Committed Romantic Relationships in Couples with ADHD: Subtypes, Conflict Resolution and Satisfaction

A Thesis

By

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SUBTYPES, CONFLICT RESOLUTION AND SATISFACTION

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FOREWORD

This thesis is written in accordance with the style of the *Publication Manual of the American Psychological Association (5th Edition)* as required by the Department of Psychology at Appalachian State University.

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Abstract

Attention-Deficit/Hyperactivity Disorder (ADHD) has been associated with less satisfaction and success in romantic relationships (Canu, Schatz, & Haslag, 2007). This study compares relational patterns in young adult, romantic couples and individuals with ADHD-Combined Type (C-couples/C-probands), ADHD-Inattentive Type (IA-couples/IA-probands), and non-diagnosed couples. Self-reports of current and childhood ADHD symptoms facilitated group assignment; relationship satisfaction, dyadic interaction behaviors, and conflict resolution styles were the primary dependent variables. Statistical analyses revealed greater negativity and dissatisfaction in C-couples relative to IA-, and non-diagnosed couples. IA-couples showed relational adjustment similar to non-diagnosed couples. C-probands generally used aggressive conflict tactics, whereas IA-probands sparsely endorsed any particular conflict style. The results support the overall relational impairment of C-couples and are discussed in regards to interpersonal success.

Committed Romantic Relationships in Couples with ADHD: Subtypes, Conflict Resolution and Satisfaction

Attention-Deficit Hyperactivity Disorder (ADHD) is the most common disorder of childhood, with a prevalence of between 3-7% in school age children in the United States (APA, 2000) and a worldwide prevalence ranging from 2.4-19.8% (Faraone, Sergeant, Gillberg, & Biederman, 2003), with incidence rates rising sharply in the last two decades (Barkley, 2006). It is estimated that ADHD-Combined Type (ADHD-C) accounts for 50-70% of all cases, ADHD-Inattentive Type (ADHD-IA) 20-30%, and ADHD-Hyperactive-Impulsive Type less than 15% (Wilens, Biederman & Spencer, 2002). A surprising number of adults, approximately 2-10% (Weiss, Hechtman, & Weiss, 1999), either meet the full-blown DSM-IV ADHD diagnostic criteria or experience substantial impairment due to persistent ADHD symptoms. While the hurdles that such individuals face in later life surely differ from those of childhood and adolescence, there is a paucity of research on the impact of ADHD on adults, and, particularly, its effects on relationships (Canu et al., 2007; Murphy & Barkley, 1996). The current study extended prior research by examining the relationship of ADHD to specific behaviors and outcomes associated with adult romantic relationships, both across and within the two major subtypes, focusing on relational satisfaction and patterns of communication and conflict resolution.

Psychosocial Outcomes Associated with ADHD

The difficulty that individuals with ADHD face with regards to social acceptance and peer relationships can be seen throughout development. Gaub and Carlson (1997) found that teachers rate elementary school-aged children with ADHD as more impaired than peers without ADHD on adjustment variables such as social likeability, emotional and behavioral functioning, and happiness. Graetz and colleagues (2001) further documented that children

and adolescents with ADHD score higher than non-diagnosed individuals on checklists measuring externalizing behaviors, internalizing behaviors, and other signs of emotional maladjustment that likely alienate peers. Furthermore, Erhardt and Hinshaw (1994) found that behaviors that often coincide with ADHD in childhood, such as aggression, non-compliance, and disruptiveness, are significant predictors of poor peer sociometric status in a naturalistic camp setting for boys; in addition, ADHD group membership predicts impaired social status over and above these symptoms.

Hinshaw and Melnick (1995) later found aggression and impulsivity to be the most salient negative predictors of social standing for boys with ADHD. Additionally, the boys with ADHD in their sample demonstrated awareness of which behaviors were liked and disliked by peers, but still could not regulate their behaviors and emotions sufficiently to successfully establish functional peer relationships. Henker and Whalen (1999) conceptualize this difficulty in children with ADHD as a social information processing disability, hypothesizing that the largely accurate understanding of social norms in children with ADHD is combined with an inability to execute such behaviors at any given moment. They also note that these children have differing social biases, such as a greater tolerance for deviant behavior, displaying intense emotions in social situations, and an inability to switch roles when socially necessary (Henker & Whalen, 1999). Overall, compared to non-diagnosed youths, those with ADHD struggle to maintain appropriate behavior and emotional control, and they tend to be perceived as unlikeable by peers and as deficient students.

Impairment in adulthood due to ADHD often continues to be serious, as symptoms of inattention, hyperactivity, and impulsivity continue to impact educational, occupational, and relational success across time. In a large longitudinal study which followed the progress of

boys with ADHD into adulthood, Manuzza, Klein, Bessler, Malloy, and LaPadulla (1993) found that a full quarter of ADHD probands never completed high school, and that they held lower occupational status than a non-diagnosed group. Biederman and colleagues (1993) also compared a sample of referred and non-referred participants with ADHD to a non-diagnosed group and found similar difficulties including higher rates of failure, need for tutoring, grade-level retention, Antisocial Personality Disorder, substance use, and anxiety disorders. Also related to social and peer difficulties, adults with ADHD report lower levels of self-esteem than those without ADHD (Canu & Carlson, 2007; Weiss et al., 1999).

While less frequently investigated, existent research suggests romantic relationships are often slower to develop for adults with ADHD, who tend to achieve sexual and other relational milestones later than peers without ADHD (Canu & Carlson, 2003; Minde et al., 2003). In addition, their relationships often result in low satisfaction, trust, and adaptive conflict resolution, as compared to those of people without ADHD (Canu et al., 2007). Flory, Molina, Pelham, Gnagy, and Smith (2006) showed that, controlling for comorbid disorders, ADHD that persists into adulthood predicts more casual sex, a larger number of partners, and more unwanted pregnancies. Other research further suggests that divorce is more common (Biederman et al., 1993; Murphy & Barkley, 1996), and that even overall relationship satisfaction is lower in romantic dyads with a partner with ADHD (Murphy & Barkley, 1996), as compared to non-ADHD couples.

Differential Effects of ADHD Subtypes

It is important to note the ongoing debate over the validity of the subtype classifications in the DSM-IV-TR, which groups ADHD Predominantly Inattentive Type and ADHD Combined Type under the same general ADHD diagnosis (APA, 2000). Milich,

Balentine, and Lynam (2001) contend that individuals with Predominantly Inattentive Type (ADHD-IA) exhibit different elements of inattention from the Combined Type (ADHD-C). They also cited evidence that ADHD-IA is associated with different behavioral characteristics and male to female prevalence ratio, and that it should be classified separately. There is also a camp of researchers who view ADHD as a gradient of severity, with ADHD-C being a more severe version of ADHD-IA. Studies of comorbidity, genetic patterns, and social behavior suggest that ADHD-C retains many of the core symptoms of ADHD-IA, with the addition of externalizing behaviors which increase and lengthen impairment (Gaub & Carlson, 1997; Larsson, Lichtenstein, & Larsson, 2006; Miller, Nigg, & Faraone, 2007).

Clearly, while the current literature has documented important psychosocial impairments generally related to ADHD, examination at the subtype level often reveals more specific and divergent patterns of maladaption (e.g., Carlson, Booth, Shin, & Canu, 2002; Graetz et al., 2001). Children in the ADHD-C and ADHD-IA subtypes exhibit notable differences in their impairments. For instance, Gaub and Carlson (1997) found that the teacher-reported academic adjustment of children with ADHD-C is better than that of their counterparts with ADHD-IA, but that those with ADHD-C struggle more with peer rejection, inappropriate classroom behavior, and aggression. This study further suggests that children with ADHD-IA exhibit more passivity in their peer interactions. Graetz and colleagues (2001) also demonstrated that children and adolescents with ADHD-C experienced more social adversity in their peer activities than did their peers with ADHD-IA or without an ADHD diagnosis. Hinshaw and Melnick (1995) proposed a subtype-dependent dual pathway to social rejection in children with ADHD, with those who have aggressive/impulsive tendencies being actively rejected and disliked, and those with more inattentive behaviors

and little social interaction simply being ignored. Elsewhere, a positive correlation has been found in a child sample between impulsivity and antisocial behaviors that are characteristic of psychopathy (Colledge & Blair, 2001).

The motivational styles of children with ADHD may also play a role in their adaptation in social and other domains. Children with ADHD have shown general motivational deficits compared to children without ADHD (Milich, 1994). Carlson and colleagues (2002) examined how the subtypes of ADHD differ on teacher and self-report measures of motivation. Their results suggest that those with ADHD-C are characterized by lower cooperation and higher competitiveness, in relation to their peers. In contrast, children with ADHD-IA show less curiosity and interest in tasks, are more passive and cooperative with peers, and have greater need for external sources of motivation (Carlson et al., 2002). Henker and Whalen (1999) also observed three patterns of goal-oriented social behavior in children with ADHD. The aggressive/assertive type—largely those in the ADHD-C group with externalizing comorbidity—tends to act without thought in order to satisfy their own wants, and is often contentious with peers. The active/maladroit behavior pattern is focused on social acceptance but tends to be rejected due to their inability to process social scripts and cues, and is mainly seen in the ADHD-C group. The reluctant/avoidant subtype, associated with ADHD-IA, is shy and withdrawn, disliking peer contact (Henker & Whalen, 1999). The social behavior differences observed are so distinct that the authors advocate new subtypes in the DSM-V based on these categories. Taken together, these relational, emotional, and motivational difficulties may predispose children to specific difficulties in later relationships, depending on their specific ADHD subtypes. Another developmental feature of ADHD is the decrease of symptoms of hyperactivity from childhood to adulthood

(Weiss et al., 1999), which may have implications for the severity of ADHD-related impairment, particularly for those in the Combined Type. This must be considered when observing subtype trends in relational dissatisfaction and divorce related to ADHD in adulthood (Murphy & Barkley, 1996).

The project acting as the springboard for the current study examined the effect of ADHD on multiple facets of adult long-term relationships (Canu et al., 2007). Canu and colleagues compared couples with a partner with ADHD to non-diagnosed couples on measures relating to health and resilience of relationships, such as overall satisfaction, socio-sexual orientation, trust, and communication in conflict resolution. Their findings demonstrate that ADHD has a negative impact on overall satisfaction, ability to trust the partner with ADHD, and negative conflict resolution styles. This study did not, however, explore the possibility that ADHD-C and ADHD-IA subtyping could affect these psychosocial outcomes, an issue made all the more relevant given previous investigations into social behavior of children of different subtypes (Carlson et al., 2002; Graetz et al., 2001; Henker & Whalen, 1999).

ADHD Subtype Differences in Adult Social Adjustment

There are few studies investigating ADHD subtype differences in adult romantic relationships, but findings to date warrant a continuation of the Canu et al. (2007) study with such a focus. Canu and Carlson (2007) investigated ADHD subtypes and rejection sensitivity (RS) as they related to measures of relational, romantic, and personal adjustment. ADHD-IA individuals with high RS (i.e., tendency to negatively misinterpret and overreact to neutral interpersonal cues; Downey & Feldman, 1996) had more difficulty reaching dating and sexual milestones than other peers. Those with ADHD-C and high RS, however, reported

earlier achievement of dating and sexual milestones, as well as greater investment in their relationships than the ADHD-IA group. It was telling that the ADHD-IA group showed less investment in romantic relationships, mirroring their previously noted tendency towards passivity and shyness in childhood and adulthood (Canu & Carlson, 2003; Henker & Whalen, 1999). It was also noteworthy that, although the difference from the ADHD-C and non-diagnosed groups was not quite statistically significant, the mean relationship satisfaction rating by participants with ADHD-IA and their partners was in the dissatisfied range (Canu & Carlson, 2007).

In the only published study to date examining in vivo heterosocial behavior of adults with ADHD, Canu and Carlson (2003) investigated how individuals with ADHD-C and ADHD-IA Type were perceived by the opposite sex in a brief social interaction, the Heterosocial Interaction Task (HIT). The HIT involved a "waiting room" set-up in which a female confederate naturalistically observed each male participant's behavior (e.g., social assertiveness) while engaging in participant-initiated interaction that was video-recorded for later coding. Other measures of social and dating behavior were also obtained via questionnaires. There was a surprising effect of confederates favoring participants with ADHD-C as much as the non-diagnosed group and more than those with ADHD-IA, as demonstrated by their interest in continuing their current interaction and considering the possibility of dating. Participants with ADHD-IA also showed less assertiveness and self-reported less interest in continuing the HIT; in contrast, the ADHD-C group was rated as more attractively assertive during the HIT by third-party female observers (i.e., video raters) naïve to group membership. On measures of dating behavior, it was observed that those with ADHD-C had a stronger sex drive, earlier sexual initiation, and a greater number of dating

partners than the ADHD-IA group. The striking implications of the study are that, across the HIT and other measures, a clear favoring of ADHD-C behaviors and a devaluing of ADHD-IA traits emerges in the context of heterosexual adult romantic interactions (Canu & Carlson, 2003), or at least those of men with ADHD, which contradicts the greater peer and social difficulties of children with ADHD-C in childhood studies (Gaub & Carlson, 1997; Graetz et al., 2001).

Robin and Payson's (2002) research into the development of a measure of negative relational behaviors associated with ADHD supports these findings. These researchers combined items relating to clinical experience, DSM criteria, and other sources to create a checklist of behaviors that would be likely to cause a spouse to feel unloved. Both partners with ADHD and their spouses nominated the same eight items as being the most negative, with the addition of "doesn't respond when spoken to," and "doesn't plan ahead" nominated by the spouse with ADHD. The majority of these items correlated with behavioral symptoms *specific to the Inattentive* criteria for ADHD in the DSM-IV.

After considering these studies, some patterns of relational behavior emerge, at least in men, for each of the subtypes of ADHD by early adulthood. Those with ADHD-C show more sexual and dating experience, more assertive approaches to relational dialogue, more investment and satisfaction in relationships, and the presence of more aggression and competition in their social behaviors than their counterparts with ADHD-IA (Canu & Carlson, 2003; Canu & Carlson, 2007; Carlson et al., 2002). In contrast, those with ADHD-IA exhibit delay in reaching sexual and dating milestones, a more passive and disinterested approach to relationships, less investment, and a higher number of relationally distressing behaviors than the ADHD-C diagnosis (Canu & Carlson, 2003; Canu & Carlson, 2007;

Robin & Payson, 2002). In the conclusion to their 2007 study, Canu and Carlson stated that "given the divergent pattern of deficits shown by the ADHD-C and ADHD-IA groups, findings suggest that combining the ADHD types in adult samples assessing social outcomes is not warranted" (p. 273). The current study will extend the understanding of subtype differences in adult relational outcomes by examining relational behaviors and adjustment in intact couples with and without a partner with ADHD.

Conflict Resolution and ADHD

Styles of conflict resolution are of paramount importance to the success of long-term relationships (Fincham & Beach, 1999; Mackey, Diemer, O'Brien, 2000). Though theoretical unity is sparse, the literature centers on three main styles of conflict resolution: attack (approach), avoid, and compromise (Fincham & Beach, 1999; Mackey et al., 2000; Marchand & Hock, 2000; Rubenstein & Feldman, 1993). Individuals' conflict styles develop through early learning about interpersonal self-efficacy, which then impacts the goals a person activates when in conflict (Mischel & DeSmet, 2000; Sandy & Cochran, 2000). Goals are recognized by several researchers as a key component to the style and success of conflict resolution. Examples of relational conflict goals are approach goals, avoidant/defensive goals, and issue-specific goals (Fincham & Beach, 1999; Mischel & DeSmet, 2000; Rubenstein & Feldman, 1993). If a spouse or partner has a goal of fixing a problem or dealing with a disagreement, he or she may use a confrontational or attack approach. If a person has a goal of self-protection, dissolving tension, or creating distance from conflict, an avoidant style may be used (Fincham & Beach, 1999; Rubenstein & Feldman, 1993). A synthesis of the role of goals within marital conflict by Fincham and Beach (1999) suggests that conflict can often be a positive event when the goal is to solve a problem, and when the

couple is able to use emotional self-regulation to prevent escalation and to be flexible with goals.

Self-regulation within conflict is vital for successful resolution. A partner will be more likely to use self-regulation when the goal is personally relevant, and when self-efficacy is high (the belief that one's attempts at self-regulation will work in the situation; Mischel & DeSmet, 2000). Self-regulation is used within conflict to prevent escalation while reframing and focusing on the desired goal. Satisfied couples tend to engage in effortful processing whereas dissatisfied couples often respond in whatever way comes naturally (i.e., with little self-regulation; Fincham & Beach, 1999). Such basic, self-regulatory socio-emotional skills are vital for children to learn at an early age, and contribute to successful conflict resolution and interpersonal development in childhood (Sandy & Cochran, 2000). Rubenstein and Feldman (1993) further conclude that teens using a compromising conflict style with their parents—associated with self-regulation—are more psychologically and academically well adjusted than their peers who use attacking and avoidance.

To summarize, research suggests conflict can be confrontational, avoidant, or compromising, and the style chosen for the conflict is dependent on the person's immediate goals and developmental level. Relational goals are, in part, influenced by a person's perception of the situation, goal-oriented flexibility, and sense of self-efficacy in regulating his or her emotions. Across many areas of conflict literature, emotional regulation is seen as necessary for positive and goal-focused conflict and to prevent escalation. However, it requires effortful planning, practice, and empathic understanding of others' feelings in relation to one's own (Fincham & Beach, 1999; Mischel & DeSmet, 2000; Sandy & Cochran, 2000).

