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Journal of Attention Disorders 2012 16: 373 originally published online 1 November 2011
DOI: 10.1177/1087054710389987

Journal of Attention Disorders
16(5) 373–383

DOI: 10.1177/1087054710389987
http://jad.sagepub.com
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Abstract

Objective: Research has clearly documented the social dysfunction of youth with ADHD. However, little is known about the interpersonal relationships of adults diagnosed with ADHD in childhood, including rates of intimate partner violence (IPV). **Method:** Using data from the Pittsburgh ADHD Longitudinal Study, analyses compared the level of IPV (verbal aggression, violence) reported by young adult (18- to 25-year-old) males with childhood ADHD (n = 125) with reports by demographically similar males without ADHD histories (n = 88). **Results:** Males with childhood ADHD, especially those with conduct problems persisting from childhood, were more likely to be verbally aggressive and violent with romantic partners than males without histories of ADHD or conduct problems. **Conclusions:** Research is needed to replicate these findings, to explore potential mechanisms, and to develop effective interventions for romantic relationship discord among young adults with ADHD histories, especially those with persistent conduct problems. *(J. of Att. Dis. 2012; 16(5) 373-383)*

Keywords

ADHD, ODD, CD, antisocial personality disorder, intimate partner violence

Individuals with ADHD are excessively inattentive, hyperactive, and impulsive across settings and, as a result, are noticeably impaired across multiple domains of functioning. Once considered a disorder of childhood (e.g., American Psychiatric Association [APA], 1994), ADHD is now generally recognized as a chronic disorder with symptoms and impairment persisting through adolescence and into adulthood for many (e.g., Barkley, Murphy, & Fischer, 2008). One of the most common areas of impairment for individuals with ADHD is their interpersonal relationships.

Much evidence is available to underscore the social dysfunction of children and adolescents with ADHD (for a review, see Hoza, 2007). Youth with ADHD, particularly those with elevated levels of hyperactive, confrontational, and aggressive behavior (Mrug, Hoza, Pelham, Gnagy, & Greiner, 2007), are quickly rejected by peers (Erhardt & Hinshaw, 1994) and have fewer friends than children without ADHD (Bagwell, Molina, Pelham, & Hoza, 2001; Hoza et al., 2005). In contrast to what is known about the interpersonal difficulties of children and adolescents with ADHD, very little is known about the social functioning of adults with ADHD. Weiss and Hechtman (1993) found that young adults who were diagnosed with hyperactivity as children reported fewer friends and more interpersonal problems than adults without childhood hyperactivity. Similarly, Barkley and colleagues (2008) reported that young adults diagnosed with hyperactivity as children, particularly those with elevated ADHD symptoms as adults, were more impaired in social relationships than non-ADHD comparison adults. Babinski et al. (in press) also found that young adult women with childhood ADHD reported greater impairment in their peer relationships and fewer close friends than demographically similar women without ADHD. These findings are preliminary due to their small sample sizes (Babinski et al., in press; Weiss & Hechtman, 1993), but they provide initial evidence underscoring the social dysfunction of adults with childhood ADHD.

In emerging adulthood, interpersonal relationships as sume new meaning as social, emotional, and occupational/

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educational goals mature (Arnett, 2004). It is during this time that the ability to successfully initiate romantic relationships (e.g., making a good first impression) is more rigorously tested as are skills important to sustaining intimate relationships (e.g., compromising; managing conflict). Negotiating these developmental milestones may be difficult for many young adults with childhood ADHD. Difficulties may be greatest for those with histories of additional behavior problems (i.e., oppositional-defiant disorder [ODD], conduct disorder [CD] etc.). Amid indications that adults with ADHD benefit from the support and assistance of romantic partners (e.g., Eakin et al., 2004), understanding the impact of ADHD and disruptive behavior problems on romantic relationships in adulthood seems important. Yet, the relationship functioning of young adults with ADHD is relatively unexamined.

Most of what little we know of romantic relationship functioning in adults with ADHD is from studies of individuals diagnosed with ADHD in adulthood. Self-referred adults with ADHD commonly report being in less satisfying intimate relationships, and, when married, they are also more likely to experience divorce than adults without ADHD (e.g., Biederman, Faraone, et al., 2006; Kessler et al., 2006; Murphy & Barkley, 1996). Among the limited studies of adults diagnosed with ADHD in childhood, preliminary evidence indicates that young men and women with childhood ADHD have more discordant romantic relationships than young adults without history of ADHD (e.g., Babinski et al., in press; Barkley et al., 2008). Romantic partners of adults with ADHD have identified specific behaviors that are consistent with symptoms of ADHD (e.g., failing to remember things, saying things without thinking) and anger management problems (e.g., having trouble dealing with frustration, tolerating too much, and blowing up inconsistently) that spark discord in their relationships (Robin & Payson, 2002). Although speculative given the state of the research, it appears that core symptoms of ADHD as well as deficient anger control underlie romantic relationship problems reported by adults with ADHD. More research is needed to deepen our understanding of romantic relationship difficulties in adults with ADHD, including investigations of the prevalence of severe forms of discord (intimate partner violence [IPV]) and investigations of the degree to which disruptive behavior problem severity exacerbates discordant romantic relationships.

