, there has been limited but suggestive evidence for the potential relations among contextual variables and outcomes. For example, some research has begun to examine the role of various family environment factors in relation to ODD, AD, and youth impairment (e.g., Greene et al., 2002). Thus, the aim of the current study is twofold: 1) to examine the phenomenology of clinic-referred youth with ODD/AD, and 2) to explore the role of cumulative family risk (CFR) in predicting level of impairment in youth with comorbid ODD/AD as compared to youth with ODD alone.

Comorbidity

Keiley, Lofthouse, Bates, and colleagues (2003) referred to comorbidity as the coexistence of two or more seemingly distinct disorders in the same individual at the same point in time (Achenbach, 1991a; Caron & Rutter, 1991). Generally speaking, the term comorbidity has been used to describe co-existing disorders where pathology and etiology are well understood (Lilienfeld, 2003). However, the etiology and pathology of most psychological disorders have often overlapped. Given this overlap, some researchers argue comorbidity between psychological disorders indicates a problem with

the classification system rather than meaningful associations between two distinct

disorders (Angold et al., 1999). This does not imply, however, that comorbidity is not

worthy of further investigation. Rather, the study of comorbidity may be helpful in

validating the criteria of various psychiatric disorders.

The comorbidity of ODD and AD can be conceptualized as heterotypic

comorbidity (Angold et al., 1999). In other words, ODD and ADs are from differing

diagnostic groups in the DSM-IV-TR (e.g., ADs and disruptive behavior disorders)

(American Psychiatric Association, 2000). When the comorbidity of two disorders is

from the same diagnostic group (e.g., two ADs), such as generalized anxiety disorder

(GAD) and social anxiety, this would be considered homotypic comorbidity. This

distinction may be useful, as heterotypic comorbid conditions may be more likely to have

distinct etiologies as compared to homotypic comorbid conditions.

The substantive reasons underlying various forms of comorbidity have not been

fully explored. Rutter (1997) proposed several substantive indicators of comorbidity,

including: 1) comorbidity represents two manifestations of the same disorder, 2)

comorbidity reflects two different stages of the same disorder, 3) comorbidity is the

result of shared or related risk factors, and 4) comorbidity reflects two distinct disorders,

with one disorder associated with increased risk for the other disorder. Overall, however,

the substantive reasons for comorbidity, including clinical characteristics, correlates, and

outcomes of the disorders, have been described rarely in the extant literature (Jensen,

2003). In the absence of such studies, it is unclear whether comorbid forms of disorders

have distinct features from either disorder alone.

<div align="center">Clinical Investigations</div>

There have been few investigations of the comorbidity of ADs in clinic-referred children with ODD. In one of the few studies, Greene and colleagues (2002) reported that approximately 40% of youth with ODD and with ODD and CD met criteria for an AD. Greene and colleagues also concluded that youth with ODD (with or without CD) have significantly greater rates of family and social impairment relative to other psychiatric comparison groups, even when ADs and other psychiatric conditions are controlled for. However, the investigation did not test whether a comorbid ODD/AD profile yielded differing levels of social impairment and global functioning as compared to youth with ODD alone. Another investigation by Gadow and Nolan (2002) examined parent and teacher reports of anxiety symptoms in clinic-referred preschool children (ages 3-6) with ODD, ODD and attention deficit hyperactivity disorder (ADHD), ADHD alone, and a comparison group (no ODD or ADHD). For these clinic-referred children, parents reported significantly more GAD symptoms in the ODD and the ODD/ADHD groups as compared to the ADHD group or the comparison group. In addition, the ODD/ADHD and ODD groups had higher ratings of parent- reported separation anxiety disorder (SAD) symptoms than the comparison group. There were no significant differences in teacher- reported social phobia symptoms among the four groups. These findings were limited because teacher ratings of SAD and parent ratings of social anxiety were not obtained in this investigation. Further, they were based on a dimensional measure of anxiety (and not clinical diagnoses).

In addition to these studies, the relations between AD and ODD have been supported in longitudinal investigations of clinical samples of youth. For example, in a longitudinal investigation of 280 oppositional preschool children, Lavigne, Cicchetti,

Gibbons, and colleagues (2001) reported that oppositional behavior was related to the development of ADs, mood disorders, and attention deficit disorders at 4- and 6-year follow-up intervals. Similarly, Spleze, McClellan, DeKlyen, and Jones (1999) reported that one quarter of preschool-aged boys diagnosed with ODD developed a mood disorder or AD at two-year follow-up.

Clinical Characteristics

Cantwell (1995) outlined eight domains to examine the discriminant validity of psychiatric disorders and subtypes of specific disorders: 1) clinical phenomenology, 2) demographic correlates, 3) psychosocial correlates, 4) family environment factors, 5) family genetic factors, 6) biological factors, 7) response to treatment, and 8) clinical outcomes. It is plausible that the aforementioned factors and others (e.g., cognitive factors, neuropsychological factors) may be important in understanding the clinical characteristics of comorbid ODD/AD.

Several of the factors proposed by Cantwell (1995) were recently examined in a study on comorbid patterns of child ADs (Franco, Saavedra, & Silverman, 2006). These factors included sociodemographics, clinical phenomenology, psychosocial factors, and family factors. Demographic correlates (age, gender) and family environment factors were also examined in an earlier investigation of comorbid ADs and externalizing disorders in children (Russo & Beidel, 1994). However, these features have not been examined in samples of clinic-referred youth with ODD alone in comparison to youth with comorbid ODD/AD. Thus, the framework proposed by Cantwell was used in the current investigation, though the areas of focus were modified somewhat. For purposes of this investigation, several related clinical characteristics were examined: demographic

correlates, phenomenology, general impairment, social impairment, and family environment.

<u>Demographic Correlates/Differences</u>

There has been little research regarding the demographic correlates or differences in youth with comorbid ODD/AD as compared to other groups. Some research suggests no sociodemographic differences across youth with comorbid AD/externalizing disorders as compared to youth with comorbid AD/internalizing disorders, comorbid ADs or a single AD (Franco et al., 2006). Similarly, Garland and Garland (2001) reported clinic-referred anxious boys and girls were equally oppositional according to parent reports, though teacher reports indicated clinic-referred anxious boys were significantly more oppositional than anxious girls. Recent research by Mireault, Rooney, Kouwenhoven, and Hannan (2008) examined the role of gender in relation to oppositional behavior and anxiety symptoms in two large samples of elementary and middle school students. Despite greater self-reported oppositional behavior among boys (and no gender differences in reports of anxiety symptoms) in these samples, anxiety symptoms outweighed gender as a predictor of oppositional behavior.

Loeber and Keenan (1994) suggested the overall prevalence rate of ODD has increased from elementary school to adolescence (though two pathways with an early and late onset have been identified) whereas ADs may fluctuate with age, though may be most common in adolescent girls. Additionally, each of the various ADs may have a different prevalence rate as a function of age and gender. Certain ADs (e.g., SAD, GAD) may appear as early as preschool, but their prevalence may decrease with age. ODD has

generally been more common in males and ADs have generally been more common in females.

A meta-analysis by Loeber and Keenan (1994) suggested that the odds for comorbid ODD/AD shifts from positive to negative between the ages of 11 and 19. These findings, however, are limited in as much as Loeber and Keenan (1994) used differing diagnostic criteria (e.g., DSM-III vs. DSM-III-R), informants, and instruments in their meta-analysis. Other examinations reported the likelihood of comorbid ODD/AD in adolescence to be over three times greater than what would be expected by chance (Angold et al., 1999).

Loeber, Burke, Lahey, and colleagues (2000) suggested gender and age are crucial parameters in developing comorbid conditions with AD/ODD. The authors proposed a "gender paradox" for comorbid conditions, in that the gender with the lowest prevalence of a disorder appeared to be more at risk to for greater impairment and reduced treatment outcome. Loeber and colleagues (2000) concluded these risks of developing an AD or a mood disorder are increased in females with conduct problems. However, it should be noted the risk of females who developed other disorders as a result of conduct problems were not limited to Ads, but also included ADHD, mood disorders, and substance abuse. Empirical support from the Dunedin Longitudinal Study suggested disruptive behavior disorders in girls predicted emotional disorders several years later (Angold et al., 1999). Additionally, Robins (1986) reported internalizing disorders were common in females with CD (64% to 73%) and occurred twice as frequently as they occurred in women without CD (see also Zoccolillo, 1992). Given the limited data and inconsistent findings, the socio-demographic characteristics in children with comorbid

ODD/AD have been difficult to ascertain. It would be informative, for example, to determine if there are age or gender differences in youth with comorbid AD/ODD as compared with youth with ODD alone.

Clinical Phenomenology

The clinical phenomenology of both AD and ODD has been well substantiated in the literature (American Psychiatric Association, 2000). Measures of anxiety and fears have typically corresponded to youth with ADs whereas measures of oppositional, aggressive, and delinquent behavior have characterized youth with ODD (Achenbach, 1991b; March, Parker, Sullivan, Stallings, & Conners, 1997; Ollendick, 1983). Broadband measures of internalizing symptoms have typically mapped onto child ADs but may not distinguish ADs from other internalizing conditions, such as the affective disorders (Achenbach, 1991b; Seligman, Ollendick, Langley, & Baldacci, 2004). Similarly, the measures of externalizing symptoms are related to ODD, but may not differentiate ODD from CD or ADHD (Achenbach, 1991b). These relationships have generally been consistent across clinician, parent, and child informants.

It is important to examine if the clinical profile of youth with comorbid ODD and AD captures the features of both disorders, or if the comorbid profile is clinically distinct from features typically associated with ODD and AD separately. To date, there has been limited research pertaining to the phenomenology of youth with co-morbid ODD/AD. One phenomenological investigation examined children with ADs and externalizing disorders in relation to children with a pure AD, co-morbid ADs, and comorbid depressive disorders (Franco et al., 2006). Results indicated the comorbid AD and externalizing group had significantly higher ratings of child reported anxiety and fears,

and parent-reported internalizing symptoms than the anxiety only group, but not higher ratings than the other comorbid groups. Additional, ratings of parent- reported externalizing symptoms were significantly higher in the anxious and externalizing group as compared to all of the other groups.

Overall, the phenomenological data from this study were limited in as much as the study did not compare youth with comorbid AD/externalizing disorders to youth with presence of an externalizing disorder only. Additional research on the phenomenology of youth with comorbid AD/ODD as compared to youth with ODD alone is needed.

General Impairment

The relationship between ODD impairment level and the presence of comorbid AD has been mixed. There has been some evidence AD may serve as a potential protective factor in children with ODD, though there has also been some evidence that children with comorbid ODD/AD may experience greater levels of impairment in relation to the ODD diagnosis (Russo & Beidel, 1994; Walker et al., 1991). One investigation suggested children with conduct problems and a co-occurring AD may have lower rates of aggression and engage in less violent crime than children without an AD (Hinshaw et al., 1993). Moreover, in a clinical sample of boys ages 7-12 with disruptive behavior disorders (controlling for ADHD), comorbid AD was associated with less impairment, such as fewer police contacts and school suspensions, and fewer peer ratings for fighting (Walker et al., 1991). Mitchell and Rosa (1981) also indicated that worrying and fear of the dark were negatively related to subsequent criminality.

However, other findings have supported greater impairment in ODD-behaviors in youth with comorbid ODD/AD, particularly in adolescent samples (Zoccolillo, 1992).

Additionally, behavior symptoms associated with comorbid anxious-aggressive children may be worsened as the children transitioned into adolescence (Walker et al., 1991) or the protective effect of AD on ODD symptoms may have disappeared (Russo et al., 1993). For example, in a community sample of 879 boys, 10-13 year-olds were compared to 13-16 year-olds who exhibited high levels of anxiety symptoms and aggressive behaviors (Loeber, Russo, Stouthamer-Loeber, & Lahey, 1994). Persistent elevated levels of anxiety were significantly associated with increased involvement in behaviors which conflict with authority figures. In addition, adolescents with high levels of anxiety reported significant levels of involvement in multiple disruptive behaviors. In fact, several studies of adolescents with social anxiety and conduct problems have suggested these features may have negative implications for impairment and treatment outcome (for a review, see Loeber & Keenan, 1994).

Overall, then, the findings have been mixed with regards to level of impairment (conceptualized as global impairment or as severity of ODD symptoms) in youth with comorbid ODD/AD. While some findings have suggested comorbid ODD/AD may serve as a protective factor in predicting global or ODD symptom impairment levels, other research has suggested that although co-occurring ODD/AD may serve as a protective factor in childhood, the co-occurrence of these disorders may transition into a risk factor in adolescence, though this finding has not been robust at this time. Additional research focusing specifically on impairment in youth with comorbid ODD/AD as compared to youth with ODD alone would be useful to disentangle the nature of this relationship. Moreover, examining the role of moderator variables, such as age and gender, is needed to clarify patterns in the findings.

Social Impairment

Whereas the literature pertaining to the degree of ODD impairment in youth with comorbid ODD/AD is mixed, there has been more conclusive evidence that comorbid ODD/AD is associated with social impairment in both prospective and longitudinal investigations. In a longitudinal investigation in a community sample of low income African-American first graders, high anxiety levels were related to higher aggression and lower academic achievement as compared to their low-anxious peers. Seven year follow-up data indicated high anxiety levels were related to higher aggression, higher depression, lower academic achievement, and lower peer acceptance (Grover, Ginsburg, & Ialongo, 2006). In another longitudinal investigation by Lansford and colleagues (2006), low social competence in kindergarten was related to the expression of both internalizing and externalizing symptoms in eighth grade.

Several studies suggested that youth with comorbid ADs and externalizing disorders have greater levels of social impairment than those with either disorder alone (Benoit, Wolff, Costa, & Ollendick, 2008; Franco et al., 2006). For example, Franco and colleagues (2006) found children with comorbid ADs and externalizing disorders were less likely to be involved in extracurricular activities as compared to children with an AD alone. However, the comorbid AD/externalizing group was not differentiated from the comorbid ADs group and comorbid anxiety/depressed group in these analyses. Further, children with comorbid ADs/externalizing disorders had significantly worse peer relationships than children with a single AD. It should be noted that these findings did not address whether youth with comorbid ODD/AD had increased levels of social impairment as compared to youth with externalizing disorders only.

To date, one investigation has compared social functioning in comorbid externalizing/AD youth with youth who have externalizing disorders only (Benoit et al., 2008). This investigation compared youth with ADs (n=29), youth with externalizing disorders (n=121), and youth with comorbid ADs and externalizing disorders (n=53) on measures of social impairment. Findings suggested that the comorbid group and the anxious group scored higher on withdrawn/depressed scale of the CBCL (similar to social withdrawal) than the externalizing group. Additionally, the comorbid group was significantly less socially competent than the anxious or externalizing group. However, no significant differences in levels of social problems were reported across the groups, though means were in the expected direction (e.g., higher levels of social problems in the comorbid group and externalizing group as compared to the anxious group). While these findings were limited in that externalizing disorders included ADHD, ODD, and CD, they provided some evidence that social impairment was more pronounced in youth with comorbid externalizing disorders/AD as compared to youth with externalizing disorders alone.