There is a large amount of evidence that those with ADHD struggle with both self-regulation and goal oriented behavior and thus are likely to engage in less constructive forms of conflict resolution (Barkley, 2006; Canu et al., 2007; Flory et al., 2006). Henker and Whalen's (1999) review establishes that in children with ADHD, it is not ignorance of social norms but instead a *deficit in self-regulation* that contributes to inappropriate behavior. Their interpersonal relationships are also characterized by awkward interactions and often aggressive behavior (Erhardt & Hinshaw, 1994). In adulthood, romantic relationships in those with ADHD are hampered by difficulty with planning, rapidly and substantially fluctuating emotions, and a lifetime struggle with low self-esteem (Canu & Carlson, 2007; Weiss et al., 1999). Reflecting this line of research, Canu et al. (2007) found that romantic partners with ADHD endorsed more actively negative conflict resolutions styles than partners without ADHD. This further suggests that adults with ADHD struggle to turn conflict into a positive, relationship-building event, perhaps due to dysfunctional emotional regulation, empathy, and ability to persist in goal-oriented behavior (i.e., to navigate a conflict without escalation).

These conclusions about adults with ADHD can extend to differences between the subtypes of ADHD. If one accepts that conflict styles are related to goals (Fincham & Beach, 1999), perhaps differing goals and interpersonal styles of those with ADHD-C and those with ADHD-IA will also be associated with differing conflict resolution styles in adulthood. School children with ADHD-C often have competitive goals whereas children with ADHD-IA were academically disinterested and relied on external motivation (Carlson et al., 2002). Teenagers in a non-clinical population who show patterns of attack or avoid conflict styles report socio-emotional difficulties similar to ADHD-C and ADHD-IA, respectively

(Rubenstein & Feldman, 1993). Specifically, teens who endorsed an attack style of resolution were more likely than peers to have problems in school and to exhibit externalizing and internalizing problems (similar to ADHD-C; Miller et al., 2007), while teens endorsing an avoidance style showed a disinterest in school and more internalizing problems only. These results suggest that perhaps teens with specific subtypes of ADHD (and with their common comorbid characteristics) may be more likely to endorse diverging styles of conflict resolution. In adulthood, those with ADHD-IA show more passive and inattentive patterns within romantic relationships, whereas those with ADHD-C continue to be more aggressive and assertive (Canu & Carlson, 2003; Canu et al., 2007). The Interpersonal Conflict Scale, re-named the Conflict Resolution Scale (Patock-Peckham, Skinner, Terrell, & Nagoshi, 2004,), assesses conflict styles from an approach-avoidance perspective, and from a positive-negative continuum, reflecting the nature of the partner's goals in conflict. When parsed out into the ADHD subtypes, it seems likely that the conflict styles of those with ADHD-C will be characterized by more assertive negative and positive resolutions styles, and that ADHD-IA will be associated with more negative avoidant conflict patterns.

Aims of the Study

The purpose of this study was to expand the data previously collected by Canu et al. (2007), through recruitment and inclusion of additional participant couples at Appalachian State University, and to re-analyze it, generally, by dividing the ADHD couples group into subgroups with ADHD-C and ADHD-IA partners. The study involved one categorical independent variable with three levels, romantic couples with no diagnosis of ADHD in the partners (non-diagnosed couples), couples with one partner diagnosed with the Predominantly Inattentive Type of ADHD (IA–couples), and couples with one partner

diagnosed with the Combined Type of ADHD (C–couples). Analyses at the individual level were performed on the six groups created when each partner of the dyad was separated into two groups (see Figure 1 for group names, structure, and gender composition). To produce a more refined picture of adjustment within committed relationships, this study observed and coded categorical, in vivo interaction behaviors (e.g., defensiveness and humor, see Table 1) within couples using a 15-minute conflict resolution task and the Rapid Couple's Interactive Scoring System (RCISS; Gottman, 1996). The RCISS codes generated from the videotaped interactions served as a measure of dyadic communication. We assessed conflict resolution styles and relationship satisfaction through self-report measures, as well. Scores on the Relationship Assessment Scale (RAS; Hendrick, 1988), which measures relationship satisfaction, the Conflict Resolution Scale (formerly the Communication Styles Scale; Patock-Peckham et al., 2004), and the RCISS (Gottman, 1996) were used as the primary dependent variables.

Hypotheses

The hypotheses for this study are related to comparisons at the dyadic level for relationship satisfaction and interaction behaviors, and the individual level for relationship satisfaction and conflict resolution styles.

Data collected with the Relationship Assessment Scale was expected to reveal a significant difference between both ADHD subtypes and the non-diagnosed couples, as seen in Canu et al. (2007). However, it was hypothesized that there would be no difference in relationship satisfaction between C -couples and IA-couples. The reason for this prediction was twofold. According to the gradient-of-severity conceptualization of ADHD subtypes (Miller et al., 2007; Larsson et al., 2006), those with ADHD-C should continue to show

greater impairment and possibly relational difficulties into adulthood compared to the less severe ADHD-IA Type. However, hyperactive symptoms have been seen to decrease into adulthood, which may lessen the impact of these symptoms on relationships (Weiss et al., 1999). At the same time, ADHD-IA has been connected to less experience and interest in relationships, and those with this diagnosis commonly experience symptoms, which are specifically endorsed as problematic in relationships (Canu & Carlson, 2003; Robin & Payson, 2002). The combination of these mediating variables was expected to result in fairly even contributions to relationship distress from ADHD-C and ADHD-IA.

The Conflict Resolution Scale (CRS; Patock-Peckham et al., 2004) can detect patterns of responding to interpersonal conflict that are both negative and positive, and direct and indirect in nature. It was expected that C-probands would exhibit more of both negative and positive *direct* conflict behaviors than the other two groups due to their tendency toward assertiveness, aggression, and a moderating amount of investment in their relationships. IA–probands, however, would likely exhibit more *indirect* and negative conflict styles due to passivity and a lack of assertiveness. The general trend in the data was expected to reveal that both ADHD subtypes created problematic relational trends on contrasting ends of the approach-withdraw spectrum of behavior.

The Rapid Couple's Interaction Scoring System (RCISS) is designed to code verbal and non-verbal couple behaviors while discussing relationship issues. It provides 13 codes for speaker and 9 for the listener, organized into neutral/positive, or negative (Gottman, 1996). Previous research by Canu et al. (2007) demonstrated that adults with ADHD endorse more negative conflict resolution styles and that couples with a partner with ADHD are less satisfied with their relationships. It was expected that the RCISS would reveal a greater

prevalence of negative speaker and listener codes in ADHD couple interactions compared to non-diagnosed couples. Specifically, negative codes such as “Defensive,” “Put Down,” and “Escalate Negative Affect” would occur in greater numbers from ADHD couples, leading from an active, negative conflict style and difficulty with emotional regulation on the part of the ADHD individual. This would result in more frequent ineffective and negative-affect-laden communication among couples with a partner with ADHD. This hypothesis was exploratory in nature, due to the lack of precedence for using the RCISS for analyzing ADHD interactions.

Method

The current study is a between-groups design with a qualitative, three level quasi-independent variable of ADHD status. ADHD status was determined by participant reports of previous diagnoses and scores on the Conner’s Adult ADHD Rating Scale, with HI and IA indices greater than 1.5 standard deviations above the norm (CAARS; Conners, Erhardt, & Sparrow, 1999) serving to differentiate subtypes by current symptomatic status. The CAARS alone was used to assign group membership for clear cut cases ($t > 64$ on Inattentive and Hyperactive/Impulsive indices for ADHD-C, or $t > 64$ on Inattentive index with the Hyperactive/Impulsive $t < 60$, for ADHD-IA). The Childhood Symptom Scale (CSS; Barkley & Murphy, 2006) measure was used in the ASU sample to further corroborate subtype-specific behavior in childhood, (see Tables 2 and 3 for group means on diagnostic variables). Subscales that indexed inattentive and hyperactive/impulsive symptoms in childhood were constructed from the WURS items for similar use in evaluating the Missouri sample. Items from the Wender Utah Rating Scale (WURS; Ward, Wender, & Reimherr, 1993) were examined regarding their degree of correlation with the CSS-IA and CSS-HI scores, using

data from the ASU sample. Three WURS items, which strongly correlated [WURS-IA: $r(124) > .5$, $p < .001$; WURS-HI: $r(124) > .45$, $p < .001$] and differentially correlated with the CSS scales, (i.e., IA *or* C), were shown to have high internal reliability as scales and, when summed, strongly correlated with the CSS scores. The three WURS-IA scale items were "concentration problems," "anxious, worrying," and "trouble with stick-to-it-iveness, not following through, failing to finish things started;" the three WURS-HI items were "acting without thinking, impulsive," "losing control of myself," and "trouble with authorities." The WURS-IA and WURS-HI scales were internally consistent (Cronbach's alpha = .82 and .77 respectively) and correlated strongly with the expected subscales of the CSS (WURS-IA with CSS-IA, $r = .72$; WURS-HI with CSS-HI, $r = .72$). Preliminary non-diagnosed and proband groups were formed from Missouri participants and on both of these ad hoc WURS scales these groups demonstrated widely differing means (WURS-IA: non-diagnosed participants, $M = 2.1$, $SD = 2.1$, participants with ADHD, $M = 7.5$, $SD = 3.1$; WURS-HI: non-diagnosed participants, $M = 1.4$, $SD = 1.53$, participants with ADHD-C – $M = 4.95$, $SD = 2.95$).

In 23 borderline cases — including putative probands, partners, and non-diagnosed participants— I and two supervising clinical psychologists reviewed data from the CAARS, WURS, and CSS to assign group membership. Participants were included in the non-diagnosed group if there was no report of a childhood diagnosis of ADHD, and no more than one of the diagnostic measures (i.e., child and adult symptoms by cluster, degree of impairment due to ADHD) was above the clinical threshold. Participants were assigned to the ADHD group if a diagnosis was reported in childhood and at least two indicators were above the clinical threshold. Specifically, participants were assigned to the IA-couple group if the CAARS-A was 1.5 *SD* above the mean (or higher) with no corresponding elevation in the

CAARS-B, CSS-HI (or WURS-HI, as needed). Participants assigned to the C-couple group reported scores at a similarly elevated level for CAARS-A, with an additional elevation on the CAARS-B, CSS-HI (or WURS-HI). Information on variables such as a history of pharmacological treatment, ongoing treatment, and academic accommodations were also used to corroborate final group membership, when available. Participants were not excluded from any group due to the presence of other mental disorders.

Participants

Participants in an initial cohort (i.e., Canu et al., 2007) were romantic dyads composed mainly of undergraduate students, and were recruited from a mid-sized university in the Midwest via newspaper ads, posters, email announcements, and referral from campus student services offices. Advertisements for both non-diagnosed and ADHD populations directly tapped dating or married couples to participate in a study examining factors associated with relational success; those recruiting ADHD couples additionally mentioned that I was investigating factors that distinguish between couples with and without an ADHD partner. This first sample was augmented with participants from Appalachian State University (final N = 126, see Figure 1 for group sizes and gender composition), who were recruited in a like manner. The groups comprised participants from each sample as follows: C-probands (Missouri n = 9; ASU n = 11; Age M = 20.9), C-partners (Missouri n = 9; ASU n = 11; Age M = 20.5), IA-probands (Missouri n = 7; ASU n = 7; Age M = 21.1), IA- partners (Missouri n = 7; ASU n = 7; Age M = 21.2), proband-matched participants (Missouri n = 22; ASU n = 7; Age M = 22.7), matched non-diagnosed partners (Missouri n = 22; ASU n = 7; Age M = 21.3). Overall, 86.5% of participants were Caucasian. On the couple level, 87.3% reported that they were *seriously dating, considering getting engaged, engaged,* or *married.*

Couples were paid $20 ($10 per participant) for completing study procedures. Table 2 contains further information about participant characteristics.

This study was reviewed and approved by the Appalachian State University Internal Review Board on May 6, 2008, and approval was renewed on May 27, 2009 (IRB Reference #09-0257; see Appendix A). The study adhered to all ethical principles of research using human subjects, and the principle investigator and lab assistants completed training to that effect.

Description of Measures

Conners Adult ADHD Rating Scale: Screening Version – The CAARS (Conners et al., 1999) is a 30-item scale measuring the presence of ADHD symptoms based on the DSM-IV criteria, with separate *T* scores for men and women of different ages. It utilizes a four point Likert format (0 = *not at all or never*, 3 = *very much, very frequently)*, with scales corresponding to the primary symptom clusters of *DSM-IV-TR* ADHD, Inattention (IA) and Hyperactivity-Impulsivity (HI), that are considered significantly elevated at a *T* score of 65 or greater. All items are scored in a positive direction with high scores indicating a greater presence of ADHD symptoms. Cronbach's alpha for internal consistency ranged on the four subscales from .64 to .91 for men and .49 to .90 for women, one month test-retest reliability was .88 to .91, and it has been shown to correctly discriminate between clinical and non-clinical cases 85% of the time (Macey, 2003).

Childhood Symptom Self-Report Scale for Adults. This scale (CSS) by Barkley and Murphy (2006) is a 49-item, retrospective self-report for adults used in the diagnosis of ADHD, as well as childhood Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD). The scale uses a four point Likert format (0 = *never or rarely*, 3 = *very often*) with the

first section asking adults to respond to 18 items based on the DSM-IV-TR criteria for ADHD, tapping IA and H-I symptoms, between the ages of 5 and 12. Subsequent items assess symptom impact on social and familial adjustment, emotional disturbance, and oppositional behaviors. All items are scored in a positive direction, with higher scores indicating a greater presence of ADHD symptoms. Means and 1.5 *SD* cutoff points for endorsement of items groups were normed by age, and are reported by Barkley and Murphy (2006). The IA and HI subscales have been shown to have satisfactory internal reliability in a large sample of undergraduate students (*N* = 1,047; Cronbach's alpha = .80, .73, respectively; Fedele, Hartung, Canu, & Wilkowski, in press); in the current sample, Cronbach's alpha for the IA scale was .93 and .91 for the HI scale.

Wender Utah Rating Scale (WURS; Ward et al., 1993).This short, self-report form of the WURS has 25 items that discriminate ADHD and non-diagnosed samples. Items use a 5-point scale (0 = *not at all or very slightly*, 4 = *very much*), and a total cutoff score of 36 produces 96% sensitivity and specificity for ADHD. All items are scored in a positive direction, with higher scores indicating a greater presence of ADHD symptoms. Ward and colleagues report a Spearman-Brown split-half *r* = .9 (in non-ADHD adults, *N* = 100), as well as Pearson correlations with the Conners Parent Rating Scale scores of .49 for non-diagnosed individuals and .41 for adults with ADHD, suggesting convergent validity.

Relationship Assessment Scale. The RAS (Hendrick, 1988) is a seven-item scale using a five-point, Likert-type format for each item. It measures general satisfaction with a relationship, involving the partner's ability to meet needs, expectations, and solve problems. Two items are reverse-scored; all items assess the presence or absence of good relationship qualities or adaptive partner behaviors. Higher scale scores indicate greater relational

satisfaction. Cronbach's alpha for the scale is reported by Hendrick (1988) as .86. The average item score from Hendrick's study for those who stayed together after several months (M = 4.34) was significantly higher than those who separated (M = 3.33; n = 60).

Conflict Resolution Scale (CRS). This scale by Patock-Peckham et al. (2004) includes 50 items using a five-point Likert format (from 1 = *never*, to 5 = *always*). It measures five styles of conflict resolution: Direct Destructive (DD), Indirect Destructive (IDA), Indirect Passive-Aggressive (IDPA), Direct Constructive (DC), and Indirect Constructive (IC). Example items include "I would confront the perpetrator and call them abusive names" (DD); "I would go out of my way to avoid the perpetrator" (IDA); "I would speak to the perpetrator about how their actions made me feel" (DC); "I would ask others around me what the perpetrator's problem is with me" (IC); "I would talk about the perpetrator behind their back" (IDPA; Patock-Peckham et al., 2004). All items are scored in the positive direction; higher subscale scores indicate increasing use of that particular style of conflict resolution. In a study of 86 undergraduate participants (Canu et al., 2007), subscale alpha coefficients were quite satisfactory (.78 to .93), and Cronbach's alpha for the full measure was .86.

Rapid Couple's Interaction Scoring System. The RCISS (Gottman, 1996) is a system for coding couples' interactions. The system divides the conversation into turns, and applies appropriate behavior codes to both speaker and listener in each turn. Codes may be negative (e.g., Defensive), or neutral/positive (e.g., Humor). For a full description of the RCISS codes see Table 1. Conclusions are made about interactions by analyzing the pattern and prevalence of these codes in each person and the couple as a unit. Gottman and Levenson (1992) successfully used the RCISS to determine "regulated" versus "non-regulated" marriages, and

showed the latter to be related to low marital satisfaction, consideration of divorce, and actually separating. Gottman and Levenson also reported a trend ($p < .058$) for unregulated couples to have higher divorce rates (Gottman & Levenson, 1992). In the present study, the RCISS coding system is not used to predict divorce, per se, but instead to evaluate communication between partners. Proportional data is reported to control for couple differences in verbosity (i.e., if "Defensive" is coded 10 out of 100 total codes for the couple's 15 minute interaction, the Defensive score would be .10). Gottman and colleagues have reported inter-rater reliabilities for RCISS behaviors between .61 and .90, with an average of .76 (Buehlman, Gottman, & Katz, 1992). Comparable values for inter-rater reliability using Cohen's Kappa were also reported by Gottman (1993) and Gottman and Levenson (1992), and codes were reported to be independent of each other.