Curiously, the occurrence of IPV in young adult males with ADHD has yet to be examined. Nearly 50% of all adult women report being verbally, physically, and/or sexually abused by male romantic partners in their lifetime, with highest rates of abuse occurring in young adult relationships (e.g., Thompson et al., 2006). Research suggests elevated impulsivity and anger-control problems increase risk of male-to-female IPV in community samples (e.g., Schumacher, Feldbau-Kohn, Slep, & Heyman, 2001; see also Stuart & Holtzworth-Munroe, 2005). Given their often chronic impulsivity and anger management difficulties, young adult males with ADHD may be more likely to engage in partner-directed aggression. The risk of perpetrating IPV may even be greater among young adult males with childhood ADHD, as approximately 25% of adults diagnosed with ADHD in childhood—and nearly 40% with elevated ADHD symptoms as adults—meet diagnostic criteria for antisocial personality (ASP) disorder (e.g., Barkley et al., 2008; Molina, Pelham, Gnagy, Thompson, & Marshal, 2007). This is worrisome because ASP is a well-established correlate of IPV (Holtzworth-Munroe & Stuart, 1994). In their review of male batterers, Holtzworth-Munroe and Stuart (1994) even contend that "generally-violent/antisocial batterers" are the most likely to commit the severe forms of IPV, in part, because they are the most impulsive batterers. Still, despite their lifelong histories of elevated impulsivity and increased likelihood of ASP as adults, researchers have yet to examine the frequency with which young adult males with childhood ADHD engage in IPV.

These considerations raise questions about the severity and behavior problem comorbidities of ADHD and their role in interpersonal difficulties, including interpersonal violence. The degree to which ADHD and disruptive behavior problem severity in childhood and in adulthood exacerbate romantic relationship discord that includes IPV in adulthood has not yet been investigated. As mentioned above, youth with ADHD, particularly those with comorbid ODD/CD, have pronounced difficulties with peer relationships (e.g., Mrug et al., 2007). Research has also demonstrated that children with ADHD and comorbid ODD/CD have more severe ADHD symptoms, conduct problems, and functional impairment across most domains, including interpersonal relationships, than children with ADHD-only or ODD/CD-only (for review, see Waschbusch, 2002). Given their level of behavioral and social impairment as children, one can speculate that adults with childhood ADHD and comorbid ODD/CD may be at greater risk of romantic relationship discord, and potentially IPV, than those without histories of comorbid disruptive behavior problems. ADHD symptom severity and behavior problem comorbidity in childhood have also been shown to be prognostic for multiple domains of functioning years later (Mannuzza, Klein, Abikoff, & Moulton, 2004; Molina et al., 2009), but it may also be the persistence of these features that matters most for serious relationship problems. Researchers have yet to study whether adults with ADHD and conduct problems persisting from childhood into adulthood are at highest risk of outcomes such as discordant romantic relationships and IPV. Indeed, preliminary evidence suggests that young adults with childhood ADHD whose symptoms persist into adulthood have more severe romantic relationship difficulties than those whose symptoms desist in adolescence (Barkley et al., 2008). However, we do not yet know whether adults with childhood ADHD and persistent conduct problems (i.e., CD as children, ASP as adults) are more likely to have discordant romantic relationships, including high rates of IPV, than those whose conduct problems desist with age. Studies are

needed to examine whether the severity of ADHD symptoms and conduct problems in childhood and in adulthood may identify adults with childhood ADHD who are prone to romantic relationship discord and IPV.

Drawing from the Pittsburgh ADHD Longitudinal Study (PALS), which is a large longitudinal study of individuals with and without childhood ADHD (for a fuller description of the study and its sample, see Molina et al., 2007), the current study investigated whether young adult males diagnosed with ADHD in childhood (probands) were more likely to perpetrate IPV (verbal aggression and violence) in their romantic relationships than young adult males without childhood ADHD (controls). As individuals with ADHD often have long-standing interpersonal difficulties and present with behavioral risk factors for IPV (e.g., impulsivity and antisociality), we expected that probands would be more likely to perpetrate IPV in their young adult romantic relationships than controls. This study also examined whether the severity of ADHD and disruptive behavior problems in childhood and in adulthood were associated with IPV reported by probands. We hypothesized that probands with more severe ADHD and conduct problems (ODD/CD) in childhood and more severe ADHD and conduct problems (ASP) in adulthood would be more likely to report IPV in adulthood. Finally, we believed that probands with persistent conduct problems (CD + ASP) would be more likely to engage in IPV than probands whose childhood conduct problems desisted.