By definition of ODD, increased social impairment is present in youth with ODD alone and in youth with ODD/AD (APA, 2002); however, the type of social impairment present may differ in youth with ODD/AD versus ODD only. For example, youth with ODD alone may be more likely to express conduct problems and antisocial behavior as compared to youths with ODD/AD. This may be because youth with ODD and not AD have lower levels of autonomic arousal compared to normal controls (McBurnett & Lahey, 1994; Scarpa & Raine, 1997). Similarly, youth with ODD alone may have reduced sympathetic-linked cardiac activity (Beauchaine, 2003; Beauchaine, Katkin,

Strassberg, & Snarr, 2001). Importantly, reduced sympathetic-linked cardiac activity has also been associated with reward insensitivity that may account for conduct problems and antisocial behavior (Beauchaine et al., 2001). In a similar vein, Frick and colleagues (Barry et al., 2000; Frick, 1998) have argued the presence of a callous and unemotional interpersonal style of individuals with oppositional behaviors that is associated with a more severe impairment (e.g., antisocial and aggressive behavior), a reward dominant response style, and impairments in processes fearful and aversive stimuli (e.g., lack of AD). On the other hand, presence of AD is related to enhanced sympathetic functioning, and elevated levels of mean heart rate (Mezzacappa et al., 1997); thus, it is plausible that youth with ODD/AD may exhibit lower levels of antisocial behaviors with peers and may be more motivated by social reinforcers than youth with ODD alone.

In addition, youth with ODD/AD may be categorized by greater levels of social impairment defined as social withdrawal as compared to youth with ODD alone (Kerr, Tremblay, Pagani, & Vitaro, 1997). Specifically, social withdrawal may be categorized by greater levels of impairment due to social anxiety. Relatedly, social withdrawal has been implicated as indicator of peer rejection (Loeber et al., 2000). Given the literature, it may be plausible that social withdrawal may be more strongly related to youth with ODD/AD profiles than youth with ODD alone. However, if youth with ODD/AD profiles do not experience social anxiety specifically, it is less clear if all youth with ODD/AD profiles would correspond to social withdrawal behaviors.

In sum, certain types of social impairment (e.g., social withdrawal) may be more pronounced in youth with comorbid ODD/AD whereas other types of social impairment (e.g., antisocial behavior) may be more pronounced in youth with ODD alone. Future

research is needed to disentangle the nature of the relationship between social impairment

in youth with ODD alone and youth with ODD/AD.

Family Environment

There has been some theoretical basis for the role of family environment in

predicting the relations between youth with comorbid AD/ODD and overall functioning.

One proposed model of the role of family interactions in the development of ODD/AD

notes the relationship between parent and child is bi-directional, dynamic, and interactive

(Lytton, 1990). This theoretical relationship is considered a coercive style of parent-child

interaction (Patterson, Reid, & Dishion, 1992). In this model, oppositional and anxious

behaviors from one member of the dyad may exacerbate similar behaviors in the other

member of the dyad. This may be due to parent psychopathology, family conflict,

parenting practices, or a combination of these family risk factors. It is plausible that if a

greater number of these family risk factors are present, the impact on childhood

functioning may be more pronounced.

For example, child oppositionality and anxiety may be influenced by negative

parental reactions, which may precipitate further child oppositionality and anxiety. In the

case of anxiety symptoms, the parent may inadvertently reinforce a child's anxiety by

taking the child out of anxiety producing situations. If this parent is also anxious and/or

over-involved, this may lead to greater frequency in which a child is reinforced for

expressing anxiety, which may lead to increased expression of anxious behaviors and

greater impairment in functioning for both member of the dyad. In the case of

oppositionality (e.g., refusing to do what one is told), a parent might respond by using

corporal punishment, which may increase the child's frustration and oppositional

behavior. If the parent also expresses high levels of anger, and the parent-child interaction is generally negative, such a child may experience greater oppositional behaviors in response to those family risk factors, and may experience higher levels of impairment as a result. In sum, family environment may cause and reinforce both oppositional and anxious behavior in a cyclical manner. As the number of family environmental risk factors increases, it is plausible that child impairment levels may increase as well.

It should be noted, however, that there has also been evidence to suggest that family dysfunction may be an antecedent to diverse forms of childhood psychopathology (Tremblay et al., 2004). Specifically, a maladaptive family environment may serve as a risk factor in the development of broad psychopathology in youth, including ODD and AD (Connor, 2002). Similarly, Bandura's Social Learning Theory suggests that children model anxious or oppositional behaviors as a result of observing maladaptive family interactions (Laible, Carlo, Torquati, & Ontai, 2004). Regardless of the nature of the direction of these relationships, there has been theoretical support for the relationship between family risk factors, child oppositional and anxious behaviors, and impairment in functioning.

Little research has been conducted with regard to empirical studies of family environment and how it may be related to youth with comorbid ODD/AD, although family environment has been investigated extensively in relation to AD or ODD when considered alone. For example, children with ODD were more likely to have fathers with substance abuse problems and fathers with antisocial personality disorder (APD) as compared to clinical controls (Frick, Lahey, Loeber, & Stouthamer-Loeber, 1992).

Additionally, there has been long standing evidence that parental under-involvement may be related to ODD in children (Atkeson & Forehand, 1979). In terms of family factors that may be related to child ADs, these included modeling fear (Muris, Steerneman, Merckelbach, & Meesters, 1996), facilitating avoidance (Spence, 1994), and parental over-control (Hudson & Rapee, 2005; Siqueland, Kendall, & Steinberg, 1996; Wood, McLeod, Sigman, Hwang, & Chu, 2003).   Parental overprotection has been linked to both ADs (Hudson & Rapee, 2005) and ODD (Rey & Plapp, 1990), though these findings are less consistent among children with ODD (Frick et al., 1992). Similarly, low parental warmth and high parental criticism were generally associated with childhood ADs (Hudson & Rapee, 2001; Siqueland et al., 1996) though there has been evidence that such parenting factors were linked to oppositional behavior as well (Roefols et al., 2006). Based on the available literature that has examined youth with comorbid or covarying profiles, the present investigation has focused on three aspects of family environment: parent psychopathology, parenting style, and general family functioning. Then, the study examined cumulative family risk in relation to youth psychopathology and impairment.

Parent psychopathology.

Franco and colleagues (2006) found parents of children with ADs/externalizing disorders endorsed more parent psychopathology than parents of children with a single AD. Similarly, broad measures of parent mental illness and remarriage were associated with both internalizing and externalizing problems in children (Cohen, Brook, Cohen, Velez, & Garcia, 1990). Angold and colleagues (1999) reviewed a series of papers that linked maternal depression to both ADs and disruptive behavior problems in their children (Beidel & Turner, 1997; Hammen, 1992; Last, Hersen, Kazdin, Finkelstein, &

Strauss, 1987). Children of parents with depressed or mixed anxious-depressed parents had a much wider range of psychiatric disorders, such as ADs and ODD (Beidel & Turner, 1997). Gender differences for both parents and children emerged in these findings. Female children of anxious parents were more likely have parent-reported behavior problems (Silverman, Cerny, Nelles, & Burke, 1988).

     <u>Parenting style.</u>

     Perceived parental rearing behaviors (e.g., rejection, anxious rearing) may be related to the expression of both anxious and oppositional traits in children (Roelofs, Meesters, ter Huurne, Bamelis, & Muris, 2006). Roelofs and colleagues (2006) examined the relationship between negative family factors (e.g., insecure attachment, adverse parent rearing) and internalizing symptoms (anxiety and depression) and externalizing symptoms (aggression) in 237 children ages 9-12. Results indicated maternal and paternal rejection was significantly related to anxiety, depression, and aggression in boys and girls. Emotional warmth was negatively related to anxiety in boys (for father) and aggression in boys (for mother). Maternal anxious rearing was related to anxiety, depression, and aggression for girls. Paternal anxious rearing was related to anxiety, depression for boys, and aggression for boys. Overall, perceived rearing behaviors were significantly related to both anxious and aggressive symptoms in children. Additionally, perceived negative rearing behaviors in fathers were related to increased symptoms in boys, whereas perceived negative rearing behaviors in mothers were most strongly related to symptoms in girls.

     Yahav (2006) also examined the relationship between externalizing symptoms (aggression and delinquent behavior) and internalizing symptoms (depression, anxiety,

somatic, or regressive behavior) and their relation to perceived parenting behavior in a sample of 159 children ages 10-17. The results suggested that both internalizing and externalizing symptoms were more strongly associated with negative perceptions of maternal and paternal rejection, favoritism, and overprotection, as compared to siblings and unrelated controls, though these results were particularly strong for externalizing children. Contrary to the findings by Roelofs et al. (2006), child/parent genders were not salient predictors of child symptoms.

General family functioning.

In further support of the importance of family factors, there has been several studies that have linked aggression, anxiety, and family conflict (Jouriles, Barling, & O'Leary, 1987). For example, several investigations suggested parent-child aggression was correlated to anxiety withdrawal in children (Jouriles et al., 1987; Lansford et al., 2002). Further data supported a relationship between family conflict, anxiety, and aggression in a prospective longitudinal study of 585 youth followed from kindergarten until eleventh grade (Lansford et al., 2002). Results of this study indicated youth who experienced parental maltreatment early in life were at increased risk for elevated rates of aggressive and anxious symptomatology in adolescence. These findings were consistent even when other factors related to child maltreatment were controlled. Additionally, cross-cultural research indicated the use of physical discipline has been linked to both anxious and aggressive behavior in children (Lansford et al., 2005). The nature of the relationship between these variables, however, remains unclear.

While there has been evidence that maladaptive family functioning may be related to both anxiety symptoms and oppositional symptoms, these findings were limited in that

they have not directly addressed comorbid ODD/AD. Another limitation across these findings is that they were largely based on child or parent reports, which may be subject to bias. Thus, behavioral observation may be another useful means of obtaining valuable diagnostic information (e.g., family interaction) without the biases of the various informants (Hudson & Rapee, 2000). For example, one task has been used in the measurement of parent-child interactions in children with ADs and disruptive behavior disorders. This task involved assigning the dyad to a puzzle task (Tangram) that children were unable to complete within an allocated time. Then, coders assessed for interactions along the dimensions of over-control/under-involvement and criticism/warmth. This instrument has been used with youth with both anxious symptoms and oppositional features; thus, the use of this tool with children with a comorbid ODD/AD profile would be beneficial.

  Cumulative family risk.

  In addition to the aforementioned family processes (e.g., parent psychopathology, parenting style, and family environment) that have been shown to be related to youth maladjustment, family sociodemographic characteristics have also been associated with youth maladjustment (e.g., internalizing and externalizing symptoms). Specifically, youth maladjustment was associated with family sociodemographic factors such as family poverty (Brooks-Gunn & Duncan, 1997), large household size (Dubow & Luster, 1990), and single-parent family status (McLanahan, 1997). It may also be plausible that higher levels of family sociodemographic stressors may be related to increased child anxiety and child oppositionality. In other words, higher family economic strain may potentially lead to increased levels of child anxiety (e.g., child worries about family

finances), as seen in youth with GAD. Moreover, higher family economic strain may lead to increased acting out and behavioral problems as a result of this anxiety.

In any case, there has been a range of family risk factors (both socio-demographic factors and process factors) shown to contribute to youth maladjustment. Importantly, these risk factors often occur in conjunction with one another (Luthar, 1993). Thus, several investigations have examined the additive effects of these risk factors on youth psychopathology through cumulative family risk (CFR) (Gerard & Buehler, 2004a, 2004b). CFR was operationalized by Sameroff and colleagues (1993) as a combination of sociodemographic variables (e.g., family size, major stressful levels events, occupation of head of household, disadvantaged minority status) and process variables (e.g., parent psychopathology, parenting style, and family functioning). Gerard and Buehler (2004a; 2004b) defined CFR as four family demographic and three family process risk factors. Specifically, family poverty, parent education status, parent marital status, and household size were used for demographic variables whereas parents' relationship quality, parent warmth, and parent involvement were included as family process variables.

Current findings suggest CFR indices have been a valid and reliable method of predicting impairment and adjustment problems (Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). For example, Sameroff et al. (1998) found that the risk for several negative outcomes was significantly higher for children who experienced eight or more of 20 identified risk factors (e.g., family structure, parental characteristics) as compared with those who experienced three or fewer risk factors. High risk children were significantly more likely to experience behavioral problems and poor mental health outcomes.

There has also been evidence that CFR indices may be associated with internalizing symptoms, externalizing symptoms, and increased impairment in youth. Gerard and Buehler (2004a) utilized data from the National Longitudinal Study of Adolescent Health and found a positive relationship between cumulative risk (including family risk and social risk) and youth problem behavior in a sample of nationally representative adolescents in grades 7 through 12. Additionally, cumulative risk was associated with conduct problems and depressed mood, both concurrently and one year later (Gerard & Buehler, 2004b). Although this investigation examined both family risk and social risk in its definition of cumulative risk, it should be noted that the sample consisted largely of adolescents who are likely to experience greater effects from peer influence and less effects from family influence as compared to younger youth.

Forehand, Biggar, and Kotchick (1998) examined the relationship between CFR factors and three areas of psychosocial adjustment (internalizing problems, externalizing problems, and academic achievement) in adolescence and in young adulthood. The sample included 285 Caucasian participants ages 11 to 15 years. Family risk factors examined included parental divorce, interparental conflict, maternal physical health problems, maternal depressive mood, and mother-adolescent relationship difficulties. Based on the criteria developed by Jessor (1995), each of the five variables were coded as "risk" (upper 30%) or "no risk", except in the case of marital status, where single parent status was coded as "risk" and married parent status was coded as "no risk". The results indicated a steep increase in both internalizing and externalizing problems over time when number of risk factors increased from three to four (out of five risk factors). This

investigation, however, did not specifically study comorbidity. Additionally, only maternal reports were utilized.

Overall, the use of CFR indices to conceptualize the additive effects of various family factors (e.g., socio-economic status, parent psychopathology, parenting style, family environment) may be a useful approach in understanding the presentation of a comorbid ODD/AD profile. CFR may also serve as an important moderator variable to predict the contexts under which comorbid ODD/AD leads to greater symptom impairment. That is, it may be the case that higher levels of CFR are associated with contexts under which youth with comorbid ODD/AD experience higher levels of symptom impairment.

Study Purpose

In sum, there has been limited research examining the presence of ADs in clinic-referred samples of youth with ODD. The examination of comorbid ODD/AD is of particular importance, given that ADs may serve to mitigate or exacerbate symptom impairment in youth with ODD. Thus, comparing clinic-referred youth with combined ODD/AD and clinic-referred youth with ODD alone (no AD) could be particularly beneficial. The purpose of the present study was two-fold. First, the study conducted a phenomenological investigation of clinic-referred youth with comorbid ODD/AD in comparison to clinic-referred youth with ODD alone (no ADs). Specifically, demographic features, presence of emotional/behavioral symptoms, ODD symptom impairment, social impairment, and impairments in family functioning (both single risk factors and aggregated family risk factors) were examined. Secondly, the current investigation aimed to test a model to predict the conditions under which comorbid

ODD/AD may lead to greater impairment (e.g., global, social, and ODD symptom level). Specifically, CFR was examined as a potential moderator of the relationship between youth with comorbid ODD/AD and impairment levels.

Hypotheses

The first part of the investigation consisted of a phenomenological investigation of the presence of AD in a clinic-referred sample of youth with ODD. This aspect of the investigation was based largely on the external validation study of youth with comorbid ADs (see Franco et al., 2006) and the guidelines developed by Cantwell and colleagues (1995). Given the paucity of literature that has examined the phenomenology of youth with comorbid ODD/AD as compared to youth with ODD alone, these analyses were largely exploratory.

However, several hypotheses were put forth based upon previous investigations. It was expected that youth with ODD alone would have higher levels of conduct problems and aggression. This hypothesis was based on findings that suggested that presence of AD might mitigate the effects of ODD (e.g., Walker et al., 1991). This hypothesis was also based on research suggesting youth with ODD alone might exhibit more antisocial behaviors and conduct problems (McBurnett & Lahey, 1994; Scarpa & Raine, 1997). Additionally, it was predicted that youth with comorbid ODD/AD would have more pronounced symptoms of internalizing symptoms/anxieties with pathology across these measures. These hypotheses were based on the substantiated relationship between youth with ADs and measures of anxiety and internalizing symptoms (Achenbach, 1991b; Seligman et al., 2004). Additionally, this hypothesis was partially based on the findings of Franco and colleagues (2006), which indicated higher levels of

internalizing/anxiety symptoms in youth with externalizing disorders/ADs compared to youth with ADs alone.