Procedure

During written informed consent procedures, participants were reminded that they would each receive a 10 dollar incentive for participation. After giving consent, participants completed the Relationship Problem Inventory (RPI; Melby, Ge, Conger, & Warner, 1995) which taps 32 common areas of disagreement for romantic couples (e.g. money, sexual behavior, or household chores). These are rated on a five-point Likert scale for frequency of disagreement. Participants then rank ordered the top three topics of disagreement in their relationship. The next questionnaire packet contained a demographics survey along with the CAARS, WURS, CSS (Appalachian participants only), Sexual Orientation Scale (SOI), RAS, and the CRS. Couples were told to complete the questionnaires in order, to refrain from talking, and to turn their packets over when they finished.

Members of each couple completed their questionnaires in private laboratory areas, with an experimenter available at all times to answer questions. After both finished, the couple sat together at a table and were handed a stack of four discussion topics relevant to their relationship. Three discussion topics were generated from a composite of their individual survey answers on the RPI and presented in descending order of contentiousness, from mutually agreed upon "most difficult" to third-most-difficult; a final fourth topic asked the couple to continue discussion on other topics about which they have disagreement. Couples were asked to interact with the purpose of agreeing on a solution. The experimenter started recording with a video camera, which was in plain sight, and exited the room for exactly 15 minutes, re-entering in order to stop the camera at the end of the interaction. Participants were then debriefed and paid, and given a referral card for local psychological services in the event that the interaction raised issues requiring counseling.

Data Analytic Strategy

I used Analysis of Variance (ANOVA) tests and chi square analyses to examine possible differences on demographic variables due to ADHD status. Multivariate Analysis of Variance (MANOVA) tests were performed for negative RCISS couple scores and positive/neutral RCISS couple scores. Two MANOVAs were also used to analyze the CRS subscales at the individual level, with one for proband individuals and proband-matched participants, and one for the partners of proband individuals and matched non-diagnosed partners. ANOVAs were used to investigate the RAS scores: one at the couple level using the average of the partner's scores, and two at the individual level (i.e., proband individuals compared with proband-matched individuals, and partners of the previous groups).

Given the exploratory nature of this study, Lambda and *F* values at a significance level of $p < .10$ were followed up with ANOVA and pairwise comparisons, as appropriate. This alpha level is an appropriate compromise to minimize both Type I and Type II error, taking into consideration the small sample size in this investigation. Effect sizes were calculated for all contrasts of interest.

A matching procedure was used to ensure that the gender ratio of the proband-matched comparison groups were balanced to that of corresponding ADHD groups. The percentages of females in the IA- and the C-couple groups were calculated and then averaged. Numbers were rounded up to reflect a larger percentage of females in the C-couple group, and reflecting its relative size, (i.e., $n = 20$, as compared to IA–couples, $n = 14$). On average, 20% of IA- and C-couples had a female partner with ADHD. Therefore, roughly six of the 29 non-diagnosed couples needed their female partner to be designated as proband-matched participants, (see Figure 1), which was accomplished through random selection. This ensured balanced ratios in the comparison group and avoided the introduction of error from assuming that all the diagnosed participants would be male. Inter-rater reliability was carefully maintained during training and coding of the RCISS interactions. I became familiar with the coding scheme by scoring existent video interactions from couples that were excluded from analysis, and successfully taught the coding system to one undergraduate lab assistant who demonstrated an inter-rater reliability of .75 on the RCISS with my scoring of two couple interactions. Subsequent to achieving reliability with me, the coder scored two interactions independently. The trained coder and I were generally blind to the group status of the couples (see exception in Limitations). Overall, the vast majority of the video data (all but two interactions) were coded by me.

Results

Demographic Variables

Demographic and diagnostic data for each group are described in Table 2. No group differences in age or education level were detected in ANOVA procedures [age: $F(5, 120) = 1.49$, *ns*; education level: $F(5, 120) = 1.68$, *ns*]. Ethnicity was investigated using a chi square test, with similar results, $\chi^2 (20, N = 126) = 22.78$, *ns*. Considering the lack of differences, demographic variables were not controlled for in further analyses.

Non-parametric Analyses

Though parametric tests (e.g., ANOVA) were planned, the data for several variables violated the assumption of homogeneity of variance, despite utilizing *z*-score transformations. Consequently, non-parametric tests were used to analyze group differences for such variables. The Kruskal-Wallis test, which yields a χ^2 statistic, was substituted for ANOVA - with multiple tests employed as needed to substitute for MANOVA - and the Mann Whitney tests, which are evaluated with the *U* statistic, were used in lieu of two-tailed *t* tests.

Diagnostic Variables

A MANOVA was used to examine the difference between the proband and non-diagnosed groups on childhood ADHD symptoms (WURS), current inattentive symptoms (CAARS-A), current hyperactive-impulsive symptoms (CAARS-B), childhood inattentive symptoms (CSS-IA), and childhood hyperactive-impulsive symptoms (CSS-HI). As expected, there was a significant omnibus effect, $\Lambda = .218$, $F(5, 44) = 2.44$, $p < .001$. All ANOVA tests for these variables were significant [WURS $F(5, 44) = 3.68$, $p = .007$; CAARS-A $F(5, 44) = 6.21$, $p < .001$; CAARS-B $F(5, 44) = 6.11$, $p < .001$; CSS-IA $F(5, 44)$

= 5.22, p = .001; CSS-HI $F(5, 44) = 8.90$, $p < .001$]. Pairwise two-tailed t tests all demonstrated group differences in means in the expected directions, as noted in Table 2. Other differences in diagnostic variables between ADHD-IA and ADHD-C participants are noted in Table 3.

RCISS Variables

RCISS negative composite variable. Means and standard deviations for couple-level dependent variables, including the RCISS negative variables, are provided in Table 4, and select effect size comparisons are noted in Table 6. Results for individual-level variables (Table 5) will be discussed later. The RCISSneg variable is calculated by summing all RCISS negative codes and dividing by the total number of codes in each couple interaction, providing an index of the number of negative statements and interactions to the total number of statements and interactions. Group differences were detected on RCISSneg, $\chi^2(2, N = 62) = 13.22$, p = .001, and follow-up pairwise comparisons revealed more negativity in the C-couples as compared to the IA-couples, $U(33) = 77.00$, p = .027, Cohen's d = 0.34. Moreover, a large difference in the same direction was noted between the C-couples and non-diagnosed couples, $U(47) = 105.00$, $p < .001$, d = 1.14; non-diagnosed couples and IA-couples were equivalent, $U(41) = 178.50$, *ns*. These results seemed to clearly warrant further analysis of differences across the individual RCISS negative codes.

Individual RCISS negative codes. A MANOVA on Escalate Negative Affect/Other Negative and "Yes, but" RCISS-coded behaviors, which are described in Table 1, revealed overall differences, $\Lambda = .765$, $F(2, 59) = 4.15$, p = .004. Follow-up comparisons indicated group differences on Escalate Negative Affect/Other Negative, $F(2, 59) = 6.77$, p = .002, and that these behaviors occurred much more often in the C-couples than the IA-couples,

$t(32) = 2.58$, $p = .015$, $d = 0.90$. There was a similar, large difference between C-couples and non-diagnosed couples, $t(46) = 3.61$, $p = .001$, $d = 1.06$, whereas IA-couples and non-diagnosed couples were equivalent, $t(40) = 0.63$, *ns*. Further analysis of "Yes, but" verbalizations also indicated group differences, $F(2, 59) = 3.84$, $p = .027$, and pairwise tests showed more of these agreeing-but-disagreeing statements in C-couples, as compared to both non-diagnosed couples, $t(46) = 2.13$, $p = .039$, $d = 0.63$, and IA-couples, $t(32) = 2.37$, $p = .024$, $d = 0.85$, who were statistically equivalent, $t(40) = 0.74$, *ns*. "Yes, but" was the only RCISS negative variable that did not show a linear trend of mean score increases from non-diagnosed to IA-couples to C-couples.

The Defensive code, $\chi^2(2, N = 62) = 13.52$, $p = .001$, was also examined at the pairwise level; defensive statements were slightly more common in the IA-couples than in those without an ADHD partner, $U(41) = 120.00$, $p = .028$, $d = 0.16$, and comparatively much more common in C-couples, $U(47) = 118.00$, $p < .001$, $d = 1.12$. The two groups of ADHD couples, however, did not differ, $U(33) = 105.50$, *ns*.

Differences were also evident on Criticize/Put Down behaviors, $\chi^2(2, N = 62) = 16.13$, $p < .001$. Pairwise comparisons showed that C-couples use such relationally-damaging verbalizations slightly more than IA-couples, $U(33) = 78.50$, $p = .029$, $d = 0.04$, and much more than non-diagnosed couples, $U(47) = 100.50$, $p < .001$, $d = 1.12$. The latter two groups did not differ, $U(41) = 161.50$, *ns*.

The incidence of Negative Problem Talk/Complain also differentiated the groups, $\chi^2(2, N = 62) = 10.87$, $p = .004$. Pairwise comparisons indicated a difference between the ADHD-IA and the C-couples, $U(33) = 86.50$, $p = .06$, $d = 0.25$, with the latter exhibiting more problematic behavior on this index, as they did when contrasted with non-diagnosed

couples, as well, $U(47) = 120.50$, $p = .001$, $d = 1.07$. There was no statistically significant difference between the IA-couples and the non-diagnosed group, $U(41) = 180.50$, *ns*.

Negative Facial Expression also separated the groups $\chi^2(2, N = 62) = 7.83$, $p = .02$, with C-couples higher in negative facial expression than both non-diagnosed couples, $U(47) = 146.00$, $p = .005$, $d = 0.73$, and IA-couples, $U(33) = 90.00$, $p = .083$, $d = 0.20$. IA- and non-diagnosed couples did not differ, $U(41) = 195.50$, *ns*.

RCISS positive and neutral composite variable. The RCISSpos variable is a composite of all positive and neutral RCISS codes created by tallying all occurrences of these behaviors (Positive or Neutral Problem Talk/Assent, Task-Oriented Talk, Humor/Other Positive, and Positive Facial Expression; see Table 1) and dividing by the total number of codable behaviors in each couple's interaction. Group differences were evident on this composite variable, $\chi^2(2, N = 62) = 8.96$, $p = .011$; pairwise tests revealed lower positivity in C-couples compared to both non-diagnosed, $U(47) = 134.00$, $p = .002$, $d = 1.06$, and IA-couples, $U(33) = 91.00$, $p = .09$, $d = 0.38$. There was no significant difference between IA-couples and the non-diagnosed group, $U(41) = 180.00$, *ns*. Again, such composite variable differences indicated further investigation of the individual positive/neutral variables to be desirable.

Individual RCISS positive and neutral codes. Three of the four positive or neutral RCISS behaviors (Positive Facial Expression, Task-Oriented Talk, and Humor/Other Positive) were analyzed using MANOVA. There was no significant omnibus effect, $\Lambda = .845$, $F(2, 59) = 1.66$, *ns*, and so further analysis was not conducted.

Analysis of Positive or Neutral Problem Talk/Assent indicated pairwise examination, $\chi^2(2, N = 62) = 12.02$, $p = .002$, which showed C-couples to use less positive problem talk

and assent than IA-couples, $U(33) = 81.00$, $p = .039$, $d = 0.28$. The disparity between C-couples and the non-diagnosed group was even larger, $U(47) = 113.00$, $p < .001$, $d = 1.18$. The IA-couples and non-diagnosed groups did not differ, $U(41) = 176.00$, *ns*. Overall, the C-couples exhibited greater negativity, and somewhat less positivity, than both IA-couples and non-diagnosed couples. For a visual comparison of groups on individual RCISS-coded behavior use, see Figure 2.

RAS Variable

RAS couple-level analyses. The Couple RAS variable is an average of the RAS scores for partners in each romantic dyad. Kruskal-Wallis, $\chi^2(2, N = 63) = 11.57$, $p = .003$, and Mann Whitney procedures showed the C-couples to be less satisfied than the IA-couples, $U(33) = 81.50$, $p = .039$, $d = 0.53$. Contrary to my hypothesis, C-couples were even less happy in their relationships when compared with non-diagnosed couples, whose satisfaction did not differ from the IA-couples [respectively: $U(48) = 127.00$, $p = .001$, $d = 1.19$; $U(42) = 165.00$, *ns*]. These results support the assertion that C-couples will experience greater dissatisfaction than couples without an ADHD partner, but do not support that IA-couples and C-couples are equally troubled in their relationships.

RAS individual-level analyses. The individual RAS scores of IA-probands, C-probands and proband-matched participants (see Figure 1) were, by force, examined non-parametrically, while an ANOVA was used to examine RAS data among the romantic partners of these three groups. While the *F* statistic for the partners' ANOVA did not reach statistical significance, $F(2, 60) = 2.14$, *ns*, planned pairwise contrasts were still conducted, and indicated no difference between the IA-partners and C-partners, or between the matched non-diagnosed partners and IA-partners [respectively: $t(32) = 0.51$, *ns*; $t(41) = 1.16$, *ns*].

However, a meaningful difference between the C-partners and the matched non-diagnosed partners was found, $t(47) = 2.28$, $p = .028$, $d = 0.66$, which suggests that the C - partners are relationally dissatisfied compared to the partners of proband-matched individuals (see Table 7 for effect sizes). The individual mean scores for the C-partners ($M = 3.14$; $SD = 0.6$) was lower than those of couples whose relationship terminated in the study by Hendrick ($M = 3.33$; 1988).

Individual RAS scores were also noted to differ across proband and proband-matched groups, $\chi^2(2, N = 63) = 13.21$, $p = .001$. Mann Whitney tests revealed that C-probands reported substantially lower satisfaction than both IA-probands, $U(33) = 73.00$, $p = .018$, $d = 0.81$, and proband-matched peers, $U(48) = 116.50$, $p < .001$, $d = 1.50$. Again, there was no difference between IA-probands and non-diagnosed participants, $U(42) = 181.00$, *ns* (see Table 8 for effect sizes). In sum, both the C-probands and their partners experience higher dissatisfaction than non-diagnosed peers, forming a clear, dyadic pattern of relational distress. Of particular note is the C-proband average score of 2.79 ($SD = 0.8$), which is far below the relational-dissolution cutoff (see above), and by far the lowest satisfaction in my sample's groups. Figure 3 provides between-group RAS mean comparisons for all levels of analysis.

CRS Subscales Variables

Scores on the five subscales of the CRS [i.e., Direct Destructive (DD), Indirect Destructive (IDA), Direct Constructive (DC), Indirect Constructive (IC), and Indirect Passive Aggressive (IDPA)] were investigated using MANOVA across IA- and C-probands and proband-matched peers, $\Lambda = .729$, $F(2, 60) = 1.92$, $p = .05$, (see Figure 4 for proband group means). Follow-up revealed differences on DD scores, $F(2, 60) = 5.49$, $p = .006$, with

pairwise tests specifying higher use of DD resolution techniques by C-probands, as compared to those without ADHD, $t(47) = 3.17$, $p = .01$, $d = 0.94$. C-probands used these techniques more often than IA-probands, as well, $t(32) = 1.80$, $p = .082$, $d = 0.64$, fitting my a priori prediction. There was no difference between the IA-probands and their proband-matched peers, $t(41) = 0.94$, *ns*.

Differences also emerged on the IDPA subscale, $F(2, 60) = 4.15$, $p = .02$. Pairwise tests show that C-probands endorse indirect passive aggressive techniques more than the proband-matched group, $t(47) = 3.00$, $p = .004$, $d = 0.51$. There was no significant difference between IA-probands and C-probands, or between IA-probands and the proband-matched group [respectively: $t(32) = 0.24$, *ns*; $t(41) = 1.20$, *ns*].

Analysis of the DC subscale data warranted follow-up, $F(2, 60) = 2.63$, $p = .081$, which showed lower preference for DC conflict resolution both in IA-probands and C -probands, as compared to their proband-matched peers [respectively: $t(41) = 2.03$, $p = .049$, $d = 0.66$; $t(47) = 1.76$, $p = .084$, $d = 0.51$]; however, the two ADHD groups did not differ from each other, $t(32) = 0.36$, $p = .72$, *ns*. ANOVA results for the IC subscale and the IDA subscale were non-significant [respectively: $F(2, 60) = 1.86$, *ns*; $F(2, 60) = 0.63$, *ns*].

CRS Subscale analyses for C-partners, IA-partners, and matched non-diagnosed partners. Figure 5 illustrates the means for the partner groups across the five CRS subscales. Marginal differences emerged between romantic partner groups on the ID and DC subscales [respectively: $\chi^2(2, N = 63) = 4.97$, $p = .083$; $\chi^2(2, N = 63) = 4.86$, $p = .088$], but not on other subscales [DD $\chi^2(2, N = 63) = 0.54$, *ns*; IDPA $\chi^2(2, N = 63) = 3.82$, *ns*; IC $\chi^2(2, N = 63) = 3.32$, *ns*]. Follow-up tests on the ID data showed that both C-partners and IA-partners reported more indirect destructive conflict resolution tactics than matched non-diagnosed

partners [respectively: $U(42) = 133.50$, $p = .071$, $d = 0.54$; $U(48) = 198.50$, $p = .063$, $d = 0.46$]. There was no statistically discernable difference between the IA-partners and C-partners, $U(33) = 126.50$, *ns*.