Method

Participants

Young adults with and without childhood ADHD participating in the PALS provided data for the present study. PALS probands were recruited from a pool of 516 children diagnosed with *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised; *DSM-III-R*; APA, 1987) or *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; APA, 1994) ADHD at the attention deficit disorder clinic at the Western Psychiatric Institute and Clinic (WPIC) in Pittsburgh, Pennsylvania, between 1987 and 1996. Mean age at initial evaluation was 9.40 ($SD = 2.27$) with 90% between the ages of 5 and 12. All probands participated in the ADHD Summer Treatment Program (STP), a comprehensive 8-week intervention that included behavioral modification, parent training, and psychoactive medication trials where indicated (Pelham, Fabiano, Gnagy, Greiner, & Hoza, 2005). As part of the STP, extensive interview, rating scale, and observational data were collected.

Proband diagnostic information was collected in childhood using several sources, including the parent and teacher Disruptive Behavior Disorders (DBD) Rating Scale (Pelham, Gnagy, Greenslade, & Milich, 1992), which assesses the *DSM* symptoms of ADHD, ODD, and CD. In addition, parents of probands completed a semistructured interview consisting of the *DSM* descriptors for the disorders, with supplemental questions regarding situational and severity factors. The interview also included queries about other comorbidities to determine whether additional assessment was needed (instrument available from WEP). Following *DSM* guidelines, diagnoses were made if a sufficient number of symptoms were endorsed (considering information from parents and teachers) to result in diagnosis. Two PhD-level clinicians independently reviewed all ratings and interviews to confirm the *DSM* diagnoses. When the two clinicians disagreed, a third clinician reviewed the file and the majority decision was used. Exclusionary criteria included a full-scale IQ less than 80, a history of seizures or other neurological problems, and a history of pervasive developmental disorder, schizophrenia, or other psychotic or organic mental disorder.

Of the 516 eligible children with ADHD, 493 were recontacted and 364 were interviewed (70.5% participation rate) for PALS (Molina et al., 2007). At the time of their follow-up interview, PALS probands were between the ages of 11 and 28 with 99% falling between 11 and 25 years of age and an average of 8.35 years having elapsed since their childhood diagnosis and summer program participation. PALS participants were compared to nonparticipants on 14 descriptive and diagnostic variables collected in childhood. Only one comparison was statistically significant: Conduct disorder scores were higher for nonparticipants ($M = 0.53$ on a 3-point scale) than for PALS participants ($M = 0.43$, Cohen's $d = 0.30$).

A total of 240 demographically similar 11- to 25-year-olds without ADHD were recruited on a rolling basis from the Pittsburgh area between 1999 and 2001 to provide a comparison group to the probands. Controls were recruited through pediatric practices (40.8%), advertisements in local newspapers and the university hospital staff newsletter (27.5%), local universities and colleges (20.8%), and other methods (e.g., Pittsburgh Public Schools, word of mouth). A telephone screening interview administered to parents gathered basic demographic characteristics, history of diagnosis and treatment for ADHD and other behavior problems, presence of exclusionary criteria, and a checklist of ADHD symptoms. Young adults (18+) also provided self-report. ADHD symptoms were counted as present if reported by either the parent or young adult. Individuals who met *DSM-III-R* criteria for ADHD (presence of eight or more symptoms)—either currently or historically—were excluded. Control participants with subthreshold ADHD symptoms, or other psychiatric disorders, were retained. Controls were selected for the PALS to ensure between-group equivalence in proportions for demographic characteristics (age, gender, ethnic/racial minority, and highest parent education).

Subsample for the current study. For the current study, a subset of the PALS proband and control samples was selected. These data (from the first interview since childhood for the probands and the only interview for the controls) were selected from all unmarried young adult males aged 18 to 25 with a lifetime history of romantic relationships. This particular subsample was chosen because (a) most probands (95%) and controls (98%) reported never being married, (b) romantic-relationship data collected from PALS women are discussed elsewhere (Babinski et al., in press), and (c) most probands (83%) and controls (87%) reported at least one romantic relationship in their lifetime. (PALS participants without dating experience did not complete romantic relationship quality measures.) Taken together, 125 probands and 88 controls provided data for the current study. In this subset of the PALS participants, probands and controls did not differ in age (for ADHD: $M = 19.98$, $SD = 1.96$; for control: $M = 19.76$, $SD = 1.72$; $t = .84$, $p = .40$), ethnicity/racial minority (for ADHD: 15.87% were minorities; for control: 14.12% were minorities; $\chi^2 = .12$, $p = .73$), or highest parent education (for ADHD: $M = 7.32$, $SD = 1.53$; for control: $M = 7.16$, $SD = 1.66$, on a scale 1 = *less than seventh-grade education* to 9 = *graduate professional training*; $t = .64$, $p = .52$). The proportion of probands (56.80%) and controls (65.91%) in romantic relationships did not differ at assessment, $\chi^2(213) = 1.79$, $p = .18$.

