Article

Journal of Attention Disorders
1–10

DOI: 10.1177/1087054718779228
journals.sagepub.com/home/jad
SAGE

Investigating Self-Control Resource Depletion as a Situational Risk Factor for Aversive Interpartner Communication by Young Adults With ADHD

Brian T. Wymbs[1]

Abstract

Objective: Adults with attention-deficit hyperactivity disorder (ADHD) have more conflictual relations with their romantic partners than adults without ADHD. This study investigated whether adults with ADHD are differentially susceptible to conflict when self-control resources are depleted. **Method:** Heterosexual adult couples (20 including at least one adult with ADHD; 12 including no adults with ADHD) were randomly assigned to have resources temporarily depleted or not. Positive and negative communication was assessed during a subsequent problem-solving task with their partners. **Results:** Adults with ADHD whose self-control resources were depleted communicated less positively and more negatively with their romantic partners than adults without ADHD whose resources were depleted. **Conclusion:** Adults with ADHD appear to have a differential susceptibility to interpartner discord when their self-control resources have been depleted. Clinicians seeking to remediate discordant romantic relationships of adults with ADHD should consider evaluating how often their resources needed to manage their impulses are depleted. *(J. of Att. Dis. XXXX; XX*[*X*] *XX-XX)*

Keywords

adult ADHD, college students, communication, romantic relationships

In emerging adulthood, interpersonal relationships assume new meaning as social, emotional, and occupational/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). Given the extensive research illustrating social problems commonly exhibited by youth with attention-deficit hyperactivity disorder (ADHD; Barkley, 2014), negotiating these relationship milestones may be difficult for many young adults with ADHD. Amid indications that adults with ADHD benefit from the support and assistance of romantic partners (Eakin et al., 2004; Wymbs & Molina, 2015), attention has focused on understanding how young adults with ADHD behave with their romantic partners. Findings from these studies indicate that adults with ADHD are more conflictual with their partners than adults without ADHD (e.g., Canu, Tabor, Michael, Bazzini, & Elmore, 2014). However, situational risk factors precipitating their incidents of conflict, especially those that emerging adults with ADHD may be more susceptible to than those without ADHD, have yet to be identified. Highlighting such factors could inform treatment of relationship impairment in young adults with ADHD. The present study examined whether emerging adults with and without ADHD differ in how they communicate with their partners after experiencing a situational risk factor for conflict to which adults with ADHD are more susceptible: self-control resource depletion (i.e., temporary lack of resources needed to inhibit impulsive urges).

Self-Control and Romantic Relationship Conflict

Conflict is a normative component of adult romantic partnerships, with up to 85% of partners reporting verbal aggression within a current relationship (Finkel & Eckhardt, 2013). Although conflict is common, how it is handled determines the stability of relationships. Indeed, specific patterns of aversive interpartner communication behavior (i.e., limited positive communication and excessive negative communication) exhibited during instances of conflict

[1]Ohio University, Athens, USA

Corresponding Author:
Brian T. Wymbs, Department of Psychology, Ohio University, Porter Hall, Athens, OH 45701, USA.
Email: wymbs@ohio.edu

are predictive of subsequent interpartner violence (Capaldi, Knoble, Shortt, & Kim, 2012) and eventual relationship dissolution (Bradbury, 1998; Gottman, 1994). To potentially disrupt the cascade of aversive communication potentially leading to violence or separation, it is critical to identify factors that trigger instances of aversive communication between partners.

Situational factors, or temporary external conditions (e.g., fatigue after a tough day at work), often instigate conflict between romantic partners. An emerging literature indicates that temporary deficits in the ability to inhibit impulsive urges often precede adversarial behavior between adults (DeWall, Finkel, & Denson, 2011). The *Self-Control Strength Model* describes self-control as a limited, "depletable" resource that is essential when selecting behavioral responses that conform to societal norms in the presence of more immediately gratifying options (Baumeister, Vohs, & Tice, 2007). Self-control depletion describes a state in which the likelihood of inhibiting impulsive or adversarial responding decreases as exertion temporarily diminishes an individual's finite amount of self-control (Hagger, Wood, Stiff, & Chatzisarantis, 2010). Self-control resources have been experimentally manipulated in numerous ways, such as instructing participants to not eat desirable food (DeWall, Baumeister, Stillman, & Gailliot, 2007; Stucke & Baumeister, 2006), asking participants to suppress thoughts or emotions (Christiansen, Cole, & Field, 2012; Muraven, Collins, & Nienhaus, 2002; Stucke & Baumeister, 2006), and requesting participants to attend to boring stimuli instead of more exciting stimuli (DeWall et al., 2007; Finkel et al., 2012; Finkel, DeWall, Slotter, Oaten, & Foshee, 2009; Watkins, DiLillo, Hoffman, & Templin, 2013). Experimental manipulations of an individual's self-control resources have shown that depletion predicts a wide range of potentially concerning behaviors (e.g., alcohol consumption; Christiansen et al., 2012; Muraven et al., 2002), with men and women showing comparable effects (Stucke & Baumeister, 2006).