Pairwise tests on DC endorsement showed the partners of the ADHD subtypes to be equivalent, as were the C-partners and the matched non-diagnosed partners [respectively: $U(33) = 110.50$, *ns*; $U(48) = 245.50$, *ns*]. However, IA-partners used direct constructive resolution methods more than their matched non-diagnosed peers, $U(42) = 114.00$, $p = .021$, $d = 0.29$.

Exploratory Analyses

Relationship length and level of seriousness. After the main analyses were conducted, exploratory analyses were performed to elaborate upon results. An ANOVA showed no differences on length of relationship across couples, $F(2, 60) = 0.77$, *ns*, but a trend toward differences was noted on self-rated relational seriousness (averaged within dyads), $F(2, 60) = 2.85$, $p = .066$. Follow-up tests found that C-couples rated their relationships as less serious than non-diagnosed couples [C-couples vs. non-diagnosed $t(47) = 2.43$, $p = .019$, $d = 0.67$; IA-couples vs. C-couples $t(32) = 1.41$, *ns*; IA-couples vs. non-diagnosed $t(41) = 0.53$, *ns*].

RCISS Engagement variables. A second group of exploratory analyses were performed on RCISS codes that broadly indicate engagement and disengagement (i.e., Engagement, Disengagement, Connected and Avoidant Listener Gaze, Responsive Facial Movement, see Table 1). Only engagement behavior, indicating facial and body language that is responsive to the speaker, varied across groups, $\chi^2(2, N = 62) = 9.38$, $p = .009$ [*ns* results: Disengagement $\chi^2(2, N = 62) = 3.73$; Connected Listener Gaze $\chi^2(2, N = 62) = 2.69$; Avoidant Listener Gaze $\chi^2(2, N = 62) = .68$; Responsive Facial Movement $\chi^2(2, N = 62) =$

2.90]. Pairwise tests highlighted more engaged listening during dialogue in C-couples, as compared to IA-couples, $U(33) = 89.00$, $p = .074$, $d = 0.63$. The C-couples were even more engaged than the non-diagnosed couples; the latter group was equivalent to IA-couples [respectively: $U(47) = 138.00$, $p = .003$, $d = 0.93$; $U(41) = 156.00$, *ns*].

CRS Sum Variable

CRS Sum is an index of overall endorsement of all conflict resolution techniques. Groups differed on this variable, $F(2, 60) = 4.51$, $p = .015$, and pairwise tests showed that both IA-probands and proband-matched participants endorsed fewer conflict resolution techniques than C-probands [respectively: $t(32) = 2.66$, $p = .012$; $t(47) = 2.65$, $p = .011$]. There was no difference between the IA-probands and the proband-matched participants on this variable, $t(41) = 0.59$, *ns*. A separate ANOVA was conducted for the romantic partners groups, finding no significant differences, $F(2, 60) = 0.25$, *ns*.

Discussion

This study investigated the differences in romantic-relational conflict resolution behavior and satisfaction among young adults with and without ADHD. The analyses focused on identifying potential patterns of behaviors that could differentiate the Combined and Inattentive Types of ADHD. Though the body of research on ADHD in adulthood is growing, relatively little is known about how the lifetime course of ADHD affects long-term relationships. In fact, to my knowledge, this study is the first to empirically investigate how adults in these two common ADHD subtypes differ in their intra-relational conflicts in adulthood. This “subtyping” approach to research in the adult population is uncommon in published studies, which have tended to lump all ADHD-diagnosed adults together in one comparison group. As such, this developmentally extends the literature on ADHD in children

by supporting different social trajectories for the subtypes of ADHD and by contributing to the debate over the prognostic value of differentiating types within the overall ADHD syndrome. Finally, this study is one of only a very few that examines in vivo dyadic interactions of adults with ADHD, and thus offers a rare perspective on how this condition affects social behavior.

In-vivo Interactions

Negative behaviors. Results from the couples' conflict resolution task offer qualified support to the hypothesis that the presence of a partner with ADHD is associated with maladaptive dyadic behavior. Specifically, C-couples emitted more complaining, criticism, put-downs, qualified agreements (i.e., "Yes, but"), negative statements, and escalation of negative affect than both the IA-couples and non-diagnosed couples. With the exception of Defensive behavior, where both ADHD couple subtypes were elevated compared to the couples without ADHD, the IA-couples did not differ from the non-diagnosed group in frequency of negative behavior, as captured by the RCISS codes. The consistency of this data suggests that it is mainly those with the Combined Type who exhibit and potentially elicit broadly negative behavior in romantic dyadic problem solving, and, perhaps, in conversation in general. What is most compelling about these results is that the negative behaviors which occur more often within C-couple interactions correspond to those identified by Gottman as effectively discriminating between successful couples and those relationships headed for dissolution. Specifically, Gottman (1996) refers to Complain, Criticize, Put Down, and Defensive (including "Yes, but" statements) as the "Four Horsemen of the Apocalypse" (see Figure 6 for a group comparison of these variable means), those relational behaviors that are most concretely linked to dissolution. This may help to explain the findings of Murphy and

Barkley (1996) which showed increased rates of divorce in a sample of adults diagnosed with ADHD that overrepresented the Combined Type.

Which behaviors specific to ADHD-C could explain these results, given that the IA-couples showed little evidence of difficulty in their dyadic interactions or satisfaction? Social impairments which are evident in the literature on children with ADHD-C may develop into behaviors which are damaging to long-term romantic relationships in adulthood. As noted previously, children with ADHD-C tend to incur greater peer rejection and dislike than those with ADHD-IA, and specifically, exhibit more aggression and competitiveness (Carlson et al., 2002; Gaub & Carlson, 1997; Graetz et al., 2001; Hinshaw & Melnick, 1995). These same studies describe children with ADHD-IA as more passive and cooperative, requiring external motivation, and being ignored instead of rejected outright. If such subtype-specific traits hold true over time and are elicited in the context of stressful social interactions, such as my task of discussing relational problems with a romantic partner, the negative pattern in the C-couples makes some sense. A predilection toward aggression may be reflected by the higher rates of criticism and put-downs; competitiveness could relate to escalating negative affect and defensiveness. Characteristics associated with the ADHD-IA Type in child (e.g., Gaub & Carlson, 1997) and college populations (e.g., Canu & Carlson, 2003), such as passivity, may not aid in negotiating romantic relationships, but are less likely to emerge as active negativity in a verbal interaction, and may consequently cause less relational damage.

A second hypothesis to consider is that dyadic interactions of those with ADHD-C may be particularly marked by a “positive illusory bias” (PIB). PIB refers to the tendency to self-report greater personal competence at a task than the actual level of performance achieved, and is documented to occur more often in children with ADHD than non-diagnosed

peers (Evangelista, Owens, Golden, & Pelham, 2008). For instance, Diener and Milich (1997) allowed boys with ADHD to give feedback about their own likeability after a peer interaction task. The boys gave overly positive self-ratings, but, when given rigged, positive "peer feedback" from experimenters regarding their social performance, they backed away from their inflated self-ratings and gave more realistic ones. Boys with ADHD who were given critical feedback only inflated their own positive self-ratings even further. The authors concluded that the PIB is used by boys with ADHD to bolster a fragile self-esteem which stems partly from an awareness of their poor social skills (Diener & Milich, 1997). The PIB also seemed to create a social blind spot for a subsample of children with ADHD that experienced a no-feedback condition. During a second interaction with a peer, the no-feedback group continued to overrate their social performance and their partner continued to be dissatisfied (Diener & Milich, 1997). This indicates that if the peer demonstrated negative social feedback in voice or body language, which was likely given the peers' initially low interaction ratings, it went unnoticed and unaccounted for by their ADHD partner. Perhaps PIB continues to be problematic for adults with ADHD, as suggested by prior research documenting a lack of elevated rejection sensitivity (Canu & Carlson, 2007). If so, this may translate into a continuing obliviousness to social feedback and a corresponding failure to improve social skills.

In addition to the PIB clouding self-perceptions, Evangelista and colleagues (2008) hypothesize that, in those with ADHD, it also disrupts perceptions of others. Some existent empirical research supports this claim. For instance, Cadesky, Mota, and Schachar (2000) found that children with ADHD of both subtypes were less accurate than non-diagnosed peers at identifying emotions on faces and from vocal cues. Further, when viewing a clip of a

TV sitcom in an environment with distractions, children with ADHD are less able than non-diagnosed children to answer questions about causal relationships for the actors' behaviors (Lorch et al., 2004).

Despite the literature that links PIB with the ADHD syndrome, it is important to note that the defensive self-perceptions and faulty other-perceptions associated with the PIB have mostly been associated with the Combined Type of ADHD, to date. The sample of ADHD children in Lorch et al. (2004) excluded those with only inattentive symptoms due to the author's convictions that this represents a different behavioral trajectory. In fact, it was an exclusionary criterion for the ADHD group in Diener and Milich's (1997) work, as well, if a child only evidenced inattentive symptoms without hyperactive/impulsive symptoms. Essentially, their study can be seen as supporting the strong impact of the PIB on peer relationships for *ADHD-C diagnosed individuals rather than ADHD in general.* Furthermore, Hoza and colleagues (Hoza et al., 2004; Owens & Hoza, 2003) found evidence that comorbid externalizing problems and hyperactive/impulsive symptoms, both of which are substantially elevated in ADHD-C as compared to ADHD-IA, exacerbate PIB.

Such research suggests an intriguing possibility that may help explain why negative behaviors were noted more often in the interactions of C-couples. Keeping with PIB research noted above, the C-proband may be less able to recognize emotional cues in the face and voice of his or her partner, and may not make accurate assessments about the contributions of his (or her) own behaviors to these reactions. This is likely to continue or even intensify with any perceived criticism from the partner, which may lead to heightened negative affect in the dyad. The partner with ADHD-C would also be more likely to respond to criticism with defensiveness rather than concerned engagement, in order to protect their inflated self-view.

As his or her concerns are rebuffed, the romantic partner is likely to experience significant frustration and, potentially, to retaliate in relationally damaging ways. My data seem to provide at least some empirical basis for such speculation.

While recent research on adult relational adjustment has demonstrated some impairment associated with ADHD-IA (Canu & Carlson, 2003, 2007), that subtype's passivity and lack of initiative is perhaps less likely to come to light in a brief, dyadic problem-solving task such as the one employed in this study. This is particularly likely given my task's "public" nature, and that those with ADHD-IA have been shown to be less relationally motivated and engaged in general (Canu & Carlson, 2007). In addition, the highly structured nature of this study's dyadic interaction may be relatively comfortable for IA-probands; naturalistic observation may reveal more negative, avoidant behaviors on their part. Prior research (Canu & Carlson, 2003, 2007) has mainly documented that relationship *initiation* (e.g., achievement of dating and sexual milestones, negative "first impression" evaluations by opposite sex peers) is problematic for young men with ADHD-IA. Because my study investigates long-term romantic relationships, any initial awkwardness has implicitly been overcome, and may no longer pose great problems for IA-couples. Overall, negative relational behaviors characteristic of ADHD-C (e.g., over-assertion) are likely to be more "obvious" and easy to capture with RCISS behavioral codes than problematic behaviors of adult IA-probands (e.g., passivity, forgetfulness, poor planning). This may disguise a degree of impairment in the latter group.

Positive behaviors. Exploratory analyses of positive RCISS behaviors also partially supported my first hypothesis. C-couples had less overall positive behavior, specifically using fewer positive and neutral statements and fewer assents in dyadic discussion than the

non-diagnosed and the IA-couples. Again, the IA-couples did not differ from the non-diagnosed group. The RCISS system allows for both positive and negative codes within a single speaking or listening conversational "turn;" obviously, given the results, the C-couples used negative behaviors more frequently and simultaneously used fewer positive behaviors. Perhaps, once the tone of a turn became negative, positive responses became more unlikely. Research in children with ADHD has supported their difficulty in adjusting their social behavior to fit the context (Hinshaw & Melnick, 1995), or in this case, an inability to regulate one's verbal behavior to salvage a negatively toned conversation. Those with ADHD-C may particularly struggle with this, due to a greater tendency toward the PIB and its co-occurring social impairments (e.g., Hoza et al., 2004; Owen & Hoza, 2003). Whatever the dynamic, it is clear that the C-couples did not effectively use humor or other positive expressions to compensate for negative verbalizations.

Relationship Satisfaction

My hypothesis that the level of satisfaction in couples with ADHD would be lower than in non-diagnosed couples was also partially supported. Specifically, the C-couples reported greater dissatisfaction, as captured by the RAS, relative to the other two groups, which reported equivalent satisfaction. Similarly, at the participant level, C-probands and C-partners independently endorsed lower satisfaction than gender-matched, non-diagnosed comparison groups. C-probands were also less satisfied than IA-probands. Overall, these results, especially when considered in the light of the RCISS findings, indicate that behaviors characteristic of the Combined Type are indeed likely to be problematic in long-term adult romantic relationships.

The relative satisfaction in the IA-Couples was surprising based on the findings of previous research. Several studies document the deleterious effects of inattentive behaviors on romantic relationships (e.g., Canu & Carlson, 2003; Robin & Payson, 2002). This contradiction may be accounted for by several factors. One is the relative youth of this sample (e.g., traditional college-age, versus middle adulthood in Robin & Payson, 2002). Couples at this developmental stage experience different obstacles (e.g., disagreement regarding choice of entertainment) than those in older samples (e.g., distress related to unpaid bills or unattended children) in which behaviors of the inattentive subtype were shown to be particularly problematic. Further, as noted above, *initial* attraction and romantic interaction is largely what has been shown to be problematic for young adult males with ADHD-IA (relative to ADHD-C and non-diagnosed groups; Canu & Carlson, 2003), and these younger long-term couples (*M* months = 22) may be at a stage associated with the greatest chance for normal relational satisfaction.

Another explanation for the pattern of subtype differences in relational satisfaction could relate to the gradient-of-severity theory of ADHD (Gaub & Carlson, 1997; Larsson et al., 2006; Miller et al., 2007), which posits that hyperactive/impulsive symptoms and inattention independently contribute to impairment in the Combined Type. In this theory, ADHD-IA is a less impairing form of the disorder, even in the social domain. Such a gradient effect is supported by the raw RAS data, with the non-diagnosed couples having the highest mean satisfaction, followed by IA- couples, and C-couples having the least satisfying relationships. Both partners in the C-couples reported dissatisfaction, precluding the possibility that internal distress related to ADHD (on the part of the diagnosed partners) is entirely to blame for a lack of relational contentment.

Conflict Resolution Styles

ADHD probands and proband-matched participants. Overall, it was expected that IA-probands would tend to use "indirect" techniques of conflict resolution, while the Combined Type would engage in more "direct" techniques. However, the predominantly male, ADHD-subtype groups did not appear to favor such qualitatively different styles of conflict resolution. C-probands did report using more direct destructive (i.e., tendency to immediately respond to a perpetrator with anger, intimidation, and verbal aggression) and indirect passive aggressive (e.g., social aggression behind the back of the offender, such as slander and name-calling) techniques, as compared to IA-probands and the proband-matched participants. Participants in both ADHD subtypes used direct constructive tactics (i.e., addressing the perpetrator in a non-threatening and open manner) less than the same non-diagnosed peers. Overall, C-probands seemed to overuse destructive and underuse constructive conflict resolution tactics.

An interesting question is why there was not a more pronounced difference in conflict resolution styles between the two ADHD subtypes. Those with ADHD-IA have been consistently characterized as passive and ignored, whereas those with ADHD-C tend to be aggressive and competitive (Canu & Carlson, 2003, 2007; Carlson et al., 2002; Henker & Whalen, 1999). These characteristics seemed likely to be reflected in adulthood as a pattern of assertive (ADHD-C) or avoidant (ADHD-IA) tactics in conflict communication. However, the C-probands here use both direct and indirect negative styles of conflict resolution, with no clear preference for direct *over* indirect tactics, contrary to my hypothesis.

Despite the poor fit of my findings with a putative ADHD subtype-conflict resolution typology, those with ADHD-C do frequently use direct techniques to resolve conflict and,

corresponding to findings in children (Henker & Whalen, 1999), these techniques tend to be aggressive. The pattern of response in IA-probands, such as it is, also fits with the literature in that they endorsed fewer conflict resolution tactics overall. In fact, exploratory post-hoc analyses on the rate of endorsing *any* conflict resolution technique on the CRS showed a significantly lower rate in IA-probands relative to the C-probands. This may reflect a developmentally-persistent passivity among IA-probands in social relationships, reflected here by a reluctance to resolve conflict in relationships. Finally, the small sample size of the IA-couple group, (n = 14), could have muted the strength of subtype differences in conflict resolution as is discussed in the *Limitations* section.

Of particular interest is the unexpectedly high endorsement of passive-aggressive conflict resolution tactics by C-probands. Beyond the expected direct and likely impulsive techniques, the more covert passive-aggressive behaviors tapped by the CRS, such as rolling one's eyes and starting rumors, could also be a measure of one's impulsivity, or perhaps a basic lack of experience in solving conflicts maturely. Elevated risk for externalizing disorders (Miller et al., 2007) and a proclivity for competitiveness (Carlson et al., 2002) may also partly explain why individuals with ADHD-C use such indirect but socially aggressive and damaging strategies, and may tend toward interpersonal hostility in general (Murphy, Barkley, & Bush, 2002).