Procedures

Interviews were conducted in the ADD Program offices by postbaccalaureate research staff. Informed consent was obtained and all participants were assured confidentiality except in cases of impending danger or harm to self or others. In cases where distance prevented participant travel to the program offices, information was collected through a combination of mailed and telephone correspondence; home visits were offered as need dictated. Self-report questionnaires were completed either with pencil and paper or with computerized versions.

Dependent Variable

IPV. The Conflict Tactics Scale (CTS; Straus, 1979) is a widely used instrument that assesses self-reported frequency (0 = *never* to 5 = *more than once per month*) of verbally aggressive and violent behaviors occurring within the past year. The verbal aggression and violence subscales have five items. The subscales have well-established internal consistency as well as content and construct validity (Straus, 1979). The average score for each of the subscales (i.e., sum of item ratings / 5) was used in addition to analysis at the item level to explore rates of individual behaviors. Cronbach's alphas for the verbal aggression (.81) and violence (.95) scales were good. However, descriptive statistics indicated that the verbal aggression (skewness = 1.04, $SE = .17$, $z = 6.12$, $p < .01$) and violence (skewness = 5.11, $SE = .17$, $z = 30.06$, $p < .01$) scores were not normally distributed. Thus, nonparametric tests were used when comparing levels of IPV between probands and controls.

Proband Childhood Risk Factors

ADHD/ODD. Ratings of ADHD and ODD symptoms in the proband's childhood were taken from parent and teacher ratings on the DBD Rating Scale (Pelham et al., 1992), which was administered as part of the proband's childhood diagnostic assessment. The DBD Rating Scale assessed severity of proband ADHD and ODD by asking parents (usually mothers) and teachers to rate the frequency with which the probands exhibited symptoms of these disorders (0 = *not at all* to 3 = *very much*). The maximum ratings across parent- and teacher-reports of proband ADHD and ODD symptoms in childhood were identified separately for each item, as is customary (Lahey et al., 1994), with maximum responses then averaged across items to create two scores, one indicating the severity of childhood ADHD symptoms and one indicating the severity of childhood ODD symptoms, for each proband. As expected, proband ADHD ($M = 2.28$, $SD = 0.44$) and ODD ($M = 1.89$, $SD = 0.63$) symptom severity was elevated in childhood.

Aggression/conduct problems. Similar to procedures used by Bagwell et al. (2001), parent- and teacher-DBD ratings of three CD symptoms ("often initiates physical fights," "is physically cruel to others," and "has used a weapon with others") collected during the proband childhood diagnostic assessment were combined to form an index of aggression in childhood. The remaining CD symptoms rated on the DBD were combined to form an index of nonaggressive conduct problems. Again, the maximum ratings across parent and teacher ratings for each item were used, with maximum ratings then averaged across items to create indices of childhood aggression and nonaggressive conduct problems for each proband. For aggressive behavior, $M = 0.90$, $SD = 0.70$; for nonaggressive conduct problems, $M = 0.35$, $SD = 0.26$. In addition to using these symptom scores, probands were coded as having childhood CD if they met diagnostic criteria during their initial evaluation (45% of probands were diagnosed with CD).

Proband Adulthood Risk Factors

ADHD. At the follow-up assessment, probands and their mothers completed the Barkley Adult ADHD Scale (Barkley & Murphy, 1998), which asked respondents to report how often *DSM-IV* symptoms of inattention and hyperactivity-impulsivity were exhibited by the young adult male probands (0 = *never/rarely* to 3 = *very often*). The maximum ratings across proband and maternal reports were identified

Table 1. Rates of Intimate Partner Violence in Current or Most Recent Romantic Relationships

	ADHD (n = 125)	Control (n = 88)	χ^2	p	Odds ratio
Verbal aggression					
Argued heatedly, but short of yelling	72.80% (n = 91)	64.77% (n = 57)	1.57	.21	—
Yelled at and/or insulted partner	57.60% (n = 72)	40.91% (n = 36)	5.76	<.05	1.96
Sulked and/or refused to talk with partner	54.40% (n = 68)	52.27% (n = 46)	0.09	.76	—
Stomped out of room with partner	44.80% (n = 56)	28.41% (n = 25)	5.89	<.05	2.05
Threw (but not at my partner) or smashed something	31.20% (n = 39)	13.64% (n = 12)	8.75	<.01	2.87
Violence					
Threatened to hit or throw something at partner	15.20% (n = 19)	3.41% (n = 3)	7.75	<.01	5.08
Threw something at partner	14.40% (n = 18)	3.41% (n = 3)	7.02	<.01	4.76
Pushed, grabbed, shoved partner	12.00% (n = 15)	5.68% (n = 5)	2.42	.12	—
Hit (or tried to hit) partner, but not with anything	10.40% (n = 13)	3.41% (n = 3)	3.63	.06	—
Hit (or tried to hit) partner with something hard	12.00% (n = 15)	2.27% (n = 2)	6.65	.01	5.85