It was also hypothesized that youth with comorbid ODD/AD would have higher levels of social impairment characterized by social withdrawal. This hypothesis was based the findings of Benoit and colleagues (2008), which indicated higher levels of withdrawal and lower levels of social competence in youth with comorbid AD/externalizing disorders as compared to youth with externalizing disorders alone. Lastly, it was predicted that youth with ODD/AD would have higher levels of family impairment as compared to youth with ODD alone. These hypotheses were partially supported by literature that linked higher levels of family risk such as parent-reported psychopathology (Franco et al., 2006), measures of parent criticism and overprotection (Roelofs, 2006; Yahav, 2006), and family conflict (Lansford et al., 2002; 2005) to youth with comorbid internalizing/externalizing profiles. Thus, the first set of study hypotheses were as follows:

1. Conduct problems and aggression, as measured by the Behavior Assessment System for Children (BASC), Disruptive Behavior Disorder Rating Scale (DBDRS), and the Beck Youth Inventory (BYI) were predicted to be greater in youth with ODD alone than youth with comorbid ODD/AD.

2. The combined ODD/AD group was predicted to have higher levels of anxiety (measured by the BASC, and BYI) as compared to the ODD group alone.

3. Social withdrawal, as measured by the BASC and the interpersonal problems module of the Anxiety Disorder Interview Schedule (ADIS), was predicted to be greater in the comorbid ODD/AD group as compared to the ODD alone group.

4. The combined ODD/AD group was predicted to have higher levels of family risk

   factors (e.g., sociodemographic factors, parent psychopathology, parenting style,

   general family environment) as compared to the ODD alone group.

The second part of this investigation examined the role of CFR in moderating the

relationship between ODD/AD and global impairment (parent clinician, child clinician,

and clinical consensus reports) social withdrawal (parent and child interview of

interpersonal problems, BASC), and severity of ODD symptoms (clinician rating of ODD

symptoms, maternal report of ODD symptoms), after controlling for presence of ADHD.

It was expected that CFR would moderate the relationship between ODD/AD and global

impairment, social withdrawal, and ODD symptom impairment, when age and presence

of ADHD were controlled for. Specifically, it was expected that the association between

ODD/AD and high levels of impairment would be greatest when CFR levels were high.

These predictions were based on previous findings that linked CFR to internalizing and

externalizing behaviors (e.g., Forehand et al., 1998; Gerard & Buehler, 2004b) and broad

impairment in functioning in youth (e.g., Sameroff et al., 1998).

The recommendations of Cohen (1992) were utilized in this examination to

determine an adequate sample size for the moderator analyses. Specifically, to detect a

medium effect for an alpha level set at 0.05, the required sample size for four

independent variables was 84.

Method

<u>Participants</u>

For the current study, 87 clinic-referred youth who were taking part in a larger

NIMH study on the treatment of ODD youth and their families (Ollendick & Greene,

2007) were enlisted. Table 1 reports sociodemographic characteristics for the total

sample of youth, for youth with ODD alone (no ADs), and for youth with ODD/AD.

Means and standard deviations for the total sample, youth with ODD alone, and youth

with ODD/AD are reported. In addition, ANOVA values are reported for differences

among continuous variables (e.g., age, income) and chi-square values are reported for

categorical variables (e.g., gender, race, family structure).

Males comprised approximately two thirds of the sample, and the majority of the

participants were Caucasian ($n = 75$, 86.2%). The remaining 12 (13.8%) participants

identified as African American ($n = 9$), Asian American ($n = 1$), Hispanic ($n = 1$), and bi-

racial ($n = 1$). Approximately three quarters of the sample resided in dual-parent

households. There were no significant differences in sex, race, family structure, or

family income between youth with ODD alone and youth with ODD/AD. However,

there was a significance difference in the mean age of youth with ODD alone as

compared to the mean age of youth with ODD/AD. Specifically, youth with ODD alone

($M = 10.36$ years, $SD = 1.90$) were significantly older than youth with ODD/AD ($M =

9.38$ years, $SD = 1.64$) ($\chi^2 = 6.72$, p <.05). Participants ranged in age from 7 to 14 years.

Comorbid psychopathology of the sample is presented in Table 2. The top three

clinically significant diagnoses (all cases were inclusive of a diagnosis of ODD) were

used for determining comorbidity. Of the youth with comorbid ODD/AD ($n = 48$), the

most commonly occurring disorders were ADHD (n=25), specific phobia ($n = 19$), GAD

($n = 18$), social phobia ($n = 9$), SAD ($n = 7$), and obsessive compulsive disorder (OCD)

($n = 2$). Seven of the 48 youth with ODD/AD were diagnosed with at least two clinically

significant ADs.

In the group of ODD youth without an AD (n = 39), the most common co-occurring diagnoses were ADHD (n = 27), enuresis (n = 4), dysthymia (n = 3), major depressive disorder (n = 2), conduct disorder (n = 2), and reactive attachment disorder (n = 1). Note that the two individuals diagnosed with conduct disorder also met criteria for ODD. As both groups contained a large number of ADHD diagnoses, the prevalence of ADHD was also examined across the two groups. Presence of ADHD did not differ in youth with ODD alone as compared to youth with ODD/AD ($\chi^2 = 2.63$, p = .11).

For analyses of group differences, presence of ADHD and age were controlled for in all analyses. Similarly, for the moderator analyses, presence of ADHD and age were controlled for in the analyses, given the unclear nature of the role of ADHD in youth with comorbid ODD/AD in predicting CFR and impairment.

Procedure

Data were collected during two assessment sessions conducted at the Child Study Center, each lasting approximately two hours. During these sessions, children completed self-report questionnaires and a diagnostic interview while parents completed several questionnaires about themselves and their family and two structured diagnostic interviews regarding their child. During the assessment procedure, the family also completed a parent-child interaction task. Presence of ODD and other disorders were determined during a clinical consensus meeting, largely based on the parent and child diagnostic interviews. In addition, clinician severity rating of diagnoses and global impairment for each participant were obtained during the consensus procedure.

Similar to the previous research, CFR was operationalized in the current investigation by measures of parent psychopathology, parenting style, general family

functioning, and family socio-demographic factors. A total of 16 risk factors were examined. Each risk factor was coded as "absent" (score of 0) or "present" (score of 1). The CFR was comprised of maternal-, child-, and clinician- reported ratings of parent psychopathology, parenting practices, family environment, parent-child relations, and family sociodemographics. Teacher and paternal reports were not used in the current investigation, due to missing data for these informants that exceeded 15%.

Level of CFR was calculated via two approaches: the first was based on median split, and the second was based on one standard deviation above the mean. Each risk factor was coded as "absent" (score of 0) or "present" (score of 1). For continuous variables, higher levels of the subscales generally indicated higher levels of risk, with a few exceptions. These exceptions included relations with parents (subscale of the BASC) and cohesion (subscale of FES), which were reverse coded so that lower levels of these variables indicated greater risk. For categorical variables, single parent families were coded as "risk" for both the median-split and the standard deviation definition of CFR. For parent education, some college or less was considered "risk" for the median spilt conceptualization of CFR, and high school diploma or less was considered "risk" for the standard deviation interpretation of the CFR.

In either case, the total CFR was used as a continuous variable in the moderator analyses. If the score was not available for a given subscale of the index, the CFR was calculated with the available data (it was prorated in these instances). In other words, the total score was divided by the number of data points available for that participant.

<div align="center">Measures</div>

Diagnostic Measures

Anxiety Disorders Interview Schedule for *DSM-IV*, Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996). The ADIS-C/P versions are semi-structured interviews designed for the diagnosis of most psychiatric disorders seen in childhood and adolescence. During the interview, the clinician assessed symptoms and obtained frequency, intensity, and interference ratings (0–8 scale). These symptoms and ratings were used by the clinician to identify diagnostic criteria and to develop a clinician's severity rating (CSR). A CSR of 4 or above (0-8) indicates a diagnosable condition. It should be noted that the ADIS was used to assess for ODD and conduct disorder in the parent interview only.

The ADIS-C/P (for *DSM-IV*) has yielded acceptable to excellent 7 to 14-day test-retest reliability estimates regarding child (ages 7–16; $\kappa = .61–.80$) and parent ($\kappa = .65–1.00$) diagnoses (Silverman, Saavedra, & Pina, 2001). Inter-rater agreement analyses of earlier versions of the ADIS-C/P have shown some variability in video ($\kappa = .45–.82$; Rapee, Barrett, Dadds, & Evans, 1994) and live observer paradigms ($\kappa = .35–1.00$; Silverman & Nelles, 1998), but in general, acceptable interrater agreement has been established, again for all specific diagnoses assessed by the ADIS.

Trained graduate-student clinicians enrolled in an American Psychological Association-approved doctoral program in clinical psychology conducted the diagnostic interviews. In addition, all assessment interviews were taped, and all of the structured diagnostic interviews were reviewed to compute Kappa coefficients. For purposes of the current investigation, the full ADIS-C/P was administered.

Diagnostic Interview Schedule for Children, Version IV (DISC–IV). The DISC–IV is a comprehensive, structured diagnostic instrument that is based on the *Diagnostic*

and Statistical Manual–IV (*DSM–IV;* American Psychiatric Association, 2000). The interviewee provides yes/no answers to questions regarding symptoms of most psychological disorders observed in children and adolescents. Questions also explore how much the endorsed symptoms interfere in the child's life. Diagnoses are then derived from a structured algorithm that includes the symptom counts, interference levels, and other relevant *DSM–IV* criteria. The DISC–IV is one of the most extensively studied diagnostic interviews in child psychopathology research and is frequently used as a gold standard for providing concurrent validity to other diagnostic interviews (e.g., Dewey, Kaplan, Crawford, & Fisher, 2001). Moreover, the DISC–IV is often used to estimate the prevalence of childhood psychopathology (e.g., Roberts, Roberts, & Xing, 2007) and to screen or categorize child participants in both prevention and treatment studies (e.g., Dewey et al., 2001). Furthermore, the anxiety modules of the DISC–IV have some evidence of validity (Kasius, Ferdinand, van den Berg, & Verhulst, 1997) and have been shown to possess acceptable test-retest reliability (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). In addition, Friman and colleages (2000) provided external evidence of the validity of the ODD module of the DISC–IV. Indeed, the DISC–IV is the most commonly used diagnostic tool in studies of treatments for conduct disorder among children and adolescents (McMahon & Frick, 2008).

The parent version of the DISC–IV can be administered to parents of children between the ages of 6 and 17 years old. The DISC–IV provides a tally of endorsed symptoms, as well as frequency estimates as endorsed by the parents. In addition, the DISC–IV also includes items that ask parents to determine how much the child's symptoms interfere with family activities, friendships, and the child's academic

performance. Scoring the DISC–IV and assigning diagnoses are accomplished by following guidelines provided by the diagnostic algorithm, which incorporates the number of symptoms endorsed with the duration and frequency of the symptoms. In this investigation the DISC was administered via a clinician-interview with the parents. These findings were then used in conjunction with the findings from the ADIS interview, behavioral observation, and other reports during a clinical consensus meeting to arrive at clinical diagnoses for the children.

<u>Measures of Emotional and Behavioral Symptoms</u>

　　　　<u>Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992).</u> The BASC is a system of instruments that evaluates behaviors, thoughts, and emotions of children and adolescents. The measures vary between 100 and 160 items. Parent, teacher, and child reports were used for purposes of this study. Parent and Teacher ratings consist of the following 15 subscales: Adaptability, Aggression, Anxiety, Attention Problems, Atypicality, Conduct Problems, Depression, Functional Communication, Hyperactivity, Leadership, Learning problems, Social Skills, Somatization, Study Skills, and Withdrawal (a measure of social impairment). The child report consists of the following 17 subscales: Anxiety, Attention Problems, Attitude to School, Attitude to Teachers, Atypicality, Depression, Hyperactivity, Interpersonal Relations, Locus of Control, Relations with Parents, School Maladjustment, Self-Esteem, Self-Reliance, Sensation Seeking, Sense of Inadequacy, Social Stress, and Somatization. Average internal consistency for the Teacher Ratings Scales is .80, and median test-retest reliability is .91 (Kamphaus & Frick, 2005). The Parent Rating Scales also have good to excellent internal consistency (.70s–.90s; Kamphaus & Frick, 2005) and test-retest

reliability over a 2- to 8-week period (.74–.94; Reynolds & Kamphaus, 1992).   Research also provides evidence that the BASC demonstrates good convergent and DISC–IV discriminant validity (Merrell, Blade, Lund, & Kemp, 2003), as well as acceptable criterion validity (Reynolds & Kamphaus, 1992).

In the current investigation, the subscales were scored via a computer scoring system; thus, alpha coefficients could not be calculated for the current study. All subscales were examined for the phenomenological part of the current investigation. In addition, the Relations with Parents subscale was used to examine CFR. The maternal report of Withdrawal was used as a dependent variable for the moderator analyses.

Beck Youth Inventories of Emotional and Social Impairment (BYI; Beck, Beck, & Jolly, 2001). The Beck Youth Inventories (BYI) consists of five different scales designed to measure depression (Beck Depression Inventory for Youth: BDI-Y), anxiety (Beck Anxiety Inventory for Youth: BAI-Y), anger (Beck Anger Inventory for Youth: BANI-Y), disruptive behavior (Beck Disruptive Behaviors Inventory for Youth: BDBI-Y), and self-concept (Beck Self-Concept Inventory for Youth: BSCI-Y). The inventories can be used separately or in combination (Steer, Kumar, Beck, & Beck, 2005). The inventories were developed to be used with children ages 7 to 14. Each inventory has 20 items, is written at a 2nd grade reading level, and is designed to take approximately 10-15 minutes to administer. The answers are on a 4 point Likert scale of Never, Sometimes, Often, Always. The statements in the Anger Inventory reflect perceptions of mistreatment, negative thoughts about others, and physiological arousal. The statements in the Self-Concept Inventory reflect perceptions of self-competence, potency and positive self-worth (Steer, Kumar, Beck, & Beck, 2005). The statements in the

Depression Inventory and Anxiety Inventory reflect DSM-IV criteria for mood disorders and ADs respectively whereas statements for the Disruptive Behavior Inventory reflects criteria for conduct disorder and ODD (Steer, Kumar, Beck, & Beck, 2005).

The initial development of the scale involved administering the inventories to a community sample of 800 children from diverse areas around the United States. Four groups of approximately 100 children each were selected from the community sample for the validity studies. Cronbach's alpha for each of the five inventories indicated high internal consistency with alphas ranging from .87 to .91 for ages 7-10 and from .89 to .92 for ages 11-14. Test-retest reliability coefficients ranged from .74 to .90 for 7-10 year olds and .84 to .93 for 11-14 year olds (Beck, Beck & Jolly, 2001). Convergent validity of the BDI-Y was assessed with respect to the Children's Depression Inventory (CDI; Kovacs, 1992). Analyses showed high convergent validity with a high correlation between the two questionnaires (r = .72, p<.0001). Convergent validity of the BAI-Y was assessed with the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1997). Analyses showed high convergent validity with a high correlation between the two questionnaires (r = .70, p<.0001). The Piers-Harris Children's Self-Concept Scale (PHCSCS; Piers, 1996) was significantly correlated with the BSCI-Y (r = .61, p<.0001). Subscales from the Conners-Wells' Adolescent Self-Report Scale (CASS; Conners et al., 1997) were employed to assess concurrent validity with respect to the BDBI-Y, resulting in a significant correlation (r = .70, p<.0001). The CASS ADHD subscale and the Hyperactivity subscale were significantly correlated with the BANI-Y (r = .73, p<.0001 and r = .68, p<.0001, respectively), suggesting that the BANI-Y was also sensitive to externalizing disorders (Beck, Beck & Jolly, 2001). For the current

investigation, the internal consistencies of the BYI subscales were as follows: BSCI-Y = .92, BAI-Y = .92, BDI-Y = .94, BANI-Y = .94, and BDBD-Y = .85.