Self-control resource depletion has also been tested as a risk factor for interpartner discord. Finkel and colleagues (2009) showed that adults, whose self-control resources were depleted by attending to boring stimuli while ignoring more exciting stimuli, were more likely to exhibit aggressive behavioral responding toward their romantic partner than adults whose resources were not depleted. Interestingly, two later studies using the same experimental manipulation of self-control resources showed that dispositional characteristics (i.e., high trait aggression, negative emotionality) strengthened the association between self-control resource depletion and being physically aggressive with one's partner (Finkel et al., 2012; Watkins et al., 2013). Taken together, these studies highlight that self-control depletion is a risk factor for interpartner discord, particularly among those dispositionally prone to conflict. Research is needed to extend this work by identifying other dispositional characteristics that also increase risk of discord during periods of self-control resource depletion. Doing so may inform efforts to prevent interpartner conflict in groups known to evince these characteristics.

Adult ADHD and Romantic Relationship Conflict

The I^3 theory (Finkel & Eckhardt, 2013) postulates that interpartner discord is the product of strong *impellance* (e.g., dispositional inhibitory control deficits), intense situational *instigation* (e.g., provocation), and weak situational *inhibition* (e.g., depleted self-control resources). There is reason to suspect that emerging adults with ADHD, who are known to have chronic deficits in inhibitory control (i.e., *impellance* factor in I^3 theory; Halperin, Trampush, Miller, Marks, & Newcorn, 2008; Nigg, Butler, Huang-Pollock, & Henderson, 2002), may be especially prone to communicate discordantly with their partners when provoked (i.e., *instigation* factor) during periods of self-control resource depletion (i.e., *inhibition* factor). To be clear, it is common for adults with and without ADHD to communicate aversively with their partners when provoked (e.g., asked to engage in problem-solving discussion) and depleted (e.g., fatigued, hungry). The I^3 theory suggests that provocation and resource depletion interact to "lower the bar" for all individuals to respond impulsively to partner communication, which increases risk of aversive communication behaviors. However, among those who suffer from chronic inhibitory control deficits, like adults with ADHD, their pervasive tendency to act impulsively means the "bar" for communicating with their partners may be routinely low, regardless of situational risk factors (e.g., provocation, self-control resource depletion). Thus, owing to their inhibitory control deficits, adults with ADHD are prone to communicate more aversively on a regular basis than adults without ADHD. However, of concern for this article, when adults with ADHD are provoked during a period of self-control resource depletion, I^3 theory suggests their "bar" may be even lower than usual, placing these adults at greater risk of interpartner discord than adults without ADHD, including those who are provoked and depleted.

As expected, emerging adults with ADHD often have conflictual discussions with their romantic partners. Robin and Payson (2002) highlighted several behaviors exhibited by adults with ADHD illustrative of their behavioral inhibition difficulties that spark conflict with their romantic partners (e.g., saying things without thinking, difficulty dealing with frustration). Canu and colleagues (2014) found that young adults with ADHD who had greater inhibitory control difficulties (i.e., strong impellance) communicated more negatively and less positively with their partners when problem-solving "hot topics" in their relationship (i.e., strong instigation) than adults who had lesser inhibitory control

difficulties. Thus, conflict between emerging adults with ADHD and their romantic partners seems to be a consequence of their deficits in inhibitory control. However, it is unclear whether young adults with ADHD may be differentially susceptible to situational factors that deplete self-control resources (e.g., fatigue), which I^3 theory suggests should further increase their likelihood of engaging in interpartner discord. This is in an important omission because identifying contextual variables that heighten risk of relationship conflict among those with ADHD could lead to implementing strategies targeting these factors that may disrupt trajectories leading to violence (Wymbs, Dawson, Egan, & Sacchetti, 2016; Wymbs et al., 2012) and relationship dissolution (Biederman et al., 2006; Kessler et al., 2006).

Current Study

This experiment was designed to investigate whether emerging adults with ADHD, particularly when their self-control resources are depleted and they are provoked, were at differentially greater risk of discordant communication with their romantic partners than depleted and provoked adults without ADHD or adults with and without who were provoked when not depleted. We used an empirically validated experimental manipulation of self-control resources (DeWall et al., 2007; Finkel et al., 2012; Finkel et al., 2009; Watkins et al., 2013), and randomly assigned emerging adult couples to experience self-control resource depletion or to not have their self-control resources depleted. Then, we asked each couple to engage in a 15-minute discussion of "hot topics" in their relationship, a procedure which has been shown to provoke discord in couples including adults with ADHD (e.g., Canu et al., 2014). We hypothesized that emerging adults with ADHD in the depletion condition would communicate less positively and more negatively during the problem-solving (i.e., provocation) task than those without ADHD in the depletion condition or those in the no depletion condition.