Note: Odds ratios imply that probands "X times" as likely to be aggressive as controls.

for each symptom, with maximum responses then averaged across the 18 symptoms to create a summary score indicating the severity of adult ADHD symptoms for each proband. Parent-report was used in addition to self-report due to the incremental benefit of parent-report in the measurement of ADHD symptoms in adults with childhood ADHD (Barkley, Fischer, Smallish, & Fletcher, 2002). In this study, the average ADHD symptom rating for probands as adults was 1.23 (SD = 0.76).

Antisociality. Probands and their mothers reported symptoms of ASP via the Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders (SCID-II; First, Gibbon, Spitzer, & Williams, 1997). Proband ASP severity was determined by summing the frequency of clinically significant symptoms of ASP (out of 7) across the maximum item ratings provided by probands and/or their mothers. For the current study, one item measuring "irritability and aggressiveness with others" was deleted from the ASP total given its interpersonal nature and its potential overlap with behavior in romantic relationships. Probands in this study exhibited (on average) nearly three clinically significant ASP symptoms (M = 2.64, SD = 1.71), not including the deleted symptom. In addition to using the ASP symptom severity score, probands with three or more ASP symptoms were coded as having elevated ASP in adulthood (52% of probands met this criteria).

Analytical Design

Analyses consisted of proband versus control group comparisons in mean levels of verbal aggression and violence and in occurrence of individual verbal aggression and violence behaviors (Mann–Whitney U- and chi-square tests). Cohen's d was computed to measure the magnitude of significant between-group differences for mean level comparisons (small = .20, medium = .50, large = .80; Cohen, 1988), and odds ratios were computed for significant chi-squares. Pearson's correlations were used to test associations between childhood (ADHD and ODD symptom severity, aggression, nonaggressive conduct problems) and adulthood (ADHD symptom severity, ASP) behavioral risk factors with proband verbal aggression and violence. Chi-square tests also examined associations between childhood and adulthood clinical cutoffs on diagnostic measures (e.g., ODD/CD in childhood, persisting ADHD symptoms in adulthood, and persistence of CD into adulthood as ASP) and risk of IPV behavior among probands.

Results

Comparing IPV Between Probands and Controls

A comparison of IPV mean scores indicated that probands had higher mean verbal aggression scores (M = 0.96, SD = 0.89) than controls (M = 0.66, SD = 0.75), Mann–Whitney U = 4280.5, z = 2.41, p = .02. Probands also had higher mean violence scores (M = 0.23, SD = 0.75) than controls (M = 0.05, SD = 0.31), Mann–Whitney U = 4722.5, z = 2.41, p = .02. Effect sizes were small for both comparisons (verbal aggression d = 0.36; violence d = 0.31).

Group comparisons for individual items are presented in Table 1. Verbal aggression was much more prevalent than violence for probands and controls. Group differences were statistically significant at $p < .05$ or less for three out of five verbal aggression items and for three out of five violence items. Two additional violence items approached statistical significance (pushed, shoved, grabbed partner; hit or tried to hit partner). When group differences were statistically significant, probands were approximately two times more likely to endorse verbal aggression and approximately five times more likely to endorse violence.

Table 2. Pearson's Correlations Among Proband Childhood and Adulthood Risk Factors for IPV

	1	2	3	4	5	6	7
1. Child ADHD[a]	—						
2. Child ODD[a]	.32**	—					
3. Child aggression[a]	.19*	.58**	—				
4. Child conduct[a]	.30**	.43**	.29**	—			
5. Adult ADHD[b]	.34**	.02	−.01	.02	—		
6. Adult ASP[c]	.22*	.17	.13	.23**	.39**	—	
7. Verbal aggression	.15	.09	.03	.10	.24**	.38**	—
8. Violence	.10	.04	−.04	−.04	.22*	.20*	.39**

Note: IPV = intimate partner violence; ODD = oppositional-defiant disorder; ASP = antisocial personality disorder. $N = 123$. Higher scores indicate more severe child/adult externalizing behavior and IPV.
a. Child ADHD, ODD, aggression, and nonaggressive conduct problem data gathered from Parent/Teacher Disruptive Behavior Disorder Rating Scale (Pelham et al., 1992).
b. Adult ADHD ratings derived from Barkley Adult ADHD Scale (Barkley & Murphy, 1998).
c. Adult antisocial personality disorder (ASP) score assessed via Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders (First et al., 1997).
*$p < .05$; **$p < .01$

We examined the number of probands and controls who reported engaging in all five verbal aggression behaviors and in all five acts of violence to explore the magnitude of the problem (i.e., a response of "1" or higher for all five items within a subscale). Significantly more probands than controls reported engaging in all verbal aggression behaviors—ADHD: 23.20%, control: 7.95%; χ^2 (213) = 8.55, $p < .01$; odds ratio = 3.50. Significantly more probands than controls reported engaging in all five violence behaviors—ADHD: 9.60%, control: 1.14%; χ^2 (213) = 6.46, $p = .01$; odds ratio = 9.23.