Disruptive Behavior Disorders Rating Scale (DBDRS; Barkley, 1997; Pelham, Gnagy, Greenslade, & Milich, 1992). The DBDRS is comprised of the *DSM-IV* symptom lists for ADHD (inattention and hyperactivity subscales), ODD, and CD and uses a 4-point response scale ranging from 0 (*not at all*) to 3 (*very much*). The DBDRS has been shown to have excellent psychometric properties (see Pelham et al., 1992, for normative data). This measure was administered to parents, children, and teachers.

For the current study, the reliabilities of the maternal report were as follows: inattention: .89, hyperactivity = .88, ODD = .70, CD = .62 and the reliabilities of the paternal report were: inattention: .90, hyperactivity = .89, ODD = .80, CD = .69. The reliabilities of the teacher report were as follows: inattention: .94, hyperactivity = .92, ODD = .89. Lastly, the reliabilities of the child report were: inattention: .84, hyperactivity = .77, and ODD = .76. These subscales were used to examine group differences in the current investigation. In addition, the ODD symptom subscale (maternal report) was used as a dependant variable in the moderator analyses.

Measures of Parenting/Family Environment

Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996). The APQ is a 42-item measure of parenting practices using a 5-point scale (1 = never to 5 = always). Subscales include: Positive Parenting (6 items), Involvement, (10 items), Poor Monitoring/Supervision (10 items), Inconsistent Discipline (6 items), and Corporal Punishment (3 items). Shelton et al. (1996) reported acceptable internal consistency (.63 – .80) and convergent validity across interview and rating methods. The discriminative

validity of the scale was established as children with disruptive behavior disorders elevated ratings had higher ratings on the negative parenting scales in comparison to normal children (Shelton et al., 1996).

The Poor Monitoring/Supervision subscale (10 items) for mother and father reports was used in the current investigation. For maternal reports, the internal consistency of the poor monitoring scale was .72. For paternal reports, the internal consistency of the Poor Monitoring subscale was .64.

In the current investigation, poor monitoring was used to examine group differences in youth with ODD alone versus youth with ODD/AD. In addition, this subscale was used to compute CFR. Median splits and 1 standard deviation above the mean were used to indicate presence of risk (see above).

Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). The BSI is used to identify self-reported clinically relevant psychological symptoms in adolescents and adults. The BSI consists of 53 items covering nine symptom dimensions: Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic anxiety, Paranoid ideation and Psychoticism; as well as three global indices of distress: Global Severity Index, Positive Symptom Distress Index, and Positive Symptom Total. The global indices measure current or past level of symptomatology, intensity investigation examined presence of anxiety (e.g., anxiety subscales), depression, hostility, and psychotic features (e.g., paranoid ideation and psychoticism subscales). Both test-retest and internal consistency reliabilities were high (Boulet & Boss, 1991). Additionally, there was high convergence between BSI scales and the MMPI, which provided good evidence of convergent validity.   For the current study, the reliabilities of

the maternal scales were as follows: total measure = .94, somatization = .80, obsessive-compulsive = .84, interpersonal sensitivity = .83, depression = .83, anxiety = .76, hostility = .67, paranoid ideation = .74, psychoticism =.64. The reliabilities of the paternal scales were: total measure = .93, somatization = .71, obsessive-compulsive = .80, interpersonal sensitivity = .76, depression = .79, anxiety = .61, hostility = .73, paranoid ideation = .68, psychoticism =.65.

Family Environment Scale (FES; Moos & Moos, 1981). The FES is a 90-item, true/false, self-report measure that assesses various characteristics of family relationships. The current investigation used a brief version of this measure (e.g., the relationship dimension), which contained 27 items. This abbreviated measure contained 3 subscales (9 items each) that assessed Cohesion, Expressiveness, and Conflict. The reliability and validity of the FES have been well-established (Moos & Moos, 1981). Internal consistency reliability estimates for the FES subscales ranged from .61 to .78. Test-retest reliabilities for the subscales for 2-month, 3-month, and 12-month intervals ranged from .52 to .91 suggesting that the scale is reasonably stable across time.

The subscales of cohesion and conflict were used to examine group differences and as indices of CFR in the current investigation. The internal consistencies were as follows for the maternal report: cohesion = .81, and conflict =.66. For the paternal report, the reliabilities are: cohesion = .73, and conflict = .75.

Parenting Stress Index Short Form (PSI; Abidin & Brunner, 1995). The PSI-SF is a 36-item questionnaire that assesses parenting stress. The items are rated on a 5-point scale ranging from "strongly agree" to "strongly disagree." The PSI consists of four subscales: parental distress (12 items), difficult child (12 items), and parent-child (PC)

dysfunctional interactions (12 items), as well as a defensive responding subscale that consists of 7 items drawn from the parental distress subscale. The defensive responding subscale assesses parental bias in reporting by quantifying the desire of parents to present a favorable impression of themselves and minimize problems in the parent child relationship. The parental distress subscale focuses on the distress parents experience in their role as a parent as a function of personal factors that are directly related to parenting. The difficult child subscale focuses on children's temperamental and behavioral characteristics that make him/her easy or difficult to manage. The parent-child dysfunctional interaction subscale focuses on parent's perceptions of the emotional quality of their relationship with their children. Specifically, the subscale measures whether children meet the expectations of their parents and if the interactions between parents and their children are reinforcing. Test-retest and internal consistency studies have yielded good reliability estimates (6 month test-retest reliability = .70 to .80; Cronbach's alpha = .80) (Abidin, 1995). This measure was used to examine group differences. In the current investigation, the subscales were scored via a computer scoring system; thus, alpha coefficients could not be calculated for the current study. All subscales were examined for the phenomenological part of the current investigation. In addition, the parent-child dysfunction subscale was used in the CFR index.

     <u>Tangram (Hudson & Rapee, 2002).</u> The Tangram task is a parent-child interaction task that assesses two main factors: involvement and negativity. The items are rated on a 9- point scale. In this task, the youth was instructed to complete Tangram puzzles on his/her own while parents are provided with an answer key and instructed to help the child as much as he/she feels the child needs. The involvement factor consists of

the following subscales: general degree of parental involvement, the degree of unsolicited

help, the degree to which the parent physically touches the Tangram, the parent's posture,

and the parent's focus during the interaction. The negativity factor consists of an average

of the following subscales: child affect, child tension, child response to parent, parent

affect, parent criticism, and parent response to child. Inter-rater reliability for the

Involvement factor was acceptable in a randomly selected subset (n =22) of the

participants, $ICC(2,1)=0.80$, $p<0.001$, while reliability for the Negative factor was

adequate, $ICC(2,1)=0.69$, $p<0.001$. This measure was used to examine group differences

and the two factors were used to as part of the CFR index. Notably, inclusion of this

measure extends beyond previous conceptualization of CFR, as this measure is a

behavior observation measure, rather than a self-report or clinician-determined measure.

Family Socio-Demographic Risk Factors: Information on family

sociodemographic risk factors were obtained from participants. Parents were asked to

report their marital status, level of education (for mother and father), income and number

of children residing in the household. For continuous variables, median splits and

standard deviations of the mean were used to determine risk. For categorical variables,

single parents were considered risk factors across both the standard deviation and

median-spilt conceptualization of CFR. For parental education, college or less was

considered risk for the median spilt conceptualization of CFR, whereas highschool

education or less was considered risk for the standard deviation conceptualization of

CFR. Thus, the range of family sociodemographic risk variables ranged from 0 to 5.

Measures of Global Functioning

Clinical Global Impression (CGI; Guy, 1976). The CGI was completed by the parent and child clinicians separately during the assessment procedure. The CGI includes, on a 7-point Likert scale (where a higher score indicates greater impairment of functioning), a rating of the current severity of the child's symptoms. Reliabilities were not calculated for the CGI, although the measure was moderately negatively correlated with CGAS scores (see below) in the current investigation (i.e., -.26 with child clinician CGI, -.39 with parent clinician CGI). Note that a lower CGAS score indicates greater impairment of functioning. This measure was used as a dependent variable in the current investigation.

Children's Global Assessment Scale (CGAS; Green, Shirk, Hanze, & Wanstrath, 1994; CGAS; Shaffer et al., 1983). The CGAS is a 100-point rating scale measuring psychological, social, and school functioning in children ages 6 – 17. This measure was adapted from the Adult Global Assessment Scale and has been found to be a reliable and valid tool in rating a child's general functioning on a health-illness continuum. This measure was used as a dependent variable in assessing group differences in functioning of youth with ODD alone versus youth with ODD/AD. Reliabilities were not calculated for this measure (see above regarding correlations to the CGI).

<div style="text-align:center">Analytic Plan</div>

Data were initially screened for outliers with z-scores greater than 3. These variables were then converted by substituting the highest score below 3 standard deviations and adding 1 unit to the value as recommended by Field (2005). Visual inspection of the data, and measures of skewness (+/-.50 or less) indicated that data were nearly normally distributed (Lehman, 1994).

Then, analyses of covariance (with age and presence of ADHD as covariates) were conducted to examine differences in youth with ODD alone versus youth with ODD/AD. One-way analyses of covariance were conducted on the family, emotional, and behavioral variables to compare ODD alone and ODD/AD groups. Regarding missing data, in those cases where 85% or more of the data were available, mean replacement was undertaken for analyses. In these cases, ANCOVAs were re-run without mean replacement, and there were no differences in the findings.

Next, hierarchical multiple regression (Holmbeck, 1997) were conducted for measures of global functioning, ODD symptom severity, and social withdrawal. The main effect of group type (ODD/AD versus ODD alone) was tested in the first block. In addition, age and presence of ADHD were controlled for in the first block. Then, the main effects for CFR (median split and standard deviation approaches in separate models) were tested in the second block, and the interaction term was tested in the third block. Thus, it was expected that high levels of CFR would moderate the relationship between youth with ODD/AD and global functioning, symptom severity, and social withdrawl. Specifically, youth who have comorbid ODD/AD and high levels of CFR were hypothesized to experience greater impairment of global functioning, greater severity of ODD symptoms, and greater social withdrawal.

Post-hoc probing guidelines were used to explore moderation effects (Aiken & West, 1991; Holmbeck, 2002). Significant interactions found in the full model were run again in a reduced model, which included only the main effect variables and the interaction terms. Simple slopes were then calculated for conditional moderators by manipulating the zero-point of the variables (see Holmbeck, 2002). These slopes were

then evaluated to see whether they were significantly different from zero. Only slopes

that were significantly different from zero were reported. All analyses in the study were

two-tailed and statistical significance was defined at the .05 level.

<div align="center">Results</div>

<u>Measures of Emotional and Behavioral Symptoms</u>

   <u>Behavior Assessment of System for Children (BASC).</u> Table 3 presents maternal

reported BASC scores and group differences when controlling for age and ADHD. Both

the ODD alone group and the ODD/AD group had high levels of externalizing problems

($>90^{th}$ percentile), moderate levels of internalizing symptoms ($>65^{th}$ percentile) and low

levels of adaptive functioning (e.g., adaptive skills, social skills $= <40^{th}$ percentile).

Presence of maternal reported anxiety symptoms was average for youth with ODD alone

(51st percentile) and elevated for youth with ODD/AD (62nd percentile), and this finding

was statistically significant, $F (1, 84) = 4.01$, $p < 0.05$, partial eta squared = .05,

consistent with study hypotheses. There were no other significant differences in maternal

reported BASC scores.

   ANCOVA results for child- reported BASC scores are reported in Table 4. In

both groups, youth reported average levels of emotional, behavioral, and social

functioning (approximately 50th percentile) and higher levels of school problems and

attention problems ($>60^{th}$ percentile). Youth with ODD/AD reported higher levels of

hyperactivity (65th percentile) than youth with ODD alone (58th percentile), which was

statistically significant after controlling for presence of age and ADHD, $F (1, 84) = 4.01$,

$p < 0.05$, partial eta squared = .05. There were no other significant differences across the

ODD alone group and the ODD/AD group.

ANCOVA results for paternal reported BASC scores are presented in Table 5. Overall, fathers endorsed high levels of externalizing problems (>85th percentile) and low adaptive functioning (<40th percentile) across the two groups. Consistent with study hypotheses, fathers reported higher levels of internalizing problems for youth with ODD/AD, $F(1, 65) = 6.70$, $p < .05$, partial eta squared = .09, though it should be noted that Levene's Test of Equality of Error Variances was significant, $F(1, 67) = 4.77$, $p < .05$), which signifies unequal error variances across groups and violates statistical assumption of homogeneity of variances. As a result, these findings should be interpreted cautiously. Fathers also reported significantly higher levels of depressive symptoms in youth with ODD/AD as compared to ODD alone, $F(1, 66) = 5.77$, $p < .05$, partial eta squared = .08. Finally, fathers reported less leadership on the Leadership scale in youth with ODD/AD as compared to youth with ODD only $F(1, 66) = 6.72$, $p < .05$, partial eta squared = .09, which is consistent with study hypotheses pertaining to social impairment. However, both groups had relatively low levels of leadership (e.g., 22nd percentile and 30th percentile, respectively).

ANCOVA results for teacher-reported BASC scores are presented in Table 6. Overall, teachers reported higher levels of externalizing problems, academic difficulties, and social impairment in youth with ODD alone as compared to youth with ODD/AD. Teachers also reported higher levels of internalizing symptoms in youth with ODD/AD as compared to youth with ODD alone, consistent with study hypotheses, $F(1,50) = 5.24$, $p < .05$, partial eta = .10. In terms of externalizing symptoms, teachers reported higher levels of hyperactivity, conduct problems, and attention problems in youth with ODD alone as compared to youth with ODD/AD, even when controlling for ADHD, consistent

with study hypotheses. The results were as follows: externalizing problems, $F(1,51) =$ 4.70, $p < .05$, partial eta squared = .08, hyperactivity, $F(1, 51) = 8.50$, $p < .01$, partial eta squared = .14, conduct problems, $F(1, 51) = 5.86$, $p < .05$, partial eta squared = .10, and attention problems $F(1,51) = 7.39$, $p < .01$, partial eta squared = .13. As a caveat, it should be noted the externalizing problems ($F(1, 53) = 4.63$, $p < .05$) and attention problems ($F(1, 53) = 5.84$, $p < .05$) models had unequal variances.

Teachers also reported greater school problems, lower social skills, and fewer study skills in youth with ODD alone as compared to youth with ODD/AD. Specifically, these findings were statistically significant for school problems, $F(1, 51) = 5.93$, $p < .05$, partial eta squared .10, study skills $F(1, 51) = 7.18$, $p = .01$, partial eta squared = .12, and social skills $F(1, 51) = 4.50$ $p < .05$, partial eta squared = .08.