It is also informative that the C-probands—along with IA- probands—reported significantly less preference for direct, constructive steps toward conflict resolution. This suggests that conflict resolution impairment is two-fold in those with ADHD-C: an overuse of destructive techniques, without adequate positive tactics to ameliorate the ensuing damage. The stronger PIB tendency in the Combined Type could partly explain this reliance

on destructive and "immature" techniques. If, as Diener and Milich (1997) suggest, the PIB is engaged as a self-protective mechanism, the common experience of peer rejection in children with ADHD-C could predispose them to begin conflict with aggressive-yet-defensive tactics, driven both by an erroneous perception that fault always lies with the other person and a desire to end conflict quickly, circumventing further criticism. IA-probands, on the other hand, appear to be simply ineffectual and somewhat avoidant in conflict resolution, not desiring to attempt to solve problems and not able to use effective skills in the process. Overall, however, for both subtypes, relational difficulties appear to endure, consistent with prior research in child (e.g., Gaub & Carlson, 1997), adolescent (e.g., Graetz et al., 2001), and adult samples (Minde et al., 2003). For those with ADHD it appears that negative social behaviors, once learned in childhood, are not often corrected or replaced with healthy relationship skills in adulthood.

Romantic partners. A different pattern of conflict resolution emerged in the romantic partner groups. IA-partners and C-partners used indirect destructive resolution techniques (i.e., actively ignoring the offending person) more frequently than the gender-matched peer group, but did not differ from each other. It is possible that, in C-partners, this represents a reaction to their significant others' chronic, aggressive conflict resolution style. In other words, it may not seem productive for these partners to engage in active conflict, and pulling away may elicit direct assertion by the partner with ADHD-C, perhaps aimed at ending the "silent treatment."

Interestingly, romantic partners of IA-probands also reported greater preference for direct *constructive* techniques, as compared to matched, non-diagnosed peers. This fits with existent literature, as the partners of the likely-more-passive IA-probands may have to use

direct and positive techniques to handle the "heavy lifting" in resolving conflicts. This may represent an adaptive, reactive process within couples, as romantic partners accommodate inadequate resolution styles of their loved ones. Such a complementary style may be more predominant in these long-term couples, in fact, as it may have been necessary for the continuance of the relationship. Alternatively, IA-probands may be differentially attracted to dating partners who initiate positive problem solving for them. Unfortunately, this may potentiate a dynamic in which a person with ADHD-IA is unwilling to engage in positive resolution, and the partner develops a habit of asserting themselves in the problem solving process, which further pushes the diagnosed individual into passivity.

Findings from Post-hoc Analyses

Compared to the other groups, C-couples reported lower levels of seriousness in their relationships, roughly equating to "seriously dating," whereas the other two groups were "considering getting married." This lower level of commitment somewhat contradicts previous research characterizing those with ADHD-C as having higher levels of investment in romantic relationships than those with ADHD-IA (Canu & Carlson, 2007). Putting aside that the ADHD-C relationships actually tended to be shorter (M = 18 months, versus 25 months and 22 months in non-diagnosed and IA-couples, respectively), relational seriousness seems likely to be negatively related to the communication and satisfaction issues that have been documented in C-couples above.

Because there was a consistent and non-significant trend for IA-couples to be intermediate to non-diagnosed and C-couples, in terms of adjustment, effect sizes were more carefully examined. The RCISS variables of Criticize/Put Down, Positive or Neutral Problem Talk/Assent, and Negative Problem Talk/Complain all had medium to large effect sizes when

comparing the IA-couples to non-diagnosed couples (See Table 6) yet still did not meeting my criterion for statistical significance ($p < .10$). While acknowledging that these differences were non-significant with a liberal alpha level, effect sizes of such magnitudes bolster the possibility that IA-couples may indeed emit more of these dysfunctional interaction behaviors as compared to non-diagnosed couples (see *Limitations* and *Future Directions* for further discussion).

Two RCISS listener codes (Facial Movement and Backchannels, see Table 1) were combined to create an index of interactive Engagement, with high scores indicating being more tuned into the partner's communication. Interestingly, Engagement was significantly higher in C-couples than in either IA-couples or non-diagnosed couples. Unfortunately for the C-couples, since they displayed negative statements and facial expressions frequently, it is likely that listener engagement involved negative non-verbal communication, deepening the negative tone of the conversation. Ironically, the very fact that these couples were responsive and engaged may have been a handicap to neutralizing conflict in the interaction. In fact, active engagement may be a channel for aggression in the conversation, a trait that has been empirically linked to the ADHD-C Type (Milich et al., 2001) and fits with my other findings.

Synthesis of Findings

Participants in C-couples—either due to their distinct personal traits or untapped characteristics of their dyadic relationship—appeared to be more negatively adjusted on nearly all dependent variables, when compared to IA-couples and their non-diagnosed peers. This was especially prominent with regards to behavior during the dyadic interaction, where the C-couples were consistently more negative. Overall, there was a qualitatively linear trend

in the severity of negative behaviors, with the non-diagnosed group consistently faring best and IA-participants intermediate to C-probands and C-partners, which were worst off, with few exceptions noted (i.e., "Yes, but," defensive responses, and direct constructive conflict resolution; see discussion above). Unexpectedly, the IA-probands and couples were not statistically different from the non-diagnosed groups on relational behaviors or satisfaction. Overall, these findings emphasize that the ADHD-C Type *is* associated with maladjustment and problematic romantic-relational behavior in adulthood, the latter of which might not be limited to the narrow band examined in this study.

Considering the three areas of relationship functioning that were assessed (dyadic couple interaction and satisfaction, personal conflict resolution style), a more detailed picture of relational impairment in C-couples is apparent. Individuals—and particularly males—with ADHD-C engage in dating and sexual behavior at an early age, entering romantic relationships quickly and easily, as suggested by the favorable opinions of confederates in the study by Canu and Carlson (2003). However, they likely bring a repertoire of maladaptive, and a dearth of effective, conflict resolution tactics into the relationship. The current research demonstrates that, by one's early twenties, a lack of romantic satisfaction is coupled with poor relationship nurturing skills. The elevated negative affect and reduced positive affect within interactions matches, and could possibly follow from, destructive conflict resolution techniques, both of which may affect relationship dissatisfaction, verbal aggression, and defensiveness. Over time, such factors may result in further decrements in relationship satisfaction for both partners and relational restlessness, marked by a drop in commitment when conflict negotiations break down. It may be that impulsive traits facilitate romance, but also impair one's ability to successfully maintain relationships.

The IA-couples show less relationship dissatisfaction and negativity, but no more positive conflict resolution strategies than the C-couples. However, IA-partners used direct constructive conflict resolution more than non-diagnosed couples. The balance between one relationally passive partner and one working hard at maintenance may explain why IA-couples were not less satisfied in their relationships compared to non-diagnosed couples.

Theoretical Implications

Earlier, the debate between the gradient-of-severity (Gaub & Carlson, 1997; Larsson et al., 2006; Miller et al., 2007) and the subtypes-as-separate-disorders theories of ADHD was mentioned as relevant to this study. Milich and colleagues (2001) argue that divergent characteristics in inattentive symptoms, academic performance, and social behaviors substantiate a differing etiology for the subtypes. Proponents of a gradient of severity suggest that the subtypes share core problems of ADHD, but that the Combined Type is functionally worse in all dimensions than the Predominantly Inattentive Type.

At face value, the current results support the gradient-of-severity hypothesis, because of the aforementioned linear trend of impairment in romantic relational behavior. IA-couples and individuals are worse off in a few areas of dyadic communication, but the C-probands and C-partners showed consistent impairment across dependent variables. However, these results could also be taken to mean that the IA-couples do not substantially differ from non-diagnosed couples, while C-couples clearly do. This could be seen as evidence that the subtypes are, indeed, different disorders. Such a leap would seem premature, however, owing to several studies documenting social difficulties in adults with the Predominantly Inattentive Type. In sum, these results could, to some extent, be interpreted to support either hypothesis. This study may be most useful for extending the knowledge base on how social impairments

differ across ADHD subtypes, and for encouraging a focus on improving these deficits, rather than perfectly explaining them.

Limitations

One salient limitation is that, while all ADHD participants reported a previous diagnosis and many were referred through offices that rigorously vet purportedly supportive diagnostic assessments, final assignment to groups was facilitated using self-report ADHD questionnaires. While Murphy and Schachar (2000) found solid correlations between adults' self-report measures of childhood symptoms and parent reports, as well as between current symptom self-reports and partner reports, other research questions the diagnostic utility of such measures, at least in isolation. In particular, Murphy, Gordon, and Barkley (2002) demonstrated that as high as 25% of a community adult population retrospectively endorsed a clinical cut-off of six symptoms of ADHD in childhood, and 12% endorsed this number in adulthood. Overall, however, given the clear and expected differences between groups across all ADHD (i.e., multiple instruments) and comorbidity data (e.g., ODD scale scores), it seems likely that the groups considered in this study are at least fairly representative of ADHD and non-ADHD college students.

In addition, couples answered personal questions about themselves and their partner and, while they were in separate rooms, it is possible social desirability influenced responses, though this effect would likely have been equivalent across groups. Both institutional review board and physical space requirements led to the camera recording couple interactions being obvious during interactions. A few couples mentioned this was distracting, and perhaps this contributed to the interaction task seeming "artificial" to others.

Two of the statistically significant differences on RCISS variables were quite small in effects size. These were the differences between the IA-couples and the non-diagnosed group on Defensive, (d = 0.16), and between the C-couples and the IA-couples for Criticize and Put Down, (d = 0.04). These results should be interpreted with caution as the statistical significance level may be an artifact of the non-parametric statistical methods used to analyze these variables rather than a meaningful difference in behavior.

Based on previous findings about the level of scholastic and vocational impairment in adults with persistent ADHD (Manuzza et al., 1993), it is probable that this sample represented high-functioning individuals in the ADHD population. Virtually all participants were attending college, and had been able to maintain a relationship long enough to be comfortable engaging in a couple's study. This could create a truncated range, such that the differences observed were less distinct than they would have been had a more diverse sample of ADHD individuals been achieved.

Additionally, gender composition affects how far my conclusions may reasonably be generalized. Though our sample has an ADHD gender ratio that closely approximates epidemiological data (APA, 2000), about 75% of the ADHD couples have a male proband. This means that the conclusions from the current data may more describe the difficulties of romantic relationships with a *male* with ADHD than for couples in general.

As noted above, the sample size for the IA-couples was small (n = 14), leading to low statistical power, which was particularly evident in pairwise comparisons. Because results relating to IA-couples largely contrast the published literature (i.e., lack of difference from non-diagnosed peers), it should again be noted that a larger sample size may have revealed greater impairment in the IA-couples, especially given non-significant yet moderate effect

size differences (e.g., Negative Problem Talk/Complain, $d = 0.56$ between IA- and non-diagnosed couples). This possibility is further supported by recent research on adult ADHD, using real-time reporting of symptoms and behavior, which demonstrated a positive relationship between inattentive symptoms and negative affect, and with impairments in social functioning (Knouse et al., 2008). Conversely, there was no relationship between hyperactive-impulsive symptoms and moment to moment affect or social functioning. In sum, the findings suggesting relative relational success for those with ADHD-IA should be interpreted conservatively.

Contrary to the plan for this study, the vast majority of couples were coded by me. While this implicitly ensured uniformity of behavioral coding, it also means that there was no substantial control for bias. Further, it was not always possible to maintain blindness regarding couples' ADHD status because several participants revealed their status in the video-taped interaction task. However, many of the hypotheses were based on subtype differences, and no one revealed subtype status. In fact, statistical differences were largely found at the subtype (versus syndromal) level, suggesting that a lack of blindness did not bias the coders.

The complex RCISS coding system was streamlined by combining conceptually similar codes. For example, Criticize and Put Down, which share the core feature of verbal aggression, were combined into one code which was used when either behavior was observed. Such combinations reduced the difficulty in teaching the system and enhance the likelihood of achieving and maintaining reliability across coders. The RCISS system is actually a refined and shorter version of the Couples Interaction Scoring System (CISS; Gottman, 1996), and has been shown to predict the likelihood of divorce. Combining codes

in this study loses little real information as the RCISS system is not being used to predict future outcome but instead to describe, qualitatively and quantitatively, the pattern of interactions in a couples problem solving task.

Clinical Implications and Future Directions

To date, this is the first study to investigate in vivo communication styles of romantic couples with an ADHD partner, and how those styles differ between the subtypes and from non-diagnosed peers. It also supports and extends the work of other research on the continuing relational impairment of adults with ADHD. Though the findings of this study seem to target very specific behaviors, they represent an important and heuristic contribution to the literature. If 2-10% of adults still experience impairment due to ADHD (Weiss et al., 1999), then a clear understanding of the social manifestation of their symptoms is crucial for clinicians.

This study presents a particularly detailed account of problematic interactional patterns in C-couples, which is made even more concerning by how some of the related behaviors have been linked to relational dissolution (i.e., divorce; Gottman, 1996). Gottman, in fact, refers to Complain, Criticize, Put Down, and Defensive as the "Four Horseman of the Apocalypse" with regards to divorce, and *all four are higher in the interactions of C-couples than other groups*. If these behaviors, in conjunction with low relationship satisfaction, are common in even this high functioning ADHD-C sample, it indicates that clinicians should actively address the indicated behaviors. Behavioral, motivational, and skill-building interventions may improve the chances of relational success for affected individuals and couples.

Further, this research helps to emphasize the importance of early intervention on social skills for children with ADHD. The current findings suggest that aggressive and competitive behaviors in those with ADHD-C are not likely to remediate on their own, impairing chances for healthy romantic relationships. Teachers and parents could be educated on the particular social difficulties of this subtype, and be encouraged to model and teach communication skills, conflict resolution, and other positive social behavior. In addition, focusing on more positive and active conflict resolution skills for children with ADHD-IA could also aid them in an area of weakness observed in adults.

Future research should be conducted to replicate these results; a larger sample, especially in the ADHD-IA cell, would help to ascertain if the moderate effect sizes observed here translate into statistically significant differences on behavioral and satisfaction variables. Such studies might also benefit from a community sample of participants, which would provide a wider range of ADHD-related impairment and avoid possible age related confounds.

The intersection between conflict in adult relationships and PIB is another important direction for the literature. If PIB is indeed more severe in persons with ADHD-C, then it may be a central factor in relationship communication difficulties, even late into life. Studies could document PIB in adults with ADHD, either via experimental manipulation (as per Diener & Milich, 1997, in children) or by investigating self-reported relational performance as compared to partner perception of the same behavior. Response to criticism could also be examined, testing whether aggression and defensiveness, which could partly explain poor communication and low satisfaction, ensue in romantic relationships.

A long-term goal of this line of research would be to establish treatment protocols for individuals and couples with ADHD, based on their specific impairments. It has been found that marriage, in general, serves as a buffer against mortality and many risky behaviors in the population at large (Waite, 1995). It is possible that a supportive partner in a romantic relationship could contribute to goal achievement and a higher level of functioning for ADHD individuals, as it does in those with other psychological disorders (Seagraves, 1980). Strengthening romantic bonds, and thus improving success in dating and marriage, could be a key to reducing impairment and improving the quality of life for adults with persisting ADHD.

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Table 1

Definitions of RCISS Codes Including Combinations

RCISS Code and Number	Description
Negative Problem Talk/ Complain (1/3)	Verbal negativity and negative affect, including statements about the existence, cause, and implication of a problem. Whining about situations without explicitly assigning blame.
Criticize/Put Down (2/6)	Verbal aggression against the partner. Assigning specific blame for an undesirable behavior. Statements meant to demean or embarrass the partner, such as sarcasm or name calling.
"Yes, but" (4)	Qualified apology or agreement with a response to a statement. Can include any type of affect, and be coded across several turns.
Defensive (5)	Rejecting responsibility for a situation or the blame from the other partner. May include a defense of the self with a reciprocal blaming, as if to say "not me, but you."
Escalate Negative Affect/ Other Negative (7/21)	An increase in obvious negative affect (i.e. raising their voice, getting angrier, or making a statement with negative affect not otherwise coded.
Positive or Neutral Problem Talk/Assent (12/14)	Discussion with positive or neutral affect, possibly about the existence, cause, or implications of a problem. Also short statements of assent ("uh-huh", "yeah", "ok") showing involvement in the conversation.
	Statements of any type of affect referring to tasks or actions

Task-Oriented Talk (13)	taken by either partner in the past, present, or future. An example would be a discussion of past completion of chores.
Humor/Other Positive (15/22)	Verbal positivity, which includes making jokes and laughing. Also includes statements said with positive affect not otherwise coded, such as encouragement or compliments.
Absence of Backchannels/ Absence of Facial Movement (8/9)	Disengagement of both body language and facial expression: lack of any movement or posture that indicates responsiveness to the speaker, (e.g. leaning inward towards partner), and a lack of change in facial expression.
Negative Facial Expression (10)	Listener's face registers an expression that is obviously negative or inappropriate to the context of the conversation. (Inappropriate expression would be smiling when the partner expresses sadness.)
Avoidant Listener Gaze (11)	Obviously looking away from the partner while they are speaking. May be coded in conjunction with Connected Listener Gaze if appropriate.
Backchannels/ Facial Movement (16/17)	Engaged listening, coded if the listener exhibits either body language that is responsive to what the partner is saying or a facial expression that changes during the turn.
Positive Facial Expression (18)	A positive or appropriate facial expression while the speaker is talking, (e.g. a smile in response to a positive comment).