Child and Adult Behavioral Risk Factors for Proband IPV

Table 2 shows the results of the Pearson's correlations between the childhood/adulthood behavioral risk factors and IPV mean scores. Childhood ADHD symptom severity, ODD symptom severity, aggression, and nonaggressive conduct problems were not associated with the rate of proband-reported IPV in adulthood. Conversely, adult ADHD and ASP symptom severity were positively associated with rates of proband verbal aggression and violence. Correlations were small in size, ranging from .20 (adult ASP symptom severity and violence) to .38 (adult ASP symptom severity and verbal aggression). Because the ADHD and ASP symptom severity scores were significantly correlated ($r = .39$ in Table 2), we used partial correlations to determine the unique (independent) associations between these symptom scores and the IPV variables. Controlling for adult ASP symptom severity, adult ADHD severity was not significantly correlated with rates of verbal aggression ($r = .12$, $p = .21$) or violence ($r = .15$, $p = .10$). Controlling for adult ADHD symptom severity, adult ASP severity was significantly associated with rates of verbal aggression ($r = .32$, $p < .01$) but not violence ($r = .13$, $p = .16$).

Table 3 shows the results of comparisons in IPV between probands subdivided on the basis of CD/ASP in childhood and in adulthood. Probands were categorized into those who never met diagnostic criteria for childhood CD or adulthood ASP, probands with only childhood CD, probands with only adulthood ASP, and probands with childhood CD and adulthood ASP. Group comparisons were conducted on verbal aggression and violence mean scores and on the endorsement of all five verbal aggression or all five violence items. Nonparametric tests revealed that probands with or without histories of CD/ASP differed significantly in their reports of verbal aggression but not violence. Follow-up Tukey's revealed that probands with histories of CD and ASP reported being verbally aggressive with their romantic partners significantly more often in the past year than probands with CD-only ($d = 1.06$) or those without histories of CD or ASP ($d = 1.03$). Probands with ASP-only did not differ significantly from any group. An omnibus chi-square test revealed significant between-group differences in proband reports of engaging in all five verbal aggression behaviors, χ^2 (123) = 13.52, $p < .01$. Probands with childhood CD and adulthood ASP (43.75%) and those with ASP-only (28.13%) were more likely than probands with CD-only (8.70%) or those without CD/ASP (11.11%) to engage in all five acts of verbal aggression. An omnibus chi-square test indicated no significant between-group differences for proband reports of engaging in all five violence behaviors, χ^2 (123) = 5.26, $p = .15$.

Discussion

Social dysfunction is a well-established occurrence for children with ADHD. Yet, evidence is lacking with respect to the quality of interpersonal relationships among adults with childhood ADHD, particularly their romantic relationships. In this study, rates of IPV were compared between young

Table 3. Proband Verbal Aggression and Violence by Childhood CD and Adulthood Antisociality

	No CD/ASP	CD-only	ASP-only	CD + ASP		
	n = 35	*n* = 22	*n* = 32	*n* = 31	Kruskal–Wallis	*p*
Verbal aggression	0.66 (0.69)$_a$	0.58 (0.80)$_a$	1.08 (1.01)$_{a,b}$	1.45 (0.84)$_b$	19.80	<.01
Violence	0.08 (0.28)	0.03 (0.09)	0.46 (1.04)	0.33 (0.98)	3.61	.31

Note: CD = conduct disorder; ASP = antisocial personality. The values in the table denote *M* (*SD*). Change in subscript indicates a significant between-group difference (Tukey $p < .05$). No CD/ASP = probands without childhood CD and without adulthood ASP; CD only = probands with childhood CD but without adulthood ASP; ASP only = probands without childhood CD but with adulthood ASP; CD + ASP = probands with childhood CD and with adulthood ASP. Scale for verbal aggression and violence scores is as follows: 0 = *never*; 1 = *once in the year*; 2 = *2 or 3 times*; 3 = *often, but less than once a month*; 4 = *about once a month*; 5 = *more than once per month* (Straus, 1979).

adult males with and without histories of ADHD. Young adult males with childhood ADHD reported more frequent use of verbal aggression and violence with their romantic partners within the past year than did adult males without ADHD histories. Though most young adult males with childhood ADHD reported being nonviolent, probands were still five times more likely to report use of specific violent behaviors with their romantic partners (e.g., throwing things at partner, hitting partner with something hard) and nine times more likely to report using of all five violent behaviors assessed in this study than controls. Among males with childhood ADHD, rates of IPV were positively associated with the severity of their current, but not childhood, ADHD symptoms and conduct problems (ASP). At the same time, only ASP symptom severity, not ADHD symptom severity, was uniquely associated with IPV. Finally, probands diagnosed with CD in childhood and presenting with clinically significant ASP in adulthood were more likely to be verbally aggressive with romantic partners in the past year than probands diagnosed with CD-only and those without histories of CD or ASP.