Beck Youth Inventory (BYI). Table 7 presents ANCOVA results for youth-reported BYI scores, a measure of self concept, anxiety, depression, anger, and disruptive behavior disorder symptoms. Across both groups, youth reported average levels of self concept, anxiety, depression, anger, and disruptive behavior symptoms. As expected, youth with ODD/AD reported significantly higher anxiety symptoms than youth with ODD alone, $F(1, 84) = 7.94$, $p < .01$, partial eta squared = .09, though anxiety scores for both the youth with ODD alone and youth with ODD/AD fell within the average range (e.g., T- scores = 43.04 and 48.22, respectively). No other differences were noted.

Disruptive Behavior Disorders Rating Scale (DBDRS). Table 8 reports ANCOVA findings for child, mother, father, and teacher reports of disruptive behavior disorder symptoms, including inattention, hyperactive symptoms, ODD symptoms, and conduct disorder symptoms (for parent reports only). While youth reported lower levels

of these symptoms across the groups, parents and teachers reported moderate to high

levels of these externalizing symptoms. There were no significant differences in these

samples in mother or child reports. However, in paternal reports, there were significantly

more symptoms of conduct disorder in youth with ODD alone as compared with youth

with ODD/AD, consistent with study hypotheses, $F(1, 63) = 4.32$, $p < .05$, partial eta

squared = .06. However, it should be noted that the variances of parental reported

conduct disorder symptoms were unequal across group, $F(1, 65) = 5.30$, $p < .05$

Measures of Parenting/Family Environment

Alabama Parenting Questionnaire (APQ). Table 9 presents ANCOVA results

based on maternal and paternal reports of the poor monitoring subscale of the APQ.

After adjusting for age and presence of ADHD, there were no significant differences in

poor monitoring across the ODD alone group and the ODD/AD group. Both mothers and

fathers reported higher than average levels of poor monitoring (Dadds, Maugen, &

Fraser).

Brief Symptom Inventory (BSI). Group differences in parent psychopathology

are reported in Table 10. Mothers of youth with ODD alone and fathers of youth in both

groups reported average to high average levels of psychopathology. Interestingly,

mothers of youth with ODD/AD reported significantly higher levels of global

psychopathology (T score = 58.77) and positive symptoms (T score = 57.00), in addition

to higher levels of OCD (T score = 63.84), interpersonal sensitivity (T score = 54.14),

and anxiety (T score = 54.56). There were no significant differences across the groups in

paternal reports of psychopathology.

Family Environment Scale (FES). The ANCOVA results for mother- and father-reported FES are presented in Table 11 and indicate moderate levels of cohesion and conflict. There were no significant differences across groups.

Parenting Stress Index (PSI). Differences in parent reported stress (e.g., total stress, parent distress, parent-child dysfunction, difficult child) across the ODD alone group and ODD/AD group are presented in Table 12. Mother and father reports were obtained. Both reported average levels of parental distress and high levels of total stress, parent-child dysfunction, as well as high difficult child ratings. Mothers reported significantly higher levels of parent-child dysfunction in youth with comorbid ODD/AD (85.74th percentile) as compared with youth with ODD alone (74.69th percentile), F (1, 83) = 4.08, $p < .05$, partial eta squared = .05.

Tangram. Table 13 presents ANCOVA results based on clinician-rated Tangram scores. The Tangram had several subscales that comprised negativity (parent and child) and over-involvement (parent) dimensions. After adjusting for age and ADHD, there were no significant differences in Tangram scores for the ODD alone group and the ODD/AD group. On the whole, both groups evidenced moderate levels of parent-child negativity and parental over-involvement.

Measures of Impairment.

Finally, group differences were examined for global, symptom, social, and family impairment in Table 14. Both groups were categorized by variable global functioning. In addition, moderate levels of interpersonal risk, family risk, and ODD symptom impairment were noted across the two groups. There were no significant differences

among these variables in youth with ODD alone or ODD/AD when controlling for age

and presence of ADHD.

Hierarchical Multiple Regression Analyses

Defining CFR. Table 15 provides the 16 subscales that comprised the CFR

variable. In the current sample, the scores for CFR based on median spilt were divided

by the number of available data points, and ranged from 0% to 87%. The mean

percentage of risk factors was 50.0% (standard deviation = 17.5%). The 5% trimmed

mean = 50.4%, indicating lack of extreme values. Upon visual inspection, the data

appeared relatively normally distributed and the skewness = -0.24, indicating normal

skew (Lehman, 1994).

For the standard deviation definition of the CFR, the percentages ranged from 0%

to 75%. The average percent of risk factors was 19.9% (standard deviation = 14.4%),

and the 5% trimmed mean was approximately congruent (18.9%), indicating lack of

extreme values. Visual inspection of the data appeared positively skewed. In addition,

the measures of skewness = 1.08, indicated some skew (Lehman, 1994).

Correlations. First, bivariate correlations were computed among study variables

of interest (see Table 16). Presence of AD was negatively associated with age of youth in

the sample. That is, youth with an AD were likely to be younger compared to youth

without an AD. Age was positively correlated with parent report of internalizing

problems such that older youth were more likely to have higher levels of parent-reported

internalizing problems. As expected, ODD symptoms via clinician report and maternal

report were moderately correlated. Similarly, maternal- reported youth withdrawal was

moderately correlated to parental interview of youth interpersonal problems. Presence of

ADHD was associated with lower global functioning and greater severity of ODD symptoms. Higher levels of CFR were associated with lower global functioning (consensus and parent clinician rating) and greater severity of ODD symptoms via clinician report and maternal report (statistically significant for CFR index based on median split). Higher global functioning via CGAS was significantly related to lower levels of clinical impressions of impairment (CGI) via parent and child clinician reports and less severe ODD symptoms. Lower CGAS scores were significantly associated with higher parent- and child- reported levels of interpersonal risk. Greater severity of ODD symptoms (clinician report) was significantly associated with lower levels of parent clinician- reported global functioning and higher levels of child- reported internalizing problems.

Moderation Analyses. Hierarchical multiple regression analyses were conducted to test the moderation hypotheses. In order to examine the relationships among comorbidity, CFR, and the various outcome variables (e.g., global functioning, ODD symptoms, social withdrawal), hierarchical multiple regressions were conducted separately for each outcome variable. Please see Tables 17-22 for additional details. These analyses controlled for age and presence of ADHD in the first block, main effects for presence of AD in the second block, main effects for CFR in the third block, and the interaction term between presence of AD and CFR in the fourth block. As suggested by Holmbeck (1997), a moderator variable was considered significant if the interaction of AD and the CFR variable was a significant predictor of the dependent variable, when the main effects had been controlled.

Main effects on CGAS. In the prediction of CGAS, the same sequence of variables was used for the regression analyses (see Table 17). Specifically, there were no significant main effects for age or the presence of AD on the CGAS score. There were, however, significant main effects for presence of ADHD and CFR on the CGAS score. Specifically, presence of ADHD and higher levels of CFR had a positive main effect on CGAS score. These relationships were consistent across both measurements of CFR (e.g., median split, 1 standard deviation above the mean).

Interaction effects on CGAS. In order to examine the interactive effects of predictors, the interaction terms were tested (see Table 17). The findings yielded no statistically significant interaction effects on CGAS scores.

Main Effects on CGI. In the prediction of CGI, the same sequence of variables was used for the regression analyses (see Table 18). There were no significant main effects on presence of AD in clinician reports of CGI based on parent or child assessment data. In fact, there were no significant main effects for any of the study variables of interest on child clinician report of CGI (e.g., age, AD, ADHD, CFR). On the other hand, there were significant main effects for presence of ADHD and CFR (median split) on parent clinician report of CGI. Specifically, presence of ADHD and higher levels of CFR were associated with greater levels of the global impairment via the parent clinician. Although the effect of CFR by standard deviation was not statistically significant, the results approached significance.

Interaction Effects on CGI. In order to examine the interactive effects of predictors, interaction terms were tested. There was a significant interaction between presence of AD and CFR (both median split and standard deviation) in relation to parent

clinician report of CGI (See Table 18). These interaction effects were confirmed in a

reduced model (only CFR and the interaction predicting CGI).

Post-hoc Probing of CGI. Post-hoc probing were undertaken to understand the

nature of interaction effects CGI. Specifically, interaction terms were significant in block

four for the interaction between presence of AD and CFR, which was significantly

associated with parent CGI. Figures 1 and 2 present this interaction. In both cases, post-

hoc probing revealed CFR does not impact parent clinician CGI scores in youth with

ODD alone. On the other hand, when youth had co-occurring AD, lower CFR predicts

lower CGI scores. In other words, for youth with low levels of CFR, global impressions

are higher for youth with ODD/AD profiles. This model is significant for the standard

deviation interpretation of CFR (figure 2) and approaches statistical significant in the

median spilt interpretation of CFR (figure 1).

Main Effects on ODD Symptoms. Table 19 reports main effects and interaction

effects on clinician- and maternal- rated ODD symptom impairment. There was a

significant main effect of CFR (median split) on both maternal reported ODD symptoms

and clinician reported ODD symptom severity. This relationship was not statistically

significant for the standard deviation definition CFR, though the relationship between

CFR (SD) and CSR were in the expected direction. There were no other significant main

effects.

Interaction effects on ODD symptoms. In order to examine the interactive effects

of predictors, the interaction terms were tested in Table 19. The findings yielded no

statistically significant interaction effects on clinician- or maternal- reported ODD

symptoms.

Main effects on interpersonal problems. Main effects for parent- and child-reported interpersonal problems are reported in Table 20. There was a main effect of age on parent reports of interpersonal problems in youth. Specifically, older youth were more likely to have interpersonal problems according to parent reports. There was also a main effect of CFR (SD) on child report of interpersonal problems. There were no other significant main effects.

Interactive effects on interpersonal problems. The interaction term of AD and CFR was tested in models predicting parent and child reports of interpersonal problems (see Table 20). The findings yielded no statistically significant interaction effects on interpersonal problems.

Main effects on withdrawal. Main effects for maternal- reported withdrawal are reported in Table 21. There were no significant main effects of the study variables on withdrawal.

Interactive effects on withdrawal. The interaction term of AD and CFR was tested in models predicting maternal reported withdrawal (see Table 21). The findings yielded no statistically significant interaction effects on withdrawal.

Discussion

The purpose of the current study was two-fold. The first was to conduct a phenomenological investigation of clinic-referred youth with ODD/AD in comparison to youth with ODD only. Although examination of group differences was largely exploratory, several specific hypotheses were examined. It was hypothesized that (1)

youth with ODD alone would have higher levels of conduct problems and aggression as compared to youth with ODD/AD; (2) youth with ODD/AD would have higher levels of internalizing symptoms and anxiety symptoms; (3) social withdrawal would be greater in youth with comorbid ODD/AD compared to youth with ODD alone; and (4) the combined ODD/AD group would have higher levels of family risk factors (e.g., sociodemographic factors, parent psychopathology, parenting style, general family environment) as compared to the ODD alone group. Overall, there was mixed support for these study hypotheses. The second purpose of this investigation was to test the role of CFR in predicting impairment (global, social, and ODD symptom) in youth with comorbid ODD/AD. It was predicted that the association between youth with ODD/AD and impairment would be most evident when high levels of CFR were present, when controlling for ADHD. With one exception, these hypotheses were not supported.

There was mixed support for the first study hypothesis. For example, there were significantly more symptoms of conduct disorder in youth with ODD alone as compared with youth with ODD/AD in paternal reports (DBDRS). Similarly, teachers reported higher levels of conduct problems in youth with ODD alone as compared to youth with ODD/AD (BASC). Relatedly, teachers reported higher levels of externalizing problems, hyperactivity/attention problems (when controlling for ADHD), school problems, lower social skills, and fewer study skills in youth with ODD alone as compared to youth with ODD/AD. These findings build upon prior studies that link symptoms of oppositionality and conduct problems to presence of ODD (Achenbach, 1991b; March et al., 1997; Ollendick, 1983) and build upon findings that suggest ODD symptoms may be more pronounced in youth with ODD alone as compared to youth with ODD/AD, given

potentially mitigating effects of AD on conduct-related symptoms (Walker et al., 1991).

Thus, the current investigation provides some evidence for higher levels of conduct

problems in youth with ODD alone. In addition, it appears teachers may view youth with

ODD alone as generally more impaired in functioning (e.g., greater externalizing

symptoms, greater social impairment, greater school problems) than youth with

ODD/AD, although these findings were not a part of the original study hypotheses.

On the other hand, there were no significant differences between youth with ODD

alone and youth with comorbid ODD/AD in reports of ODD symptoms and conduct

disorder symptoms via mother, teacher, and child reports (DBDRS). Similarly, there

were no significant differences of child reports of anger, disruptive behavior disorder

symptoms (BYI) or conduct problems and aggression (BASC). Interestingly, youth with

co-occurring AD viewed themselves as more hyperactive than youth with ODD alone

(BASC).

Similarly, the results mostly supported the second study hypothesis. Mothers

reported higher levels of anxiety symptoms in youth with ODD/AD group (BASC).

Similarly, youth with ODD/AD reported significantly higher anxiety symptoms than

youth with ODD alone (BYI) although differences in anxiety symptoms were not evident

in another child report of anxiety symptoms (e.g., BASC). Paternal reports of

internalizing/depressive symptoms via the BASC were stronger for ODD/AD groups,

yielding some support for the study hypotheses. In addition, although paternal reports of

anxiety symptoms were not significantly different between the groups, the relationship

between anxiety symptoms and youth with ODD/AD were in the expected direction.

Similarly, teacher reports of internalizing problems were more pronounced for youth with

ODD/AD (BASC). These findings support and build upon prior investigations, which suggest presence of ADs map onto measures of anxiety and internalizing symptoms (Achenbach, 1991b; Seligman et al., 2004). Additionally, these results build upon the findings of Franco and colleagues (2006), which indicated higher levels of internalizing/anxiety symptoms in youth with externalizing disorders/ADs compared to youth with ADs alone. Based on the current investigation, there is some support that broad internalizing symptoms and specific anxiety symptoms are more convergent in youth with ODD/AD as compared to youth with ODD alone.

It is interesting that mother and child reports linked anxiety symptoms to youth with ODD/AD whereas teacher and paternal reports linked broader internalizing symptoms to youth with comorbid ODD/AD. These findings may be due to mothers in our sample serving as primary caregivers, and thus, they may have been more attuned to anxiety symptoms as compared to a secondary caregiver (father) or a teacher. Teachers and secondary caregivers may be less attuned to the specificity of the internalizing symptoms these youth experience.

The results were not supported for the third study hypothesis. There were no significant differences in interpersonal functioning via clinical interview or maternal report of withdrawal between the two groups. Similarly, there were no significant differences across the two groups on measures of social functioning via parent and child measures (social skills and social stress subscales of the BASC). In contrast to the study hypotheses, teachers reported lower levels of social skills for youth with ODD alone, as compared to youth with ODD/AD. These findings contradict the prior findings of Benoit and colleagues, which suggest greater levels of social impairment in youth with

ADs/externalizing disorders as compared to youth with externalizing disorders alone. The reasoning for the difference in the current study to the prior investigation may be because youth in our sample (with ODD/AD) may differ in presentation of social impairment as compared to youth with externalizing disorders/AD (Benoit study sample). This may be due to the specific diagnostic criterion of ODD which requires social impairment. Thus, it may be difficult to parse out differences in social impairment in youth with ODD/AD versus youth with ODD alone.

The fourth study hypothesis was mostly unsupported, with the exception of maternal reported parent-child dysfunction and maternal psychopathology. Poor monitoring yielded no significant differences across groups. Similarly, clinician observation measures of family negativity and parent over-involvement did not significantly differ across groups, in contrast to findings of prior investigations that suggested less parent involvement and increased parent criticism are related to both internalizing and externalizing symptoms in youth (Roelofs, 2006; Yahav, 2006). In addition, parent reports of family environment (cohesion, conflict) did not significantly differ across groups, in contrast to findings by Lansford and colleagues (2002, 2005), which suggested higher levels of family conflict in youth with internalizing/externalizing behaviors. Mothers, however, did report higher levels of parent-child dysfunction in youth with comorbid ODD/AD. Thus, this finding supports study hypotheses.