Connected Listener Gaze (19)	When the listener is obviously looking at the partner while they are speaking. Coded in conjunction with Avoidant Listener Gaze if both are obvious during a turn.
Responsive Facial Movement (20)	A facial responsiveness of the listener so distinctive that it could have been substituted for a verbal response. (e. g. Expression of surprise with raised eyebrows and dropped jaw, which could have been accompanied by a verbal expression of "Wow!")

Note. Code numbers correspond to the RCISS (Gottman, 1996). Speaker codes – used to describe the meaning or affect of statements made during each speaker turn, which starts when a partner begins to talk and ends as soon as the other partner interjects. Listener Codes - these codes are applied to the partner who is not speaking during a turn, and are used to describe responsiveness or lack thereof to the speaker.

Table 2

Demographic and Descriptive Characteristics of Sample

	Proband-matched part. (*n* = 29)	Proband-matched partners (*n* = 29)	IA-probands (*n* = 14)	IA - partners (*n* = 14)	C-probands (*n* = 20)	C - partners (*n* = 20)
M Age	22.69 (4.1)	21.34 (2.0)	21.13 (2.7)	21.16 (3.0)	20.9 (3.0)	20.51 (3.1)
Minority (*n*/grp.)	Asian-3; AfrAm -1	AfrAm-2; Asian-1	AfrAm-1; Other-1	Hisp.-1	AfrAm-3; Hisp.-1	AfrAm-2; Hisp.-1
Yrs. Ed.	3.17 (1.3)	3.45 (1.4)	2.5 (1.5)	3.29 (1.6)	2.65 (1.5)	2.55 (1.6)
WURS	14.45 (11.7)[a]	19.45 (12.0)[a]	32.50 (16.5)[b]	18.29 (11.5)[a]	53.58 (15.1)[c]	23.05 (20.2)[a]
CAARS						
A	51.45 (10.6)[a]	48.62 (7.6)[a]	72.21 (13.0)[b]	51.29 (10.9)[a]	73.75 (11.8)[b]	52.70 (14.6)[a]
B	46.59 (10.8)[a]	45.21 (7.1)[a]	52.07 (12.1)[a]	46.71 (7.2)[a]	70.35 (14.6)[b]	49.75 (12.8)[a]
CSS						
IA	6.7 (4.8)[a] (*n* = 7)	7.71 (4.8)[a] (*n* = 7)	15.57 (5.2)[b] (*n* = 7)	5.43 (6.6)[a] (*n* = 7)	17.73 (6.1)[b] (*n* = 11)	9.18 (8.9)[a] (*n* = 11)
HI	6.6 (3.4)[a]	6.0 (2.8)[a]	8.71 (3.6)[a]	8.0 (5.8)[a]	19.91 (6.2)[b]	8.73 (7.2)[a]

	(*n* = 7)	(*n* = 7)	(*n* = 7)	(*n* = 7)	(*n* = 11)	(*n* = 11)
ODD	5.43	7.71	6.57	3.71	11.73	6.82
	(4.2)[a]	(5.5)	(6.1)	(3.0)[a]	(4.4)[b]	(4.3)[a]
	(*n* = 7)	(*n* = 7)	(*n* = 7)	(*n* = 7)	(*n* = 11)	(*n* = 11)
CD	2.43 (2.7)	1.14 (1.8)	1.14 (1.3)	1.00 (1.7)	1.91 (1.8)	1.1 (1.3)
	(*n* = 7)	(*n* = 7)	(*n* = 7)	(*n* = 7)	(*n* = 11)	(*n* = 11)

Note. M Age = Mean age in years; AfrAm = African American; Hisp. = Hispanic; (*n*/grp.) = Number of individual minority participants per group; part. = participants; WURS = Wender Utah Rating Scale; Yrs. Ed. = Years of post-secondary education completed; CAARS-A = Conners Adult ADHD Rating Scale- Inattentive symptoms (*t* score); CAARS- B = Conners Adult ADHD Rating Scale- Hyperactive/Impulsive symptoms (*t* score); CSS = Childhood Symptom Scale raw scores; IA = Inattentive symptoms (CSS-IA - Male 1.5 *SD* above mean = 20.1, Female 1.5 *SD* above mean = 17.1); HI = Hyperactive/Impulsive symptoms (CSS-HI - Male 1.5 *SD* above mean = 19.7, Female 1.5 *SD* above mean = 18.0; ODD = Oppositional Defiant Disorder symptoms (1.5 *SD* above mean for current sample = 15.01); CD = Conduct Disorder symptoms (1.5 *SD* above mean for current sample = 4.12); Sx = Symptoms. Group *n* values for the CSS are specified because it was administered only to participants from Appalachian State University. Seriousness of relationship measured on a scale of 0 to 6 (0 = *just "hanging out"*, 3 = *seriously dating*, 6 = *married*).

*Superscripts indicate pairwise differences of $p < .05$.

Table 3.

Differences in Categorical Diagnostic variables between participants with ADHD-IA and ADHD-C.

	IA-probands	C-probands
Diagnosing Professional (%)		
Psychiatrist	21.4	61.1
Psychologist	28.6	11.1
Other M.D.	28.6	22.2
Treatment Type (%)		
Medication	64.3	73.3
Academic Accommodations	7.1	0.0
Medication and Counseling	28.6	26.7
Ongoing ADHD Treatment (%)	61.5	78.6
Comorbidity (%)	28.6	30.0

Note. Diagnosing Professional indicates the percent in each group that received an ADHD diagnosis by each professional. Responses for Treatment Type were self-nominated on an open-ended demographic questionnaire. Comorbidity (%) indicates the percentage of those self-reporting a diagnosis of ADHD who also reported a comorbid psychological disorder such as depression or anxiety. IA- Participants = Individuals assigned to the Predominantly Inattentive ADHD subtype group; C- Participants = Individuals assigned to the Combined ADHD subtype group; Dx = Disorder.

[a]: Counseling and psychotherapy were omitted from the table; 0% of participants in the C-Proband and IA – Proband groups endorsed these treatments independent from medication use.

Table 4

Group Means and Standard Deviations for Couple Dependent Variables

	Non-Diagnosed Couples (*n* = 29)	IA-couples (*n* = 14)	C-couples (*n* = 20)
Length of Relationship (months)	24.47 (17.1)	21.61 (18.8)	18.14 (17.6)
Seriousness of Relationship	4.06 (1.1)	3.86 (1.29)	3.25 (1.2)
Couple RAS Average	3.52 (0.3)[a]	3.32 (.69)[a]	2.96 (0.6)[b]
RCISS Negative Variables			
RCISSNeg.	4.03 (4.6)[a]	7.77 (11.8)[a]	11.12 (8.5)[b]
Defensive	0.16 (0.3)[a]	0.64 (0.9)[b]	0.79 (0.9)[b]
Neg. Problem Talk/ Complain	0.97 (1.9)[a]	2.77 (5.9)[a]	4.03 (4.2)[b]
Criticize/Put Down	0.16 (0.4)[a]	0.81 (1.8)[a]	0.83 (0.9)[b]
Negative Facial Expression	0.58 (1.2)[a]	1.21 (2.3)[a]	1.62 (1.8)[b]
Escalate Neg. Affect/ Other Negative	1.61 (1.4)[a]	1.89 (1.3)[a]	2.99 (1.1)[b]
"Yes, but"	1.31 (1.1)[a]	1.06 (0.9)[a]	2.09 (1.5)[b]

RCISS Positive			
Variables			
RCISSpos	41.91 (4.2)[a]	39.15 (9.3)[a]	36.14 (1.7)[b]
Positive Problem Talk/ Assent	22.82 (3.1)[a]	20.12 (6.6)	18.64 (4.2)[b]
Task-Oriented Talk	7.54 (2.2)	8.81 (2.1)	7.72 (1.8)
Humor/Other Positive	6.9 (2.3)	6.2 (3.3)	5.27 (2.8)
Positive Facial Expression	4.64 (2.3)	4.02 (2.4)	4.5 (2.3)
RCISS Engagement			
Variables			
Engagement	53.07 (15.5)[a]	58.53 (12.2)[a]	66.02 (11.7)[b]
Disengagement	28.21 (15.6)	27.0 (12.0)	20.74 (12.0)
Connected Listener Gaze	28.17 (5.4)	29.47 (4.2)	27.08 (5.9)
Avoidant Listener Gaze	22.27 (5.6)	21.03 (6.6)	21.10 (8.6)
Responsive Facial Movement	11.74 (5.5)	11.49 (5.4)	13.73 (4.1)

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; IA = Inattentive Type; C = Combined Type; RAS = Relationship Assessment Scale; Seriousness of relationship measured on a scale of 0 to 6 (0 = *just "hanging out"*, 3 = *seriously dating*, 6 = *married*).

RCISS = Rapid Couples Interaction Scoring System; RCISSneg. = Composite score of all negative codes; RCISSpos = Composite score of all positive codes. RCISS negative and positive variables displayed as percentages of total codes per couple interaction. Percentages for individual RCISS codes in each column do not total to 100% of all possible codes because some code variables that were irrelevant to the analyses were omitted. Percentages for Engagement and Disengagement were calculated as the ratio of turns containing that code out of the total turns per interaction, and thus do not represent a true percentage of the total behaviors per interaction.

* Superscripts indicate pairwise differences of $p < .10$.

Table 5

Group Means and Standard Deviations for Individual-level Dependent Variables

	Proband-matched part. (*n* = 29)	Matched non-diagnosed partners (*n* = 29)	IA-probands (*n* = 14)	IA - partners (*n* = 14)	C-probands (*n* = 20)	C - partners (*n* = 20)
Length of relationship (months)	24.93 (17.0)	24.02 (17.2)	21.86 (19.4)	21.36 (18.3)	18.16 (17.6)	17.83 (17.9)
Seriousness of relationship	4.0 (1.1)[a]	4.1 (1.2)[a]	3.93 (1.3)	3.79 (1.4)	3.3 (1.3)[b]	3.2 (1.2)[b]
SOI	25.86 (17.5)[ab]	28.26 (30.7)[ab]	27.57 (19.1)[ab]	19.29 (14.7)[a]	52.05 (26.8)[c]	34.53 (26.2)[b]
RAS Individual	3.57 (0.3)[a]	3.48 (0.5)[ab]	3.38 (0.6)[ab]	3.25 (0.8)[b]	2.79 (0.8)[c]	3.14 (0.6)[b]
CRS variables						
Direct Destructive	2.03 (0.8)[a]	1.90 (0.8)[a]	2.26 (0.7)[a]	1.81 (0.4)[b]	2.88 (1.1)[c]	2.08 (0.9)[ab]
Indirect Destructive	2.3 (0.5)	2.50 (0.6)	2.28 (0.5)	2.21 (0.4)	2.46 (0.6)	2.24 (0.5)
Direct Constructive	3.24 (0.6)[b]	2.85 (0.7)[a]	2.82 (0.6)[a]	3.37 (0.6)[c]	2.91 (0.7)[a]	3.07 (0.9)

Indirect Passive-Aggressive	1.72 (0.6)[ab]	1.61 (0.7)[ab]	1.97 (0.8)[bc]	1.45 (0.4)[a]	2.32 (0.8)[c]	1.86 (0.8)[bd]
Indirect Constructive	2.79 (0.7)[b]	2.47 (0.6)[a]	2.34 (0.8)[a]	2.88 (0.7)[b]	2.72 (0.8)	2.53 (0.8)
CRS Total	123.07 (17.0)[a]	117.18 (18.54)[a]	119.58 (20.2)[a]	120.39 (15.4)[a]	135.56 (14.9)[b]	120.76 (22.3)[a]

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; IA = Inattentive Type; C = Combined Type; Part. = participants; Dx = Diagnosed; SOI = Sexual Orientation Index; RAS = Relationship Assessment Scale; CRS = Conflict Resolution Scale. Seriousness of relationship measured on a scale of 0 to 6 (0 = *just "hanging out"*, 3 = *seriously dating*, 6 = *married*).

* Superscripts indicate pairwise differences of $p < .10$.

Table 6

Magnitude of Select Differences (Cohen's d*): ADHD Probands and gender-matched non-diagnosed peers.*

		IA vs. C Probands	Proband-Matched Participants vs. C-Probands	Proband-Matched Participants vs. IA-probands
RCISS				
Negative	RCISSneg.	-0.34	-1.14	-0.54
	Defensive	-0.16	-1.12	-0.90
	Criticize/Put Down	-0.04	-1.12	-0.77
	Negative talk/Complain	-0.25	-1.07	-0.56
	Negative Facial Exp.	-0.20	-0.73	-0.41
	Escalate/Other Negative	-0.90	-1.06	-0.20
	Yes, but	-0.85	-0.63	0.24
RCISS				
Positive	RCISSpos	0.38	1.06	0.47
	Positive/Neutral talk	0.28	1.18	0.63
RAS	RAS couple	0.53	1.19	0.44
Seriousness	Avg. Couple Seriousness	0.49	0.67	0.15

Engagement	RCISS Engagement	-0.63	-0.93	-0.38

Note. Negative effect sizes indicate lower values in the first group listed; positive values indicate higher values in the first group listed. Effect size (absolute value) > .20 = small, > .50 = medium, > .80 = large. ADHD = Attention-Deficit/Hyperactivity Disorder; IA = Inattentive Type; C = Combined Type; RCISS = Rapid Couples Interaction Scoring System; RCISSneg. = Composite score of all negative codes; RCISSpos = Composite score of all positive codes; RAS = Relationship Assessment Scale.

Table 7

Magnitude of Differences for Select Individual Variables: Partners of ADHD Participants and matched non-diagnosed participants.

	IA - Partners vs. C - Partners	Matched Non-Diagnosed Partners vs. IA - Partners	Matched Non-Diagnosed Partners vs. C - Partners
RAS	0.39	0.18	0.66
CRS			
Indirect Destructive	-0.04	0.54	0.46
Direct Constructive	0.39	-0.78	-0.28

Note. Negative effect sizes indicate lower values in the first group listed; positive values indicate higher values in the first group listed. Effect size (absolute value) > .20 = small, > .50 = medium, > .80 = large. ADHD = Attention-Deficit/Hyperactivity Disorder; IA = Inattentive Type; C = Combined Type; RAS = Relationship Assessment Scale; CRS = Conflict Resolution Scale.

Table 8

Magnitude of Select Differences: Diagnostic Participants and matched non-diagnosed peers.

	IA-probands vs. C-probands	Proband-Matched Participants vs. IA-probands	Proband-Matched Participants vs. C-probands
RAS	0.81	0.45	1.50
CRS			
Direct Destructive	-0.64	-0.30	-0.94
Indirect Passive-Aggressive	-0.42	-0.39	-0.89
Direct Constructive	-0.13	0.66	0.51

Note. Negative effect sizes indicate lower values in the first group listed; positive values indicate higher values in the first group listed. Effect size (absolute value) > .20 = small, > .50 = medium, > .80 = large. ADHD = Attention-Deficit/Hyperactivity Disorder; IA = Inattentive Type; C = Combined Type; RAS = Relationship Assessment Scale; CRS = Conflict Resolution Scale.

Figure Captions

Figure 1. Gender composition and organization of groups at the couple and individual level of analysis. C-Couples refers to couples with one partner diagnosed with ADHD-Combined type; IA-Couples refers to couples with one partner diagnosed with ADHD- Predominantly Inattentive type; C-Probands refers to the individual members of the C-Couple who is diagnosed with ADHD-C; C-partners are the romantic partners of C-Probands; IA-Probands refers to the individual members of the IA-Couple who is diagnosed with ADHD-IA; IA-partners are the romantic partners of the IA-Probands; Proband Matched Participants are the members of the Non-diagnosed couples who are gender matched to the C-Probands and IA-Probands; Matched Non-diagnosed Partners are the romantic partners of the matched participants.