This is the first study to report on the elevated risk of IPV among young adults with ADHD. The rates of specific violent behaviors reported by probands in this study (10% to 14%, depending on the behavior) not only far exceeded rates of the comparison group (2%-3%) but also were more than double the rates of severe male-to-female violence described in studies with large, nationally representative community samples (3%-7%; Caulfield & Riggs, 1992). In addition to the obvious concern for women in relationships with these abusive men, these data are especially troubling given that they were gathered via self-report. Underreporting IPV is common when relying on self-report methods (e.g., Arias & Beach, 1987), and adults with ADHD have been shown to underreport their own negative behaviors (e.g., driving ability; Knouse, Bagwell, Barkley, & Murphy, 2005). Thus, it is quite possible that our results are underestimates of the actual frequency of IPV perpetrated by young adult males with childhood ADHD. Future studies should examine self- and partner-report data on IPV in couples where a partner has a history of ADHD to further clarify the rate of IPV in this population.

Somewhat surprisingly, the severity of childhood ADHD and conduct problems were not associated with the frequency of IPV self-reported by probands in this study. Given that childhood ADHD and CD symptom severity were associated with adult ADHD and ASP severity in our sample, both of which were associated with proband IPV, the weak relationship we found between childhood externalizing variables and IPV in adulthood among males with childhood ADHD is peculiar. Perhaps the skewed nature of the self-reported IPV variables and the length of time between child and adult assessments for probands (more than 8 years) reduced our chances of finding significant associations.

However, young adult males with childhood ADHD who had more severe ADHD or ASP symptoms in adulthood were more likely to report engaging in verbal aggression and violence with their romantic partners. Probands with conduct problems persisting from childhood through adulthood (i.e., diagnosed with CD as children, presenting with clinically elevated ASP as adults) were especially likely to report IPV. These findings should come as no surprise in light of the pervasive functional impairment of adults with ADHD symptoms persisting from childhood into adulthood (Barkley et al., 2008), particularly those with elevated ASP (e.g., Molina et al., 2007), and research indicating that ADHD is a developmental precursor to conduct problems in childhood (e.g., Burke, Loeber, Lahey, & Rathouz, 2005) and in adulthood (Barkley et al., 2008). Even still, additional pathways may also explain the associations between ADHD, conduct problems, and IPV.

One potential mechanism underlying elevated rates of IPV among young adult males with childhood ADHD is problem drinking. Alcohol use and abuse is common among young adults with childhood ADHD, particularly those with comorbid ASP (Molina et al., 2007), and is also often associated with IPV in clinical and in nonclinical samples (Foran & O'Leary, 2008). Young adult males with childhood ADHD, especially those with histories of conduct problems, may be at risk for perpetrating IPV if their excessive drinking

exacerbates their aggressive impulses. Indeed, preliminary evidence from the PALS sample suggests that probands who report elevated binge drinking or alcohol use problems are more likely to report being violent with romantic partners than controls who are heavy drinkers (Wymbs, Molina, Pelham, & Gnagy, 2009). These data, coupled with other findings from the PALS showing a link between heavy drinking and impulsive behavior in the form of motorsports involvement among probands (McGinley, Molina, Marshal, & Pelham, 2008), underscore the potential for alcohol abuse to exacerbate risky impulsive behaviors such as IPV in young adult males with childhood ADHD.

Alternatively, young adult males with childhood ADHD may also be more likely to perpetrate IPV given their exposure to domestic violence as children. Studies have demonstrated that witnessing parents engage in excessive verbal aggression and violence as a child is predictive of perpetrating IPV as an adult (for review, see Schumacher et al., 2001). Not surprisingly, youth with ADHD report witnessing more frequent and unresolved discord between their parents than youth without ADHD (e.g., Counts, Nigg, Stawicki, Rappley, & Von Eye, 2005; Wymbs, Pelham, Gnagy, & Molina, 2008), in part because their own disruptive behavior exacerbates marital instability (Wymbs & Pelham, 2010; Wymbs, Pelham, Molina et al., 2008). Thus, young adult males with childhood ADHD may be aggressive with romantic partners because they resolve conflicts using the same violent tactics they witnessed their parents use. Research is needed to examine the connection between witnessing interparental hostility as a child and perpetrating IPV among young adult males with childhood ADHD.