Interestingly, mothers of youth with ODD/AD also reported significantly higher levels of broad psychopathology, OCD, and interpersonal sensitivity as compared to mothers of youth with ODD alone. These patterns were not observed in paternal reports. However, the relationship between maternal psychopathology and youth with comorbid

ODD/AD support and build upon a prior investigation which suggests higher levels of parent psychopathology are present in youth with comorbid externalizing disorders/ADs as compared to other groups (Franco et al., 2006). Thus, the current study findings suggest that youth with ODD/AD may have parents who are more emotionally dysregulated than youth with of parents with ODD alone. Given that youth with ODD/AD have both internalizing and externalizing psychopathology, these findings may reflect presence of emotional dysregulation in both parents and youth with ODD/AD profiles. Alternatively, parents with higher levels of psychopathology may perceive more strained relationships in youth with comorbid conditions, as the comorbidity may pose an added stressor to the family system.

Interestingly, while mothers reported higher levels of psychopathology and more problematic relationships with youth with ODD/AD as compared to youth with ODD alone, teachers reported more impairment (e.g., lower social skills, lower study skills, school problems) in youth with ODD alone as compared to youth with ODD/AD. These findings suggest that youth with ODD alone may appear more impaired in school functioning than in youth with ODD/AD. One potential explanation for this finding is that youth with comorbid ADs might be characterized by increased sensitivity to social reward/punishment, in line with theoretical evidence (Frick, 1998) and psychophysiogical research (Mezzacappa et al., 1997). Given that school settings are a social setting, and thus, a social reinforcer, it may be that ODD youth with ADs have increased behavioral restraint as compared to youth with ODD alone. Youth with ODD/AD may be influenced by negative reinforcement, and the presence of AD in these youth may indicate a fear of avoiding failure. Thus, youth with ODD/AD may be more likely to

control acting out behaviors, display appropriate social behaviors with teachers and peers as compared to youth with ODD alone.

The second part of this study examined the role of CFR in predicting impairment (e.g., global, social, ODD specific) in youth with ODD/AD as compared to youth with ODD alone. It was predicted that the association between ODD/AD and impairment would be most evident when high CRF is present. Generally, these hypotheses were not supported.

Interestingly, the main effects for several of these models suggested that presence of ADHD, and not AD, had a significant impact in predicting impairment. For example, presence of AD did not predict impairment in any of the models. On the other hand, ADHD predicted greater impairment of functioning (via consensus and parent clinician report). Similarly, CFR was also a significant predictor of global functioning (both consensus and clinician reports), severity of ODD symptoms (via consensus and clinician report), and youth report of interpersonal problems. Age was not a significant predictor of impairment, with the exception of parents reporting higher levels of interpersonal problems in older aged youth. Thus, based on these findings, presence of ADHD and CFR predict global impairment and severity of ODD symptoms, but may not generally predict social withdrawal.

The findings pertaining to CFR are congruent to the findings of Gerard and Buehler (2004a, 2004b), Forehand et al., (1998), and Sameroff et al., (1998), which suggest that CFR translates to greater impairment and poorer outcomes. The finding that ADHD may be a significant predictor of impairment in youth with ODD/AD may support assertions of Angold and colleagues (1999), who suggested that comorbidity of ODD and

AD is epiphenomenal, and perhaps better accounted for by a "true" relationship between ODD and presence of ADHD. In addition, this finding is supported by Lynam (1996, 1998) who proposed that comorbid ADHD symptoms predict greater levels of impairment in youth with conduct problems.

Although interaction effects between AD and CFR were mostly unsupported in predicting impairment, the interaction term was statistically significant for one dependent variable. Specifically, the interaction of AD and CFR (both median split and standard deviation conceptualization) predicted global impairment (via parent clinician report). Interestingly, the post-hoc probing indicated that lower levels of parent clinician reported impairment were evident in youth with ODD/AD in the context of lower levels of CFR. Although the beta term for higher levels of CFR was not significant in post-hoc probing, this finding is generally congruent to the study hypotheses that CFR levels may predict the context under which youth with ODD/AD profiles experience impairment.

There are several possible explanations why AD and CFR may interact to predict levels of global impairment in youth with ODD. First, the impact of CFR on global functioning appears to impact youth with a broad array of psychological conditions and medical conditions (Sameroff et al., 1998). In youth with ODD/AD and low levels of CFR, less family stressors may be evident, which may predict less impairment in functioning. Conversely, in youth with ODD/AD and high levels of CFR, CFR and AD may interact to exacerbate impairment in functioning. For example, youth with ODD/AD and high levels of CFR may have a number of life circumstances that trigger recurrent stress/anxiety. Namely, family economic difficulties, poor parent-child relations, and

high levels of family conflict may exacerbate symptoms of anxiety, which in turn may lead to pronounced impairment in broader functioning.

Overall, the findings indicate that ADHD and CFR may be robust predictors of impairment in youth with ODD. On the other hand, presence of AD in youth with ODD may not predict impairment. However, the interaction of CFR and AD may predict global impairment, in that youth with ODD/AD and lower levels of CFR will have lower levels of impairment than youth with greater levels of CFR, although it should be noted there is limited support for this effect in the current study

One of the broader research questions of the current investigation was to examine the role of AD in predicting impairment in youth with ODD. Based on these findings, presence of AD in youth with ODD does not appear to predict impairment level. In some cases (teacher report), the presence of AD may buffer youth from academic impairment. On the other hand, youth with ODD/AD may have higher levels of specific forms of family impairment, manifested in poorer parent-child relations and in mothers who have more psychopathology (particularly internalizing symptoms) than youth with ODD alone. It appears that presence of ADHD and CFR in youth with ODD directly predict impairment, and are important factors to take into account in predicting functioning in clinical samples of youth with ODD/AD or ODD alone.

It may also be informative to consider why certain study hypotheses were not supported. For example, in the phenomenology investigation, some measures of child- and parent- reports of child anxiety did not differ for the two groups. This may be because the youth that comprised the ODD/AD category presented with clinically distinct ADs ranging from GAD to SAD to specific phobia (for a diagnostic breakdown, see

Table 2). Given the differences across these disorders, it is plausible that broad measures of anxiety may not map onto a group of youth with such variable AD profiles. Future research would benefit by grouping youth with ODD based on their specific AD, and not grouping all ADs together. However, given the current study sample size limitations, as well as sample size limitations of previous samples (e.g. Franco et al., 2006), such analyses have generally not been undertaken to date.

Similarly, some of the measures of conduct disorder symptoms and aggression did not significantly map onto the ODD alone group. This may be due to the overlap of conduct disorder symptoms, aggression, and ODD itself (with or without AD). In fact, such differences may not be evident across these groups.

In addition, a number of family risk variables did not significantly differ across groups. Indeed, perhaps youth with ODD alone and youth with ODD/AD may present with similar family risk factors that vary in similar amounts. Interestingly, it seems that high levels of CFR predict impairment levels in youth with both ODD/AD and ODD alone. Thus, both individual family risk factor and CFR are likely broad predictors of youth impairment.

It was also challenging to parse out differences in social functioning across the ODD/AD and ODD groups. This may be because both groups experience similar levels of social impairment given that an ODD diagnosis (with or without AD) implies impairment in social functioning (APA, 2002). In addition, it may also be a result of not being able to parse out social withdrawal (possibly specific to comorbid ODD/AD) from other forms of social impairment (such as aggressive behaviors) with the current study measures. In the current investigation, the interpersonal interview and maternal reported

measures was used as a proxy of social withdrawal. The interview and maternal- report measure were moderately correlated with one another, which provided some evidence of their validity in capturing social withdrawal. However, the interview asks if youth (or youth's parent) if youth has difficulty making/keeping friends and if he/she perceives having less friends than most. It may be that a parent or youth's perception of having less friends than average or having trouble making/keeping friends may not be specific indicators of social withdrawal. In fact, these social difficulties may also be a result of antisocial behaviors, such as aggressive behaviors or conduct problems. In future investigations, it may be useful to examine youth with ODD/social anxiety as compared to youth with ODD and other types of ADs, and youth with ODD alone. Such comparisons might help to parse out the nature of social impairment (with specific attention to social withdrawal/anxiety versus antisocial behavior) across groups. However, given limitations in the current sample size, the examination of youth with ODD/social anxiety exclusively were not undertaken in the current investigation.

In relation to the moderator analyses, there are several possible explanations for why these models were largely unsupported in the current investigation. Firstly, it may be that while CFR may predict impairment in youth with broad forms of psychopathology, ADs may not yield similar predictive impact on impairment in youth with ODD. Perhaps this may be a result of aggregating various forms of ADs together in analyses, where some specific types of AD may interact with CFR to predict greater levels of impairment in youth with ODD than others (e.g., GAD and CFR may interact to predict global impairment more strongly as compared to specific phobia and CFR). Another possible explanation for the unsupported moderator models may be a result of

the dependant variables used in the investigation. Specifically, the variability of scores were limited for some of the dependant variables (e.g., CGI, CSR). However, these variables exhibited similar relationships to other measures of global impairment with larger score ranges (e.g., CGAS, ODD symptom subscale of DBDRS). Thus, these measures were retained in the current investigation.

In interpreting these findings, several limitations should be noted. For example, youth with ODD have a tendency to underreport symptoms (Kamphaus & Frick, 2002; Loeber et al., 1989, 1991); thus, caution should be warranted when interpreting results from youth informants. Also, there was missing data (>15%) for fathers and teachers. Given that there may be differences in reports from informants who have chosen to submit data versus those who have not, caution should be taken in interpreting group difference findings based on father- and teacher- reports. In addition, the paternal and teacher reports were not used when computing a CFR index. Thus, CFR is from clinician, youth, and maternal perspective of risk behaviors. In addition, the findings as a whole are somewhat limited in generalizability as they were pulled from a clinical convenience sample. Testing these research questions with epidemiological samples would facilitate generalizability of the findings.

In terms of study strengths, this study was the first to examine the role of AD, CFR, and their interaction in predicting impairment in clinic- referred youth with ODD and ODD/AD. This research builds upon other investigators (e.g., Benoit et al., 2008; Franco et al., 2006) which have examined clinical profiles of youth with externalizing disorders/ADs as compared to youth with other forms of psychopathology. Additionally, this study utilized a "gold-standard" multi-informant, multi-method approach (see Grills

& Ollendick, 2003) in examining group differences and in examining CFR. Specifically, the current study utilized clinician-, parent-, teacher-, and youth- reports via interviews, questionnaires, and observation.

Future directions in examining clinical profiles of youth with ODD/AD may include examining the clinical profiles of youth with ODD and individual types of ADs as compared to youth with ODD. It is also important to consider the role of other disorders, with special attention to presence of ADHD, in terms of impact on clinical profiles and impairment levels.

In addition, it would be interesting to examine clinical profiles of youth with ODD/ADs longitudinally. In the context of a longitudinal investigation, it would be possible to examine if the presence of AD changes from a protective factor to a risk factor over time (Walker et al., 1991). In addition, it would be informative to study if CFR in youth with ODD predicts greater impairment over time, and if/how the presence of AD may interact in predicting the impairment levels over time. In a similar vein, it would also be informative to apply the model of CFR and AD in predicting treatment outcome (both short term and long term) in youth with ODD.

Lastly, the current investigation may have additional implications for the treatment of youth with ODD/AD. Namely, these findings suggest it may be important to target the unique clinical features of youth with ODD/AD and CFR in treatments traditionally oriented to youth with ODD alone. Currently, treatment approaches such as modular cognitive-behavioral therapy, utilize a modification of a traditional cognitive behavioral therapy to target comorbid conditions in youth (Chorpita, Taylor, Francis, Moffitt, & Austin, 2004). The treatment by Chorpita and colleagues modified a

standardized treatment approach for child anxiety while allowing the treatment to be

tailored to the individual needs of the child through use of a guiding algorithm.

Specifically, the modular CBT approach consisted of 13 treatment modules that include

self-monitoring, psychoeducation, exposure, cognitive restructuring, social skills training,

rewards, differential reinforcement strategies, time-out, and maintenance and relapse

prevention. The treatment first used a core approach of self-monitoring, education about

anxiety, practice of feared situations, and education about maintaining new skills. Within

the framework of this core approach, the treatment of the AD was addressed first. Then,

if moderate to severe disruptive behavior was reported, the treatment called for a "time-

out" module. If mild disruptive behavior was reported, an active ignoring component

was added to the treatment. There were no clear guidelines, however, for how to adapt

this treatment if the ODD symptoms were severe or more impairing than the anxiety

symptoms. Thus, additional research in this area would be beneficial.

Several other investigations have adapted Parent-Child Interaction Therapy, a

treatment developed primarily for use with children with ODD, to treat SAD in youth

with considerable success (Choate, Pincus, Eyberg, & Barlow, 2005; Pincus, Eyberg, &

Choate, 2005). Given SAD may have symptom overlap with ODD, this treatment

adaptation may be particularly useful for children with comorbid ODD/AD. In addition,

this treatment aimed to modify maladaptive family environment to alleviate symptoms

associated with SAD. The use of "special time", which is a common feature of many

behavioral treatments for ODD in children, was positively received by parents of AD

youth and all pilot families indeed reported a subsequent increase in warmth. Since both

anxiety and oppositionality are related to lack of parental warmth, this treatment component may be useful for reducing CFR for comorbid individuals.

Additional consideration of factors specific to CFR may be worthy of targeting in treatment of youth with ODD/AD. Importantly, it may be useful to examine the modifiable family environment factors identified (e.g., parent psychopathology, conflict, poor parent-child relations) to inform treatment development for youth with ODD/AD. Thus, in addition to the use of "special time" mentioned above, it may be beneficial to consider addressing other modifiable family risk factors, such parent psychopathology, in the context of treatment of youth with ODD/AD. Targeting modifiable family risk variables in the context of treating youth with ODD/AD may reduce symptom impairment, improve family environment, and improve global functioning.

Concluding Remarks

The current examination proposed a model in an attempt to link youth with comorbid ODD/AD, CFR, and impairment together. The study hypothesized that youth with ODD/AD would have distinct clinical profiles compared to youth with ODD alone (e.g., emotional and behavioral symptoms, family functioning, and social impairment). Findings yielded mixed support for the study hypotheses. In addition, the study hypothesized youth with ODD/AD would have higher levels of impairment (e.g., social, global, symptom-level), and these relationships would be moderated by CFR. In general, moderation effects were not affirmed. Still, it was suggested that a multi-informant, multi-contextual approach may be useful in examining the role of CFR in predicting impairment levels for youth with comorbid ODD/AD.

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Table 1. Socio-demographic Characteristics of Total Sample, ODD Alone, and ODD/AD

	Total (*n*=87)	ODD (*n*=39)	ODD/AD (*n*=48)	*F/chi*^{2}	*p*
Age *M (SD)*	9.82 (1.82)	10.36 (1.90)	9.38 (1.64)	6.72	0.01
Gender *n* (%male)	56 (64.37)	25 (64.10)	31 (64.58)	0.002	0.96
Race *n* (%)					
Caucasian	75 (86.21)	33 (84.62)	42 (87.50)		
Other	12 (13.79)	6 (15.38)	6 (12.50)	0.15	0.70
Family Structure *n* (%)					
Dual Parent	64 (73.6)	30 (76.92)	34 (70.83)		
Single Parent	14 (16.1)	5 (12.82)	9 (18.75)	0.58	0.45
Family Income *M (SD)*	64756 (39880)	63210 (45051)	66097 (35349)	0.09	0.76

Note. ODD = Oppositional defiant disorder; AD = anxiety disorder; M = mean; SD = standard deviation; F values reported for continuous variables, chi^2 values are reported for categorical variables.