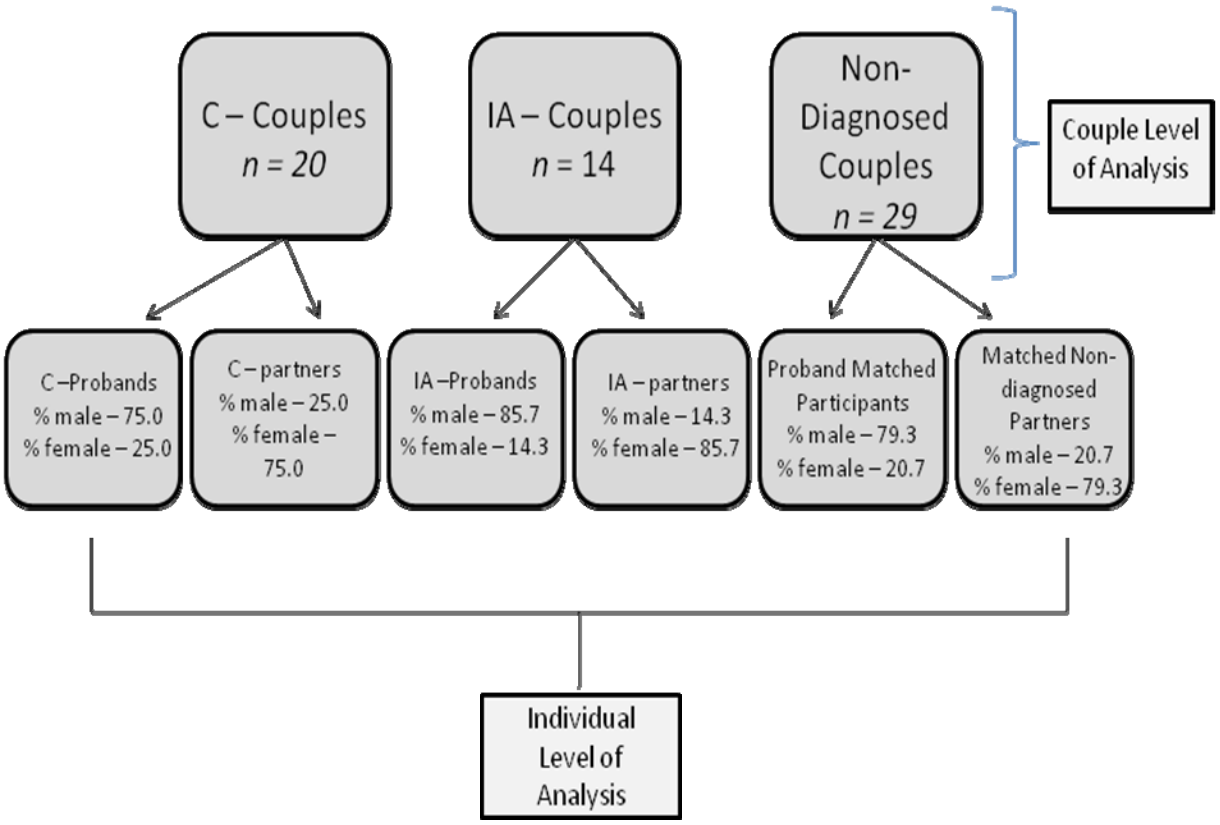
Figure 2. Comparing the breakdown of the individual negative RCISS codes across couple groups. Bars represent 100% of the total codes in the couple interactions. Each bar section represents the percentage of individual codes out of total codes. Positive Codes refers to the composite variable RCISSpos, which includes Positive Problem Talk/Assent, Humor/Other Positive, Positive Facial Expression, and Task – Oriented Talk. Other refers to the percentage of total codes that were listener codes not used in the initial RCISS analyses (e.g. Engagement, Connected Listener Gaze). Criticism/Put Down and Defensiveness are combined for visual clarity.

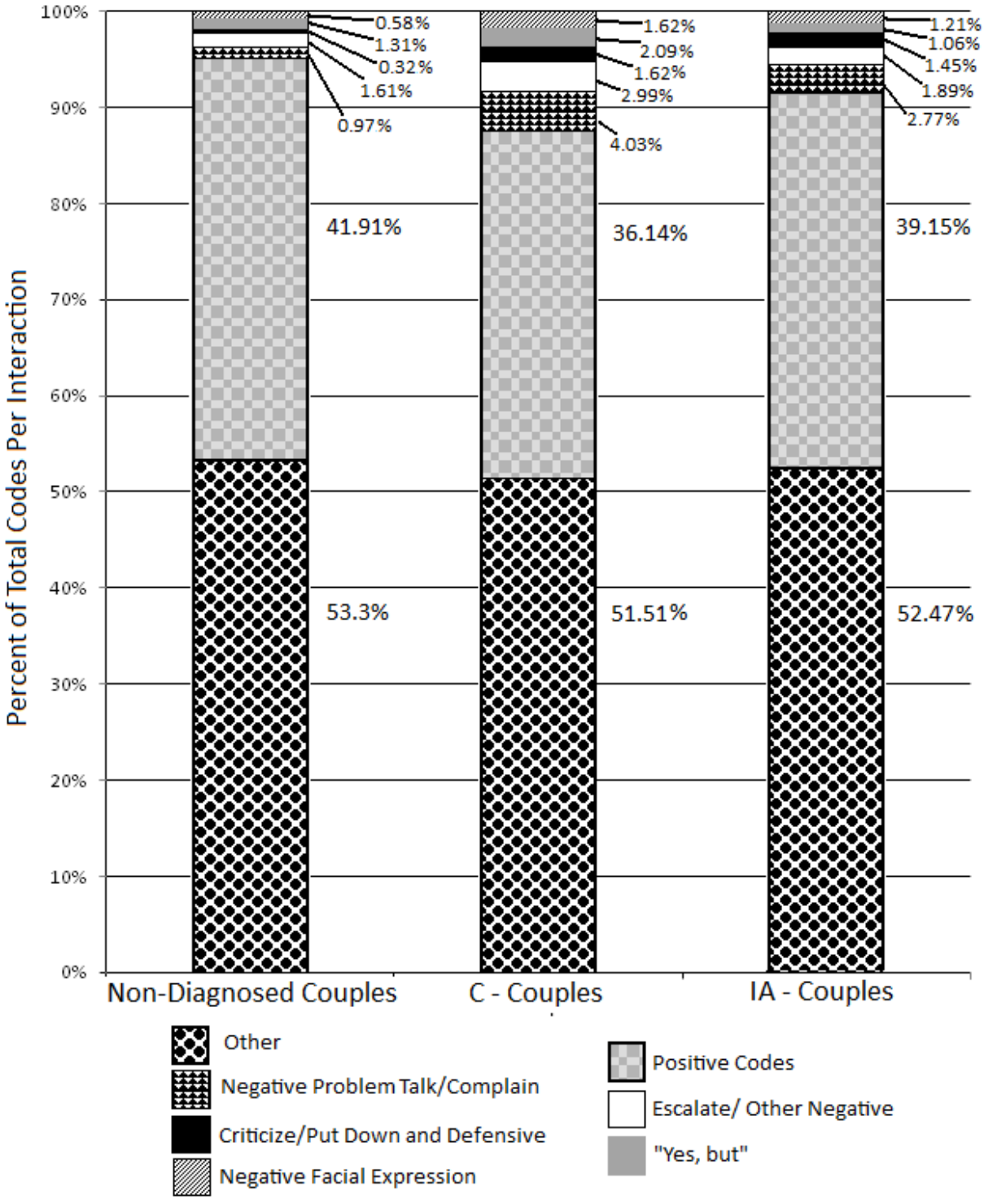
Figure 3. Mean relationship satisfaction scores on the RAS for the couple, proband/matched participants, and partner levels of analysis. RAS scores are an average of seven items, scaled 1-5. Error bars indicate the standard deviation for each group.

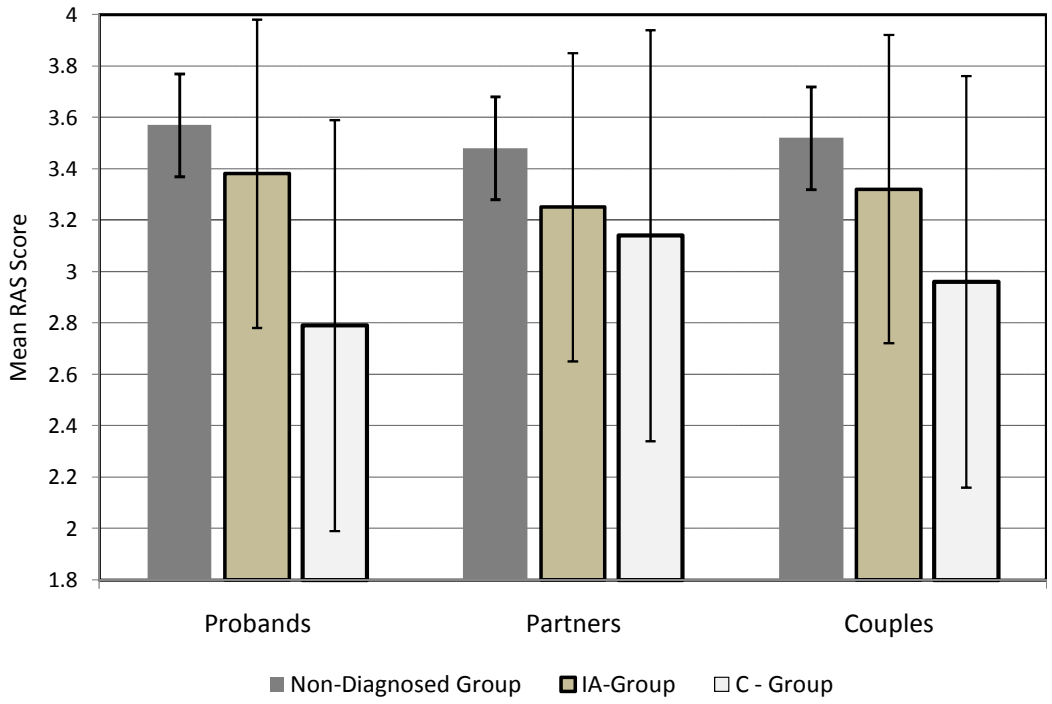
Figure 4. Means for conflict resolution styles (CRS subscales) for the partners of proband individuals and the partners of proband-matched participants. Dir. – Direct; Ind. – Indirect.

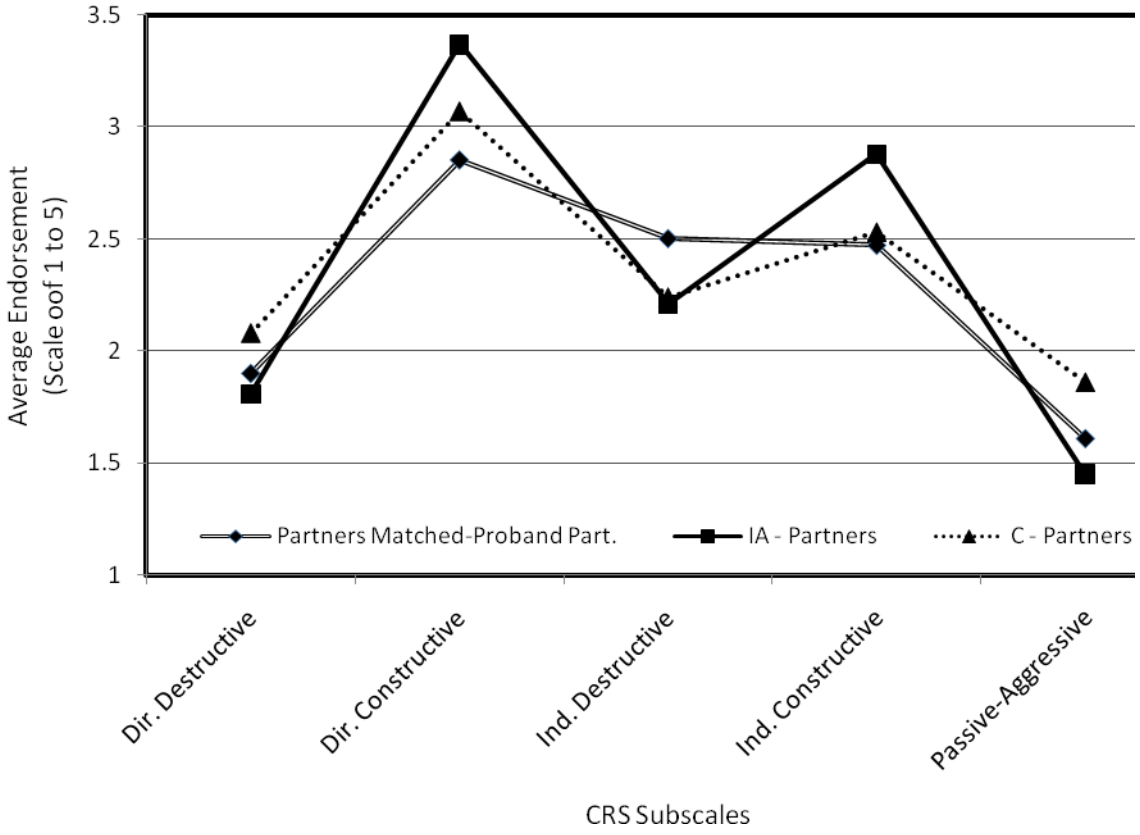
Figure 5. Means for conflict resolution styles (CRS subscales) for both proband individuals and proband-matched participants. Dir. – Direct; Ind. – Indirect.

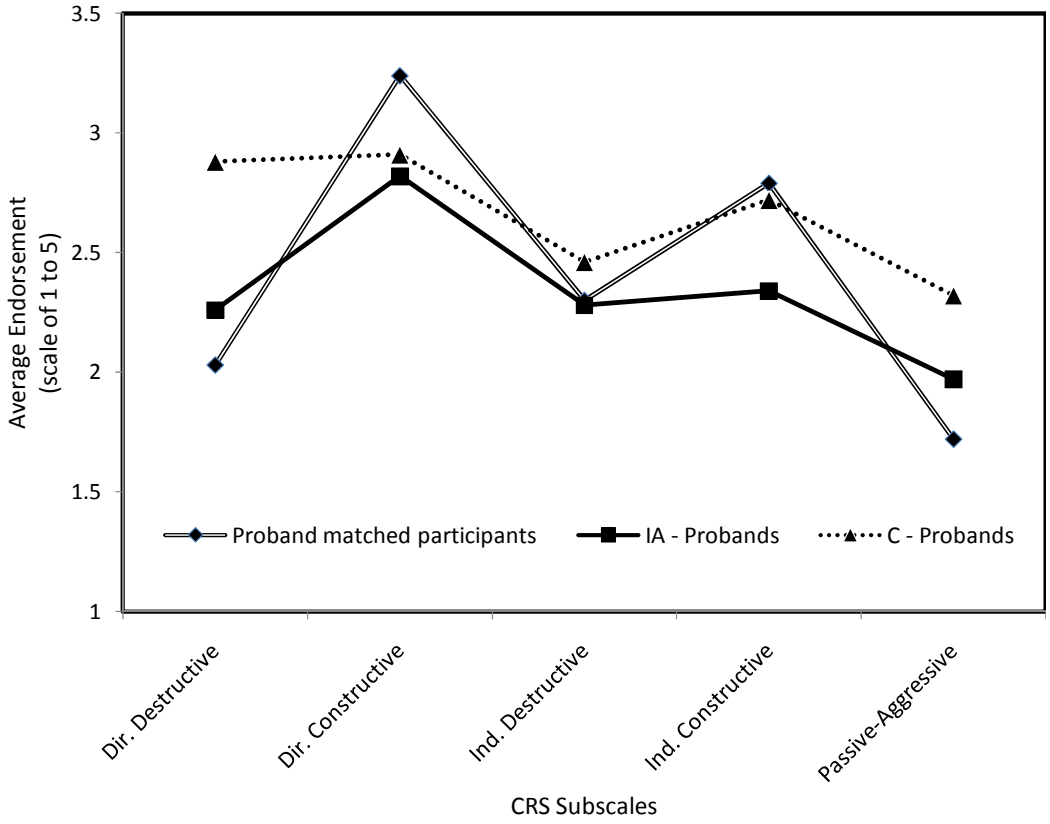
Figure 6. Couple means of RCISS codes which approximate the "Four Horsemen of the Apocalypse" RCISS codes: Couple means. The four horsemen are Complain, Criticize, Put Down, and Defensive. The vertical axis is in percentage units such that each of the codes on the horizontal axis comprised the indicated percentage of the total codes per interaction. The horsemen codes are numbered in the order described by Gottman (1996).