This study contributes to the limited body of evidence highlighting the likelihood of discordant romantic relationships among adults with childhood ADHD. More investigations of this kind are needed when considering the many ways that adults diagnosed with ADHD in childhood differ from those diagnosed in adulthood. For example, relative to self-referred adults with ADHD, adults with childhood ADHD evince greater substance abuse/dependence and antisociality as well as additional functional impairments (e.g., educational/occupational functioning, money management; Barkley et al., 2008), which are all risk factors for romantic relationship discord and dissolution (e.g., Amato & Rogers, 1997; Karney & Bradbury, 1995). Furthermore, by definition, adults diagnosed with ADHD in childhood are more likely to have histories of impairment due to their ADHD symptoms, including social dysfunction (Hoza, 2007), than those having passed through childhood without significant behavioral concerns from parents or teachers. Finally, numerous studies find that children with ADHD lack insight about their symptoms and impairments, reporting that they excel in areas (e.g., peer relations, academic performance) that parents and teachers indicate are deficits (Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007). Thus, it is quite possible that adults who are self-referring for ADHD services (out of concern for their behavior) differ in a fundamental way from adults diagnosed with ADHD in childhood (who are only referred for services by parents or teachers). In sum, because these groups vary in important dimensions, many of which are associated with romantic relationship discord, research is needed to replicate our findings and continue exploration into the romantic relationship functioning of adults with childhood ADHD.

Study limitations should be weighed when considering the current findings. First, as noted earlier, IPV ratings were not collected from romantic partners of young adult males with or without childhood ADHD in this study. Acknowledging the potential for self-reports of IPV to be unreliable (e.g., Arias & Beach, 1987), particularly among adults with ADHD who appear prone to inflated self-appraisals (e.g., Knouse et al., 2005), it is possible that rates of IPV reported herein are inaccurate estimates of the actual prevalence. It should be said, however, that young adult reports of romantic relationship functioning have been corroborated by parent ratings in another study using the PALS sample (Babinski et al., in press). Second, this study describes data collected from 18- to 25-year-old males only. Given that IPV peaks in this age range among unmarried males (e.g., Thompson et al., 2006), studies investigating self-reported IPV in samples of older, married males or women may uncover different results. Third, this sample contains adults with childhood ADHD who received intensive, short-term treatment for ADHD as children (Pelham et al., 2005). Though the longitudinal outcomes of young adults with childhood ADHD receiving brief intensive services may not differ from those treated in the community as children (Molina et al., 2009), our results could vary from those found with adults diagnosed with, but not treated for, ADHD in childhood or those diagnosed with ADHD in adulthood as these populations may have less severe presenting problems (e.g., Barkley et al., 2008). Fourth, like most clinical samples, rates of ASP in our sample are higher than rates found in non-referred samples. At the same time, the level of ASP in the PALS, the longitudinal study from which data for the present study were taken (see Molina et al., 2007), are commensurate with levels found in other clinic-referred samples of children with ADHD (e.g., Barkley et al., 2008; Biederman, Monuteaux, et al, 2006). For this reason, we believe results of our analyses likely generalize to the population of clinic-referred children with ADHD; limited generalization to the population of nonreferred children without ADHD is a potential limitation.

This study sheds light on an underrecognized functional impairment in adults with childhood ADHD, particularly those with elevated ADHD and conduct problems persisting from childhood—IPV. Given the level of IPV reported herein, not to mention the deleterious consequences of aggression for romantic relationships (e.g., Rogge & Bradbury, 1999) and general adult well-being (Mitchell & Anglin, 2009),

improving anger management and problem solving in romantic relationships may need to be a focus of treatment for adults with ADHD histories, especially those with CD in childhood and ASP in adulthood. Unfortunately, little is known about how to effectively treat any functional impairment displayed by adults with ADHD, let alone relationship problems (Weiss et al., 2008). New and effective interventions are sorely needed to address the symptoms and functional impairment of adults with ADHD histories, particularly those with conduct problems persisting from childhood. Our hope is that researchers will not rest with pointing out the difficulties associated with adult ADHD, like IPV, but will develop, test, and disseminate interventions to address them.

Acknowledgments

Portions of this article were presented at the 2008 annual convention of the Association for Behavioral and Cognitive Therapies. This research was conducted while Dr. Brian Wymbs was a postdoctoral scholar mentored by Dr. Brooke Molina at the University of Pittsburgh.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

Funding

The author(s) disclosed that they received the following support for their research and/or authorship of this article: Grants from the National Institute on Alcohol Abuse and Alcoholism (AA11873) and the National Institute on Drug Abuse (AD12414), awarded to Drs. Brooke Molina and William Pelham, funded the Pittsburgh ADHD Longitudinal Study, which was the data source for this project. Dr. Wymbs was supported during the preparation of this article by a National Institute of Mental Health Institutional Training Grant (MH018269) awarded to Drs. Marcia Marcus and Paul Pilkonis.

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