Table 2. Comorbidity by Groups

	n	%
ODD/AD (n = 48)		
ADHD	25	52.08
Specific phobia	19	39.58
GAD	18	37.50
Social phobia	9	18.75
SAD	7	14.58
OCD	2	4.17
ODD alone (n=39)		
ADHD	27	69.23
Enuresis	4	10.26
Dysthymia	3	7.69
MDD	2	5.13
Conduct disorder	2	5.13
RAD	1	2.56

Note. ODD = oppositional defiant disorder; GAD = generalized

anxiety disorder; SAD = separation anxiety disorder; OCD =

obsessive compulsive disorder; MDD = major depressive disorder;

RAD = reactive attachment disorder, ADHD = attention deficit

hyperactivity disorder.

Table 3. Maternal BASC Scores for Youth with ODD and ODD/AD

	ODD (n=39)		ODD/AD (n=48)				
	T (SD)	%ile	T (SD)	%ile	F	P	Partial eta
Externalizing Problems	74.65 (12.04)	94.08	71.40 (9.48)	93.60	1.56	0.22	0.02
Internalizing Problems	58.38 (12.78)	69.89	62.11 (12.54)	78.19	3.58	0.06	0.04
Behavioral Symptom Index	69.70 (9.47)	92.46	68.06 (7.99)	92.13	0.03	0.87	0.00
Adaptive Skills	34.86 (5.61)	9.73	36.85 (5.37)	12.32	1.21	0.28	0.02
Hyperactivity	70.89 (12.01)	9.63	66.79 (10.97)	87.17	2.41	0.13	0.03
Aggression	73.27 (14.26)	91.73	69.77 (10.30)	91.94	1.31	0.26	0.02
Conduct Problems	73.11 (13.97)	91.62	71.02 (12.78)	91.30	0.37	0.54	0.01
Anxiety	49.84 (9.28)	51.05	54.79 (12.33)	61.79	4.01	0.05	0.05
Depression	66.78 (13.96)	84.22	67.94 (12.12)	88.00	1.60	0.21	0.02
Somatization	53.38 (13.83)	55.70	56.96 (15.44)	62.81	2.23	0.14	0.03
Atypicality	59.65 (11.91)	75.57	59.94 (13.81)	75.30	0.66	0.42	0.01
Withdrawal	57.08 (11.21)	69.16	57.06 (10.32)	70.11	0.23	0.64	0.00
Attention Problems	66.49 (6.32)	90.30	63.49 (7.61)	84.70	2.32	0.13	0.03
Adaptability	33.86 (6.23)	8.97	34.34 (6.28)	9.81	0.22	0.64	0.00
Social Skills	35.46 (8.03)	13.00	38.66 (6.89)	17.70	2.66	0.11	0.03
Leadership	41.11 (6.61)	22.73	42.74 (6.35)	27.21	0.01	0.94	0.00
Activities of Daily Living	32.92 (6.73)	8.38	35.04 (7.69)	12.40	1.30	0.26	0.02
Functional Communication	42.49 (8.03)	26.84	43.09 (7.80)	28.17	0.04	0.85	0.00

Note. BASC = Behavior Assessment System for Children; ODD = oppositional defiant disorder; AD = anxiety disorder; *SD* = standard deviation; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder.

Table 4. Child BASC Scores for Youth with ODD and ODD/AD

	ODD (n=39)		ODD/AD (n=48)				
	T (SD)	%ile	T (SD)	%ile	F	p	Partial eta
School Problems	55.95 (10.18)	67.85	54.51 (11.29)	61.33	0.25	0.62	0.00
Internalizing Problems	49.15 (8.95)	47.49	51.07 (9.96)	52.87	1.12	0.29	0.01
Inattention/Hyperactivity	54.28 (10.54)	61.95	55.49 (10.70)	64.56	1.72	0.19	0.02
Emotional Symptoms Index	49.46 (8.54)	48.77	52.58 (10.74)	57.42	2.00	0.16	0.02
Personal Adjustment	46.90 (9.52)	39.54	44.53 (11.78)	36.16	.99	.32	0.01
Attitude to School	53.10 (10.40)	59.69	54.18 (10.87)	61.71	0.31	0.58	0.00
Attitude to Teachers	57.44 (10.06)	73.08	53.62 (11.75)	59.67	1.97	.16	.02
Atypicality	48.33 (10.62)	43.95	49.42 (10.28)	48.49	0.24	0.63	0.00
Locus of Control	52.72 (9.34)	59.13	53.44 (11.58)	58.51	0.60	0.44	0.01
Social Stress	49.51 (9.66)	48.59	51.07 (12.79)	50.27	0.56	0.46	0.01
Anxiety	45.10 (9.04)	33.85	48.09 (9.78)	44.11	2.41	0.12	0.03
Depression	50.18 (8.20)	53.15	51.96 (9.74)	57.80	0.76	0.39	0.01
Sense of Inadequacy	50.00 (8.18)	52.08	51.09 (8.26)	55.91	0.78	0.38	0.01
Attention Problems	55.46 (9.75)	66.21	54.40 (10.26)	62.91	0.09	0.77	0.00
Hyperactivity	52.49 (10.74)	57.77	55.67 (10.95)	65.24	4.02	0.05	0.05
Relations with Parents	39.82 (13.64)	28.49	43.60 (10.91)	32.82	0.92	0.34	0.01
Interpersonal Relations	53.38 (6.54)	60.23	50.13 (9.30)	50.51	3.73	0.06	0.05
Self-Esteem*	50.64 (10.01)	54.41	45.71 (13.59)	42.38	2.33	0.12	0.03
Self-Reliance*	46.85 (9.12)	39.56	44.47 (11.50)	35.96	0.73	0.39	0.01

Note. BASC = Behavior Assessment System for Children; ODD = oppositional defiant disorder; AD = anxiety disorder; SD = standard deviation; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; * = variances unequal across groups.

Table 5. Paternal BASC Scores for Youth with ODD and ODD/AD

	ODD (n=28)		ODD/AD (n=39)				
	T (SD)	%ile	T (SD)	%ile	F	p	Partial eta
Externalizing Problems	66.97 (12.71)	87.07	66.61 (9.83)	89.12	0.00	0.96	0.00
Internalizing Problems*	51.55 (15.49)	50.76	59.75 (10.74)	76.23	6.70	0.01	0.10
Behavioral Symptom Index	63.03 (11.33)	80.59	64.73 (8.34)	88.22	1.13	0.29	0.02
Adaptive Skills	37.89 (7.08)	16.00	36.53 (5.51)	11.92	1.50	0.23	0.02
Hyperactivity*	63.76 (13.04)	80.79	63.76 (9.27)	85.32	0.16	0.69	0.00
Aggression*	66.00 (13.17)	84.41	63.83 (9.52)	86.15	1.09	0.30	0.02
Conduct Problems	66.17 (14.60)	83.62	67.15 (14.41)	85.10	0.26	0.61	0.00
Anxiety	48.28 (11.68)	45.97	54.18 (12.17)	59.78	3.29	0.07	0.05
Depression	58.52 (14.13)	70.90	65.10 (12.83)	83.95	5.77	0.02	0.08
Somatization	49.03 (14.20)	42.17	53.32 (13.17)	55.78	1.57	0.21	0.02
Atypicality	56.10 (13.19)	65.07	58.27 (10.81)	73.90	1.26	0.27	0.02
Withdrawal	54.31 (10.72)	62.48	56.15 (9.55)	69.02	0.85	0.36	0.01
Attention Problems	62.97 (7.29)	84.07	61.95 (7.09)	82.32	0.02	0.89	0.00
Adaptability	37.72 (7.56)	16.41	36.02 (5.55)	11.68	1.43	0.24	0.02
Social Skills	37.24 (7.22)	15.55	37.29 (6.75)	15.20	0.09	0.76	0.00
Leadership	43.79 (6.88)	30.31	40.78 (6.37)	22.20	6.72	0.01	0.09
Activities of Daily Living	36.21 (8.58)	14.86	36.61 (8.26)	15.39	0.03	0.87	0.00
Functional Communication	43.14 (9.86)	30.25	41.38 (6.97)	23.48	1.65	0.20	0.03

Note. BASC = behavior assessment system for children; ODD = oppositional defiant disorder; AD = anxiety disorder; SD = standard deviation; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; * = variances unequal across groups.

Table 6. Teacher BASC Scores for Youth with ODD and ODD/AD

| | ODD (n=20) | | ODD/AD (n=34) | | | | |
	T (SD)	%ile	T (SD)	%ile	F	p	Partial eta
Externalizing Problems*	64.29 (8.14)	87.81	57.56 (13.34)	67.71	4.70	0.04	0.08
Internalizing Problems	51.05 (8.59)	55.60	56.00 (10.96)	66.79	5.24	0.03	0.10
School Problems	58.19 (7.47)	76.33	52.18 (8.72)	58.56	5.92	0.02	0.10
Behavioral Symptom Index*	62.57 (6.43)	86.48	58.06 (12.08)	70.41	2.08	0.16	0.04
Adaptive Skills*	40.62 (6.06)	20.57	46.03 (10.38)	38.15	3.81	0.06	0.07
Hyperactivity	66.10 (11.40)	87.24	57.59 (11.70)	70.15	8.50	0.01	0.14
Aggression	61.62 (9.60)	84.29	58.38 (14.98)	68.38	1.01	0.32	0.02
Conduct Problems	62.29 (8.60)	85.00	55.00 (12.20)	62.65	5.86	0.02	0.10
Anxiety	46.81 (8.81)	40.81	51.12 (11.13)	52.38	2.83	0.10	0.05
Depression	55.86 (12.35)	68.67	57.38 (12.77)	69.00	0.40	0.53	0.01
Somatization	51.95 (11.61)	54.70	55.91 (13.31)	61.76	2.52	0.12	0.05
Attention Problems*	61.57 (7.55)	81.52	54.50 (9.49)	63.21	7.39	0.01	0.13
Learning Problems	53.19 (6.95)	64.52	49.32 (7.41)	50.91	2.69	0.11	0.05
Atypicality	58.52 (10.07)	76.95	55.71 (12.75)	66.41	0.33	0.57	0.01
Withdrawal	56.24 (11.18)	68.29	54.68 (10.08)	65.09	0.23	0.63	0.01
Adaptability	42.62 (8.39)	27.95	44.50 (11.41)	35.59	0.21	0.65	0.00
Social Skills	39.76 (8.07)	21.48	45.85 (11.64)	38.35	4.50	0.04	0.08
Leadership	43.05 (6.71)	29.57	47.56 (9.60)	42.76	2.72	0.11	0.05
Study Skills	39.38 (6.54)	20.10	46.65 (9.10)	39.59	7.18	0.01	0.12
Functional Communication	43.76 (7.83)	29.29	47.62 (10.27)	42.35	2.29	0.14	0.04

Note. BASC = behavior assessment system for children; ODD = oppositional defiant disorder; AD = anxiety disorder; SD = standard deviation; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; * = variances unequal across groups.

Table 7. Beck Youth Inventory Scores for Youth with ODD and ODD/AD

	ODD (n=39)		ODD/AD (n=48)					
	T	SD	T	SD		F	p	Partial eta
Self Concept	47.77	10.24	48.42		10.53	0.40	0.76	0.02
Anxiety*	43.04	7.17	48.22		9.54	7.94	0.01	0.09
Depression*	44.05	7.17	46.33		10.81	2.86	0.10	0.04
Anger	44.72	10.37	46.57		12.35	1.76	0.19	0.02
Disruptive Behavior	47.90	8.78	47.43		8.28	0.07	0.80	0.00

Note. Analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; ODD = oppositional defiant disorder; AD = anxiety disorder; SD = standard deviation; * = variances unequal across groups.

Table 8. Disruptive Behavior Disorder Scores for Youth with ODD and ODD/AD

	M	SD	M	SD	F	P	Partial eta
Child	ODD (n=39)		ODD/AD (n=48)				
Inattention	6.82	4.78	7.80	5.26	1.70	0.20	0.03
Hyperactive	6.14	5.13	7.09	4.41	2.77	0.10	0.03
ODD symptoms	1.21	1.56	1.61	1.93	1.52	0.22	0.02
Mother	ODD (n=39)		ODD/AD (n=48)				
Inattention	17.17	6.03	15.69	5.92	0.38	0.54	0.01
Hyperactive	13.31	6.23	12.16	6.26	0.38	0.54	0.01
ODD symptoms	5.56	2.15	5.67	1.69	0.35	0.56	0.00
Conduct Disorder	2.09	1.86	1.91	1.67	0.14	0.71	0.00
Father	ODD (n=28)		ODD/AD (n = 39)				
Inattention	13.52	6.84	13.90	5.34	0.85	0.36	0.01
Hyperactive	9.75	5.78	11.26	5.84	3.59	0.06	0.06
ODD symptoms	4.54	2.56	3.97	3.37	0.42	0.52	0.01
Conduct Disorder*	1.82	2.02	1.00	1.40	4.32	0.04	0.06
Teacher	ODD (n=21)		ODD/AD (n=34)				
Inattention	14.27	8.25	10.60	7.26	2.21	0.14	0.04
Hyperactive	11.91	7.54	8.34	7.15	3.55	0.07	0.06
ODD symptoms*	2.38	2.20	2.35	3.06	0.00	0.98	0.00

Note. Analysis of covariance was conducted, controlling for age and Attention deficit hyperactivity disorder; ODD = oppositional defiant disorder; AD = anxiety disorder; M = mean; SD = standard deviation; * = variance unequal across groups.

Table 9. Alabama Parenting Questionnaire Scores for Youth with ODD and ODD/AD

	ODD (n=39)		ODD/AD (n=48)				
	M	*SD*	*M*	*SD*	*F*	*p*	*Partial eta*
Mother							
Poor Monitoring	27.10	6.94	29.21	7.79	0.31	0.58	0.00
Father							
Poor Monitoring	26.04	6.97	28.66	7.17	1.43	0.24	0.03

Note. ODD = oppositional defiant disorder; AD = anxiety disorder; *M* = mean; *SD* = standard deviation; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder.

Table 10. Brief Symptom Inventory for Parents of Youth with ODD and ODD/AD

	T score	SD	T score	SD	F	P	Partial eta
Mother	ODD (n=34)		ODD/AD (n=43)				
Somatization	51.97	9.92	52.14	9.43	0.24	0.62	0.00
OCD*	57.32	12.94	63.84	7.59	3.99	0.05	0.05
Interpersonal Sensitivity*	49.15	8.30	54.14	9.78	6.47	0.01	0.08
Depressive	50.35	9.36	54.98	9.00	3.17	0.08	0.04
Anxiety	51.44	8.77	54.56	8.83	4.61	0.04	0.06
Hostility	59.06	8.02	61.98	6.62	2.99	0.09	0.04
Paranoid Ideation	54.03	8.37	56.84	9.30	3.27	0.08	0.04
Psychoticism	56.29	8.95	56.98	10.12	0.42	0.52	0.01
Global Symptom Index	54.29	10.04	58.77	7.43	5.13	0.03	0.07
Positive Symptom	52.35	10.68	57.00	6.40	5.36	0.02	0.07
Positive Symptom Distress	55.12	8.99	56.98	8.45	2.19	0.14	0.03
Father	ODD (n=21)		ODD/AD (n = 30)				
Somatization	51.48	9.93	49.70	9.02	0.89	0.35	0.02
OCD	56.48	12.80	60.23	9.02	0.66	0.42	0.01
Interpersonal Sensitivity	53.00	9.75	55.47	10.37	0.70	0.41	0.02
Depressive	52.05	8.79	53.40	9.26	0.08	0.78	0.00
Anxiety	50.48	8.66	52.27	7.10	0.08	0.78	0.00
Hostility	56.24	9.09	59.93	8.65	2.16	0.15	0.04
Paranoid Ideation	53.14	10.53	57.10	10.64	1.70	0.20	0.04
Psychoticism	52.57	9.29	55.73	9.49	0.07	0.80	0.00
Global Symptom Index	53.95	11.55	57.63	8.88	0.43	0.51	0.01
Positive Symptom*	51.00	15.42	56.10	9.11	0.30	0.59	0.01
Positive Symptom Distress	50.43	14.16	54.20	8.90	0.33	0.57	0.01

Note. Analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; ODD = oppositional defiant disorder; AD = anxiety disorder; SD = standard deviation; P-C = parent-child; * = variances unequal across groups.