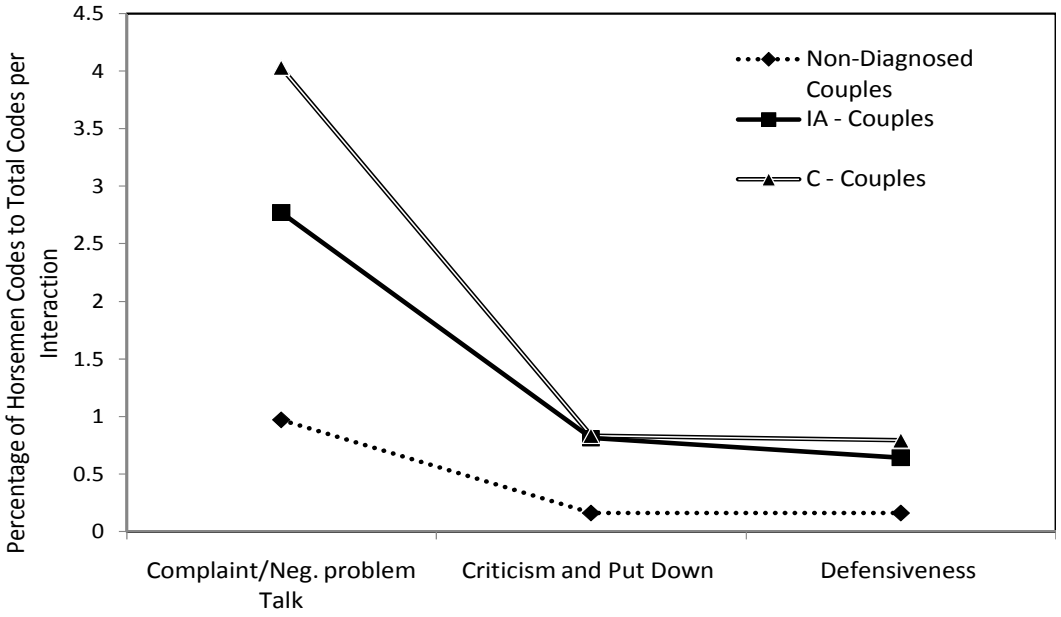

C – Couples
n = 20
IA – Couples
n = 14
Non-Diagnosed Couples
n = 29
Couple Level of Analysis
C –Probands
% male – 75.0
% female – 25.0
C – partners
% male – 25.0
% female – 75.0
IA –Probands
% male – 85.7
% female – 14.3
IA – partners
% male – 14.3
% female – 85.7
Proband Matched Participants
% male – 79.3
% female – 20.7
Matched Non-diagnosed Partners
% male – 20.7
% female – 79.3
Individual Level of Analysis


Percent of Total Codes Per Interaction
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.58%
1.31%
0.32%
1.61%
0.97%
41.91%
53.3%
1.62%
2.09%
1.62%
2.99%
4.03%
36.14%
51.51%
1.21%
1.06%
1.45%
1.89%
2.77%
39.15%
52.47%
Non-Diagnosed Couples
C - Couples
IA - Couples
Other
Negative Problem Talk/Complain
Criticize/Put Down and Defensive
Negative Facial Expression
Positive Codes
Escalate/ Other Negative
"Yes, but"


Mean RAS Score
4
3.8
3.6
3.4
3.2
3
2.8
2.6
2.4
2.2
2
1.8
Probands
Partners
Couples
Non-Diagnosed Group
IA-Group
C - Group


3.5
3
2.5
2
1.5
1
Average Endorsement
(Scale oof 1 to 5)
Partners Matched-Proband Part.
IA - Partners
C - Partners
Dir. Destructive
Dir. Constructive
Ind. Destructive
Ind. Constructive
Passive-Aggressive
CRS Subscales


3.5
3
2.5
2
1.5
1
Average Endorsement
(scale of 1 to 5)
Proband matched participants
IA - Probands
C - Probands
Dir. Destructive
Dir. Constructive
Ind. Destructive
Ind. Constructive
Passive-Aggressive
CRS Subscales


Percentage of Horsemen Codes to Total Codes per Interaction
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Non-Diagnosed Couples
IA - Couples
C - Couples
Complaint/Neg. problem Talk
Criticism and Put Down
Defensiveness

Appendix A

Appalachian
STATE UNIVERSITY

Research and Graduate Studies
ASU Box 32068
Boone, NC 28608-2068
(828) 262-2130
Fax: (828) 262-2709
www.graduate.appstate.edu

TO: Dr. Will Canu
Department of Psychology
Ms. Lindsey Tabor
Department of Psychology

FROM: Robert L. Johnson, Administrator
Institutional Review Board

DATE: May 6, 2008

SUBJECT: Institutional Review Board
Request for Human Subjects Research

REFERENCE: *"Committed Romantic Relationships in Couples with ADHD: Subtypes, Conflict Resolution and Satisfaction"*

IRB Reference #08-231

Initial Approval Date – May 6, 2008
End of Approval Period – May 5, 2009

Your request for Review of Human Subjects Research has been approved.

OHRP Guidelines stipulate that projects may be approved for a maximum of one (1) year. During this period, you should contact this office to:

1. report any unanticipated problems involving risks to subjects or others,
2. request modification in the approved protocol,
3. request an Extension beyond the one (1) approval, and/or
4. inform the IRB of the completion of the project.

Best wishes with your research.

RLJ/jdd

Appalachian STATE UNIVERSITY

INSTITUTIONAL REVIEW BOARD
Research and Graduate Studies
ASU Box 32068
Boone, NC 28608
828.262.2692
Web site: http://www.orsp.appstate.edu/compliance/irb/index.php
Email: irb@appstate.edu
Federalwide Assurance (FWA) #4801

To: Will Canu
Psychology
CAMPUS MAIL

From: _____
Jay Cranston, MD, Chair, Institutional Review Board

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)

Date: 5/27/2009

Study #: 09-0257
Study Title: Committed Romantic Relationships in Couples with ADHD: Subtypes, Conflict Resolution and Satisfaction (old 08-231)

Submission Type: Renewal
Expedited Category: (7) Research on Group Characteristics or Behavior, or Surveys, Interviews, etc.

Renewal Date: 5/27/2009
Expiration Date of Approval: 5/26/2010

This submission approval has been renewed by the above Institutional Review Board for the period indicated.

Investigator's Responsibilities:

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects occur it must be reported immediately to the IRB.

CC:
Lindsey Tabor, Psychology

Appendix B

Informed Consent Document

Participants in this research must be 18 years of age or older. If you are not yet 18 years old, do not continue. Please inform the experimenter working with you of this, and that person will discuss what options you have for obtaining your research credit. Otherwise, indicate that you are 18 or older by checking this box and continue. ☐

Thank you for agreeing to participate in this study, which is entitled "Interactions between Partner and Relationship Characteristics." Your participation is completely voluntary, and you may discontinue your participation at any time without the loss of any benefits which would otherwise be provided to you. This experiment will last approximately one hour. During this experiment you will be asked to complete a battery of questionnaires. Some of these questionnaires will ask you about various aspects of your relationship with your partner (e.g. level of trust, perceived support, overall quality, areas of conflict). Other questionnaires will collect information about your own background (e.g., where you grew up, your mental health history) and personality. If at any time you need assistance in completing these forms, you may ask the experimenter to clarify the instructions or questions. After completing the questionnaires you and your partner will be asked to discuss areas of conflict in your relationship. This conversation will be video-taped.

All information relating to your performance during this study will be completely anonymous. The only identifying information obtained from this study will be this consent form, attendance sheet, and the forms that are mandated by the University for processing payments; all other forms will be marked only with a participant number. To further enhance confidentiality, you will deposit your completed questionnaires into a sealed drop-box.

Information you provide on these questionnaires will not be shared with your partner or anyone outside the laboratory. Similarly, the video or your discussion will only be viewed for the purposes of this laboratory. There are minimal foreseeable risks, either physical or psychological, associated with your participation in this study. Your participation in this study may provide valuable information about how ADHD affects relationships.

If you have any questions regarding this study, please feel free to contact Dr. Will Canu in the Department of Psychology at (828) 262-2272. For additional information regarding human participation in research, please feel free to contact Dr. Bob Johnson, Appalachian State University IRB Administrator, at (828) 262-2692.

Please indicate that you have read this statement of informed consent and indicate that you have willingly agreed to be a subject by signing your name and the date in the space provided below.

I have read the above, understand my rights as a subject in research, and wish to participate in this study. I have been given the opportunity to ask questions about this study and have received a copy of this consent form for my records.

Participant Signature:

_____ _____

Signature Date

Person Obtaining Informed Consent:

_____ _____

Signature Date

Demographic Questionnaire

Please read each item carefully and be as frank and honest as you can. This information will only be used to compare participants in the study and to qualify any final results.

1. *How old are you?* _____ years, _____ months (round months up)

---

2. *What is your ethnicity?* (circle one; if "other," please elaborate)

African-American Hispanic AsianCaucasian American Indian
Other: _____

---

3. *Please indicate your mother's and father's job during the last year (ex., auto mechanic, carpenter, orthodontist). "Mother" and "Father" can refer to a step-parent or other person in your life; we are simply interested in the professions of the 2 adults that give you the most parental support. "Homemaker" is a valid and worthwhile career: please list this if it best describes one of your parents.*

Mother's profession: _____

Father's profession: _____

---

4. *What town did you grow up in? If more than one, please indicate the town that you lived in the longest. Please also include the state when completing your answer.*

(town & state): _____

---

5. *What type of high school did you attend?* (**circle one**; if more than one type, circle the answer that best fits the school you attended for the longest)

Public Private Parochial (a religion-affiliated school)

Other (please describe: _____)

---

6. *What was your high school Grade Point Average (GPA)?*: _____

---

7. *What was your SAT or ACT score*? _____

---

8. *What is your highest **completed** education level?* **Circle one**:

high school/ GED	1 year college	2 years college	3 years college	4 or more years college

9. *If you have completed one or more semesters in college, what is/was your college GPA?*

GPA: _____

---

10. *If you attend(ed) college, what is/was your major? (If you graduated from another school, what field was your degree in?*:
_____

---

11. *Have you ever had any serious medical problems* (i.e., needing extensive outpatient procedures, hospital stays, surgical procedures, or chronic treatment)? **Circle one**:

yes no

If yes, for *what condition* and *when*?:
_____

---

12. *Have you ever diagnosed with any psychological disorder (ex., major depression, panic disorder, social phobia, ADD/ADHD), including any learning disabilities?* **Circle one**:

yes no

If yes, *what diagnosis* and *when*?:
_____

_____

Who gave you this diagnosis (was it a psychiatrist, family physician, psychologist, counselor, other mental health professional)?:
_____

---

13. *Have you at any time received treatment for any psychiatric condition indicated above (counseling, prescription medication, psychotherapy, etc.)? Please include receiving academic accommodations (e.g., extra time on tests) as a "yes."*
Circle one: yes no

If yes, *what treatment* did you receive?:

_____

If yes, *for how long*? *Is it ongoing*?:

_____

_____

14. *What is your sexual preference?* (**circle one**) Heterosexual Homosexual Bisexual

15. ***How long have you been in your current romantic relationship****?*
____ years, _____ months

How "serious" is this relationship (with the person you are here with today)?
(**check one**)

___ just "hanging out" ___ starting to date ___ dating ___ seriously dating

___ considering getting married ___ have gotten engaged ___ married

Relationship Assessment Scale

Instructions: Please circle the response that best describes your romantic relationship.

1. How well does your partner meet your needs?

    a. Poorly
    b. Below Average
    c. Average
    d. Above Average
    e. Well

2. In general, how satisfied are you with your relationship?

    a. Low Satisfaction
    b. Below-Average Satisfaction
    c. Average Satisfaction
    d. Above-Average Satisfaction
    e. High Satisfaction

3. How good is your relationship compared to most?

    a. Much Worse
    b. Worse
    c. Average
    d. Better
    e. Much Better

4. How often do you wish you hadn't gotten into this relationship?

    a. Very Rarely
    b. Rarely
    c. Sometimes
    d. Often
    e. Always

5. To what extent has your relationship met your original expectations?

    a. Not At All
    b. Somewhat
    c. Mostly
    d. Well
    e. Very Well

6. How much do you love your partner?

    a. I love my partner very little/not at all.
    b. I love my partner a little.
    c. I love my partner somewhat.
    d. I love my partner.
    e. I love my partner very much.

7. How many problems are there in your relationship?

    a. There are no problems in the relationship.
    b. There are fewer problems in ours than in the average relationship.
    c. There are an average number of problems in our relationship.
    d. There are more problems in ours than in the average relationship.
    e. There are many problems in the relationship.

Wender Utah Rating Scale

Please complete the following questionnaire by checking the appropriate box for each of the statements (1-25). Please give only one response for each statement (ex., do not answer *mildly* and *moderately* for "As a child I was anxious, worrying").

	Not at all or very slightly	Mildly	Moderately	Quite a bit	Very Much
As a child I was (or had): 1. Concentration problems					
2. Anxious, worrying					
3. Nervous, fidgety					
4. Inattentive, daydreaming					
5. Hot- or short-tempered, low boiling point					
6. Temper outbursts, tantrums					
7. Trouble with stick-to-it-tiveness, not following through, failing to finish things started					
8. Stubborn, strong-willed					
9. Sad or blue, depressed, unhappy					
10. Disobedient with parents, rebellious, sassy					
11. Low opinion of myself					
12. Irritable					
13. Moody, ups and downs					
14. Angry					
15. Acting without thinking, impulsive					
16. Tendency to be immature					
17. Guilty feelings, regretful					

18. Losing control of myself					
19. Tendency to be or act irrational					
20. Unpopular with other children, didn't keep friends for long, didn't get along with other children					
21. Trouble seeing things from someone else's point of view					
22. Trouble with authorities					
As a child in school, I was (or had): 23. Overall a poor student, slow learner					
24. Trouble with mathematics or numbers					
25. Not achieving up to potential					

SExpQ

*Please respond accurately to the following questions. Your partner **will not** have access to this questionnaire, and this topic **will not** be a subject for discussion later in the study.*

1. With how many different partners have you had sex within the past year? _____

2. How many different partners do you foresee yourself having sex with during the next 5 years? _____

3. With how many different partners have you had sex on one and only one occasion?

---

4. How often do you fantasize about having sex with someone other than your current dating partner?

Use the following scale:

1 = not at all 3 = 1-2 times/month 5 = 2-3 times/week 7 = once a day 9 = 4+/day
2 = once a month or less 4 = once a week 6 = 4-6 times/week 8 = 2-3 times/day

CIRCLE ONE: 1 2 3 4 5 6 7 8 9

Choose one reply to indicate how much you agree with the following statements, using this scale:

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Strongly Disagree				**Neutral**				**Strongly Agree**

5. Sex without love is OK. 1 2 3 4 5 6 7 8 9

6. I can imagine myself being comfortable and enjoying casual sex with different partners.

1 2 3 4 5 6 7 8 9

7. I would have to be closely attached to someone (both emotionally and psychologically) before I could feel comfortable and fully enjoy having sex with him or her.

1 2 3 4 5 6 7 8 9

9. How many partners have you *dated* (1 or more dates) *in your lifetime?* _____

10. When engaging in the following sexual activities, approximately how often do you or your partner use a condom? (circle answer on the scale below)

	0 - 20%	**21 – 40%**	**41 – 60%**	**61 - 80%**	**80 - 100%**	
Vaginal sex: **(haven't done)**	**1**	**2**	**3**	**4**	**5**	**N/A**
Anal sex:	**1**	**2**	**3**	**4**	**5**	**N/A**
Oral sex*:	**1**	**2**	**3**	**4**	**5**	**N/A**

*: include use of dental dam if appropriate

CRS

Instructions: Please respond to the following questions based on how you usually respond when someone makes you angry. **(The perpetrator is the person who is making you angry.)**

Never	Rarely	Sometimes	Often	Always
1	2	3	4	5

1. I would immediately put the perpetrator in their place.

2. I would avoid the perpetrator's gaze when they were speaking.

3. I would speak to the perpetrator about how their actions made me feel.

4. I would roll my eyes every time the perpetrator said something.

5. I would go out of my way to avoid the perpetrator.

6. I would ask others close to the perpetrator why they acted that way.

7. I would directly tell the perpetrator off.

8. I would talk to the perpetrator about the problem.

9. I would ignore the perpetrator the next time they enter the room.

10. I would ask others around me what the perpetrator's problem with me is.

11. I would ignore the perpetrator's requests.

12. I would confront the perpetrator and call them abusive names.

13. I would immediately and directly stare the perpetrator down.

14. I would find out from those around me why the perpetrator is mad at me.

15. I would ask others around me how I should respond to the perpetrator.

16. I would refuse to speak to the perpetrator.

17. I would purposely play phone tag with the perpetrator.

18. I would talk about the perpetrator behind their back.

19. I would confront the perpetrator with a willingness to listen to their side of it.

20. I would talk to the perpetrator and point to the situation I don't like, without faulting the person.

21. I would immediately curse at the perpetrator (i.e…you asshole, bitch etc.)

22. I would ask the perpetrator to help me understand what is going on.

23. I would tell the perpetrator's friends or family to ask the perpetrator to talk with me.

24. I would ask someone else to help mediate (to settle differences) our opposing points of view.

25. I would point out all the perpetrator's flaws to everyone.

26. I would openly express to the perpetrator how that particular action hurt or frustrated me.

27. I would directly confront the perpetrator and do my best to threaten them.

28. I would expect the perpetrator to know what was bothering me.

29. I would start nasty rumors about the perpetrator.

30. I would do my best to turn others against the perpetrator.

31. I would call the perpetrator abusive names behind their back.

32. I would seek to quickly work with the perpetrator to resolve the problem.

33. I would confront the perpetrator and try to intimidate them with my body language.

34. I would talk to others to find out how they would respond to the perpetrator.

35. I would ask around to see if the perpetrator had an unusually bad day.

36. I would publicly exclude the perpetrator from social outings.

37. I would confront the perpetrator and try to intimidate them with my body language.

38. I would meet the person one-on-one to discuss what happened.

39. I would have others close to me tell the perpetrator off.

40. I would ask the perpetrator's friends or family how best to avoid any more future conflict.

41. I would be polite and bury my feelings toward the perpetrator.

42. I would ask around to see if the perpetrator is having a hard time with something unrelated to what happened.

43. I would flip the perpetrator off behind their back.

44. I would directly ask the perpetrator if there is something wrong.

45. I would pretend everything was fine around the perpetrator in order to avoid the issue.

46. I would immediately flip the perpetrator off to their face.

47. I would directly ask the perpetrator why they behaved that way toward me.

48. I would make up funny names to characterize the perpetrator.

49. I would yell directly back at the perpetrator.

Appendix C

Vita

Lindsey Tabor attended Watauga High School in Boone, NC. She graduated magna cum laude with a Bachelor of Arts Degree in Psychology from Furman University in 2006. She is a member of Phi Eta Sigma honors society and Psi Chi, and presented her undergraduate research on religious complexity at the Research and Internship Forum for the Social Sciences. Lindsey was an author for posters on ADHD research presented at the Annual Convention of the American Psychological Association in 2008 and at the Convention of the Association for Behavioral and Cognitive Therapies in 2009.

In fulfillment of program requirements at Appalachian State University, Lindsey will pursue an internship at Greenville Mental Health Center in Greenville, SC.