Table 11. Family Environment Scores for Youth with ODD and ODD/AD

	M	SD	M		SD	F		p	Partial eta
Mother	ODD (n=31)		ODD/AD (n=43)						
Cohesion	6.23	2.70		6.28	2.57	0.03		0.86	0.00
Conflict	4.94	2.22		4.91	2.00	0.09		0.77	0.00
Father	ODD (n=21)		ODD/AD (n=35)						
Cohesion	6.68	2.03		6.00	2.44	1.26		0.27	0.02
Conflict*	4.05	2.89		4.69	1.98	0.71		0.40	0.01

Note. ODD = oppositional defiant disorder; AD = anxiety disorder; M = mean; SD = standard deviation; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; * = variances unequal across groups.

Table 12. Parenting Stress Index for Parents of Youth with ODD and ODD/AD

	M (SD)	%ile	M (SD)	%ile	F	p	Partial eta
Father	ODD (n=24)		ODD/AD (n=37)				
Defensive Responding	15.79 (4.35)	67.54	17.73 (4.34)	75.97	1.95	0.17	0.03
Total Stress	88.67 (18.15)	76.79	96.16 (14.00)	87.22	2.81	0.10	0.05
Parental Distress	25.83 (6.78)	51.13	29.27 (6.42)	63.51	2.82	0.10	0.05
P-C Dysfunction	26.08 (6.53)	76.13	28.22 (5.82)	83.86	1.76	0.19	0.03
Difficult Child	36.75 (9.04)	81.58	38.68 (6.93)	87.62	0.90	0.35	0.02
Mother	ODD (n=28)		ODD/AD (n = 42)				
Defensive Responding	16.96 (4.57)	73.04	17.90 (4.73)	75.10	0.71	0.40	0.01
Total Stress	94.75 (17.03)	83.89	100.38 (14.90)	90.21	2.80	0.10	0.04
Parental Distress	25.71 (6.13)	50.57	28.43 (6.90)	59.17	2.73	0.10	0.04
P-C Dysfunction	26.41 (7.62)	74.69	29.64 (7.44)	85.74	4.08	0.05	0.05
Difficult Child*	42.07 (7.80)	90.34	42.31 (5.92)	93.33	1.48	0.23	0.02

Note. ODD = oppositional defiant disorder; AD = anxiety disorder; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; M = mean; SD = standard deviation; P-C = parent-child; * = variances unequal across groups.

Table 13. Tangram Scores for Youth with ODD and ODD/AD

| | ODD (n=39) | | ODD/AD (n=48) | | | | |
	M	*SD*	*M*	*SD*	*F*	*p*	*Partial eta*
Overall Negativity	3.89	1.30	3.61	1.23	0.23	0.63	0.00
Child Affect	3.94	2.05	3.87	2.10	0.06	0.81	0.00
Child Tension	4.70	1.67	4.31	1.73	0.62	0.43	0.01
Response to Parent	4.06	1.41	3.69	1.41	0.69	0.41	0.01
Parent Affect	3.33	1.74	3.11	1.51	0.00	0.95	0.00
Parent Tension	3.73	1.70	3.56	1.53	0.51	0.82	0.00
Response to Child	3.58	1.28	3.13	1.25	0.83	0.37	0.01
General Involvement	4.85	1.84	4.84	1.71	0.02	0.90	0.00
Unsolicited Help	4.15	1.81	4.18	1.68	0.00	0.96	0.00
Touching Tangram	5.24	2.39	4.91	2.54	0.21	0.65	0.00
Position	4.61	1.50	4.49	1.66	0.50	0.48	0.01
Parent Focus	4.39	1.27	4.18	1.40	0.11	0.74	0.00

Note. ODD = oppositional defiant disorder; AD = anxiety disorder; *M* = mean; *SD* = standard deviation; analysis of covariance was conducted, controlling for age and ADHD.

Table 14. Global, Symptom, Social, and Family Impairment in Youth

	ODD (n=39)		ODD/AD (n=48)				
	M	*SD*	*M*	*SD*	*F*	*p*	*Partial eta*
Clinician Severity ODD	6.21	0.95	5.79	1.03	1.51	0.22	0.02
CGAS*	59.49	6.57	59.58	5.34	0.83	0.37	0.01
P-Interpersonal Risk	0.41	0.50	0.35	0.48	0.04	0.84	0.00
C-Interpersonal Risk	0.53	0.51	0.43	0.50	1.31	0.26	0.02
P-CGI	4.38	0.75	4.32	0.84	0.13	0.72	0.00
C-CGI*	3.64	1.25	3.51	0.88	0.41	0.53	0.01
CFR-*Median Split*	0.48	0.18	0.52	0.17	2.48	0.12	0.03
CFR- *Standard Deviation*	0.19	0.14	0.21	0.14	1.34	0.25	0.02

Note. ODD = oppositional defiant disorder; AD = anxiety disorder; analysis of covariance was conducted, controlling for age and attention deficit hyperactivity disorder; *M* = mean; *SD* = standard deviation; * = variances unequal across groups; CGAS = Children's Global Assessment Scale; P = parent; C = child; CGI = Clinical Global Impressions; CFR = cumulative family risk.

Table 15. Defining Cumulative Family Risk (CFR)

CFR Measures	Informant	Subscale	Score	*Mean*	*SD*
BASC	Child				
		relations with par	1	41.85	12.32
Alabama Parenting	Maternal				
		poor monitoring	1	28.34	7.47
Brief Symptom Inventory	Maternal				
		anxiety	1	53.18	8.88
		somatic		52.06	9.58
		depressive	1	52.94	9.39
		hostility	1	60.69	7.37
		paranoid ideation	1	55.60	8.95
Family Environment Scale	Maternal				
		cohesion	1	6.26	2.61
		conflict	1	4.93	2.08
Parenting Stress Index	Maternal				
		parent-child dys	1	28.32	7.63
Sociodemographics	Maternal				
		siblings	1	1.66	1.23
		income	1	64755.00	39880.00
		m-education	1	some college	12 grade or less
		p-education	1	some college	12 grade or less
		family structure	1	single	single
Tangram	Clinician				
		negativity	1	3.73	1.26
		over-involvement	1	4.85	1.75
Total			16		

Note. BASC = Behavior Assessment System for Children; SD = standard deviation; par = parents; dis = discipline; dys = dysfunction; m = mother; f = father; Anxious and somatic subscales of the BSI were combined as one risk factor. For parent education median split, risk was coded as some college or less; for parent education- SD, risk was calculated as high school or less.

Table 16. Correlations of Study Variables

	AD	Age	ADHD	CFR.*M*	CFR.*SD*	CGAS	CSR	CGI-P	CGI-C	Int-P	Int-C	ODD	Withdraw
AD	1												
Age	-0.27*	1											
ADHD	-0.17	-0.10	1										
CFR.*M*	0.11	0.11	0.10	1									
CFR.*SD*	0.07	0.05	0.16	0.65**	1								
CGAS	0.01	0.01	-0.47**	-0.25*	-0.34**	1							
CSR	-0.21	0.12	0.24*	0.23*	0.20	-0.47**	1						
CGI-P	-0.04	0.12	0.21	0.26*	0.23*	-0.39**	0.42**	1					
CGI-C	-0.06	-0.07	0.08	0.08	0.11	-0.26*	0.08	0.20	1				
Int-P	-0.06	0.26*	0.01	-0.09	-0.13	-0.22*	0.16	0.06	0.05	1			
Int-C	-0.09	-0.12	0.01	0.09	0.21	-0.33**	0.24*	0.15	0.12	0.19	1		
ODD	0.03	0.11	0.00	0.27*	0.03	-0.13	0.48**	0.10	-0.03	0.14	0.01	1	
Withdraw	0.00	0.16	0.85	-0.17	-0.13	-0.07	0.05	-0.02	0.03	0.47**	0.04	0.13	1

Note. AD = anxiety disorder; CFR = cumulative family risk; *M*= median split; *SD* = standard deviation; CGAS = Child Global Assessment Scale; CGI = Clinical Global Impressions; P = parent; C = child; Int = internalizing problems; ODD = maternal reported oppositional defiant disorder symptoms; Withdraw = withdrawal * = $p<.05$; ** = $p<.01$.

Table 17. Anxiety and CFR Predicting CGAS

	CGAS			
Variable	B	SE B	β	ΔR²
Block 1				0.22
Age	-0.11	0.31	-0.03	
ADHD	-5.59	1.16	-0.47***	
Block 2				0.01
Anxiety	-1.10	1.21	-0.09	
Block 3				
CFR-*M*	-6.63	3.29	-0.20*	0.04
CFR-*SD*	-10.68	3.91	-0.26**	0.07
Block 4				
AD x CFR-*M*	-4.23	6.55	-0.21	0.00
AD x CFR-*SD*	-0.02	7.94	0.00	0.00

Note. ADHD = attention deficit hyperactivity disorder; CGAS = child global
assessment system; *M* = median spilt; *SD* = standard deviation; AD = anxiety
disorder; ** = p < 0.01; *** = p < 0.001.

Table 18. Anxiety and CFR Predicting CGI

Variable	CGI- Parent				CGI- Child			
	B	SE B	β	ΔR^2	B	SE B	β	ΔR^2
Block 1				0.06				0.01
Age	0.06	0.05	0.15		-0.04	0.06	-0.06	
ADHD	0.36	0.17	0.22*		0.15	0.24	0.07	
Block 2				0.00				0.01
Anxiety	0.07	0.18	0.04		-0.16	0.25	-0.07	
Block 3								
CFR-*M*	1.02	0.49	0.22*	0.05	0.61	0.68	0.10	0.01
CFR-*SD*	1.07	0.60	0.19	0.04	0.83	0.83	0.11	0.01
Block 4								
AD x CFR-*M*	1.98	0.95	0.72*	0.05	1.02	1.36	0.28	0.01
AD x CFR-*SD*	2.50	1.18	0.47*	0.05	0.79	1.68	0.11	0.00

Note. ADHD = attention deficit hyperactivity disorder; CGI = Clinical Global Impressions; *M* = median spilt; *SD* = standard deviation; AD = anxiety disorder; * = p < 0.05.

Table 19. Anxiety and CFR Predicting ODD Symptom Impairment

Variable	ODD Symptoms				ODD- Clinician Severity Rating			
	B	SE B	β	ΔR^2	B	SE B	β	ΔR^2
Block 1								0.08
Age	0.12	0.12	0.11	0.01	0.08	0.06	0.15	
ADHD	0.04	0.44	0.01		0.52	0.22	0.25	
Block 2								0.02
Anxiety	0.27	0.46	0.07	0.00	-0.28	0.22	-0.14	
Block 3								
CFR-*M*	2.75	1.23	0.25*	0.06	1.30	0.61	0.23*	0.05
CFR-*SD*	0.23	1.54	0.02	0.00	1.26	0.75	0.18	0.03
Block 4								
AD x CFR-*M*	1.88	2.45	0.29	0.01	1.90	1.20	0.54	0.03
AD x CFR-*SD*	-2.12	3.12	-0.17	0.01	1.44	1.51	0.21	0.01

Note. ADHD = attention deficit hyperactivity disorder; ODD = oppositional defiant disorder; CFR = cumulative family risk; *SD* = standard deviation; *M* = median spilt; AD = anxiety disorder; * = p < 0.05.

Table 20. *Anxiety and CFR Predicting Interpersonal Problems*

Variable	Interpersonal Problems- Parent				Interpersonal Problems- Child			
	B	SE B	β	ΔR^2	B	SE B	β	ΔR^2
Block 1				0.07				0.01
Age	0.07	0.03	0.26*		-0.03	0.03	-0.12	
ADHD	0.04	0.11	0.04		0.00	0.11	0.00	
Block 2				0.00				0.02
Anxiety	0.02	0.11	0.02		-0.14	0.12	-0.14	
Block 3								
CFR-*M*	-0.37	0.30	-0.13	0.02	0.38	0.33	0.13	0.02
CFR- *SD*	-0.56	0.37	-0.16	0.03	0.85	0.39	0.24*	0.06
Block 4								
AD x CFR-*M*	0.45	0.60	0.27	0.01	0.34	0.66	0.19	0.00
AD x CFR-*SD*	0.80	0.74	0.25	0.01	0.50	0.79	0.15	0.01

Note. ADHD = attention deficit hyperactivity disorder; CFR = cumulative family risk; *SD* = standard deviation; *M* = median spilt; AD = anxiety disorder; * = p < 0.05.

Table 21. Anxiety and CFR Predicting Withdrawal

Variable	B	SE B	β	ΔR^2
	Withdrawal			
Block 1				0.03
Age	0.42	0.29	0.16	
ADHD	0.36	1.06	0.04	
Block 2				0.00
Anxiety	0.50	1.11	0.05	
Block 3				
CFR-*M*	-5.80	3.03	-0.21	0.04
CFR-*SD*	-5.20	3.70	-0.16	0.02
Block 4				
AD x CFR-*M*	5.44	6.01	0.33	0.01
AD x CFR-*SD*	7.04	7.48	0.22	0.01

Note. ADHD = attention deficit hyperactivity disorder; CFR = cumulative family risk; *M* = median spilt; *SD* = standard deviation; AD = anxiety disorder.
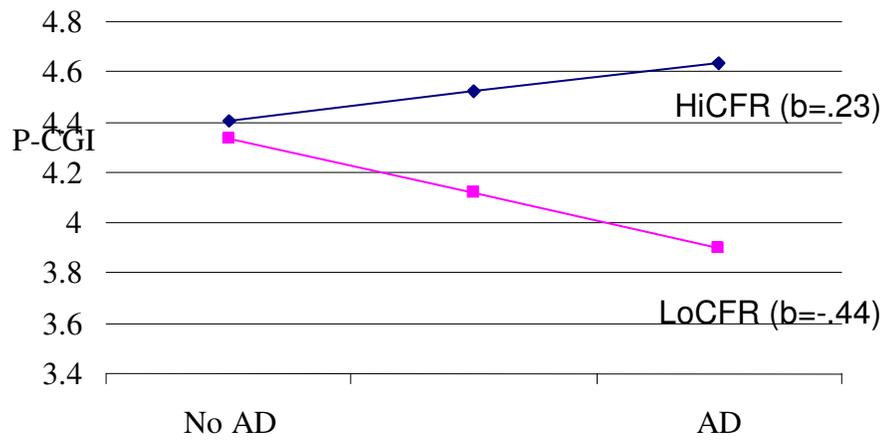
Figure 1. AD and CFR-M Predicting CGI-P

Figure 2. AD and CFR-SD Predicting CGI-P