Method

Participants

Emerging adult couples were recruited from a mid-sized university in southeastern Ohio. Recruitment tools included posting flyers, advertising to the department of psychology research participant pool, and a registry of former research participants who agreed to be contacted for future studies. Totally, 252 individuals contacted the investigation team and completed the eligibility screening. Inclusion criteria were as follows: Being 18 to 25 years, heterosexual, in relationship for 3 months or longer, and had never been arrested for assault or been physically aggressive with each other or prior partners in public. Of those screened, 237 met these criteria.

Next, interested participants were screened for ADHD status. To screen in as an "ADHD" couple, at least one partner must have been diagnosed with ADHD by age 12 (or end of sixth grade) and currently have clinically elevated symptoms of ADHD on the ADHD Self Report Scale-Screener (ASRS-Screener score ≥ 14; Kessler et al., 2005; Kessler et al., 2007). Conversely, "Non-ADHD" couples comprised two adults who were demographically similar to those with ADHD (based on age, race/ethnicity, length of relationship), but who were both without ADHD diagnostic histories and presented with low current ADHD symptoms (ASRS-Screener score < 14). A total of 82 adults (32% of total who completed primary screening) were screened out for reporting a positive ADHD diagnostic history but not clinically significant current symptoms, or for reporting clinically significant current symptoms but no ADHD diagnostic history. Thus, 155 couples were eligible to complete the secondary ADHD screening.

As part of the secondary ADHD screening, both partners rated their own and their partner's symptoms of ADHD as well as their own and their partner's functional impairment. Both members of 106 couples (68% of the 155 invited) completed the secondary screening. Couples who completed the secondary screening reported higher ADHD symptom severity on the ASRS-Screener than couples who elected to not complete the secondary screening.

To be eligible as an ADHD couple after the secondary ADHD screening, at least one partner needed to exhibit four or more clinically significant *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM*-IV) symptoms of inattention, hyperactivity/impulsivity, or both *and* demonstrate clinically significant impairment (score of 3+ on the Impairment Rating Scale (IRS)) in at least one domain of functioning according to self and/or partner ratings. The four-symptom cutoff used in this study has a substantial evidence base (Barkley, Murphy, & Fischer, 2008). Non-ADHD couples included two adults exhibiting three or fewer clinically significant symptoms of inattention or hyperactivity/impulsivity, and had no domains with clinically significant impairment according to self or partner ratings. Overall, 61 couples (58% of total who completed secondary screening) were screened out for at least one partner not meeting ADHD symptom or impairment criteria. Couples found to be eligible after the secondary screening did not differ from couples found to be ineligible in partner age, relationship duration, or ADHD symptom severity. Totally 45 couples remained eligible, including 29 in the ADHD group and 16 in the Non-ADHD group. Of these, 32 couples (20 ADHD, 12 Non-ADHD) completed the main study. Reasons for eligible couples not completing the study include not returning calls/emails from research staff, not keeping their appointment, or—in the case of couples eligible for the Non-ADHD group—not being invited to participate because they were demographically dissimilar

to the ADHD couples who participated. Couples who completed the main study did not differ in any demographic variable from those who did not participate.

Experimental Session Procedures

This study was approved by the University Institutional Review Board. Upon providing informed consent, both partners began the experimental session by completing a battery of questionnaires. Afterward, partners were guided to separate rooms and sat in front of a computer. Next, as part of the self-control resource manipulation, participants viewed a 6-minute video (without audio) that depicted a woman being interviewed by an interviewer located off-camera (link to video: https://psy.fsu.edu/~baumeisterticelab/egodepletion.html). During the interview, a series of common one-syllable words (e.g., tree) appeared at the bottom of the screen for 10 seconds each. For participants assigned to the depletion condition, the experimenter instructed participants "not to read or look at any words that may appear on the screen" and to redirect their gaze immediately if they caught themselves looking at the words instead of the woman's face. This task depletes self-control resources by requiring participants to regulate the natural tendency for humans to orient their attention to novel stimuli (i.e., changing words) instead of maintaining focus on the woman (Finkel et al., 2009; Watkins et al., 2013). Participants in the no depletion condition, in contrast, were not given any specific instructions for watching the video clip and were not given advance knowledge that there would be words at the bottom of the screen. The lack of any prompting to maintain focus on any stimuli, thus removing any need to avert glances from novel stimuli, lessens the cognitive demand for participants, resulting in no depletion of self-control resources. This experimental manipulation of self-control resources is used commonly by researchers (e.g., Finkel et al., 2012; Watkins et al., 2013) and prior research has shown that participants in the depletion condition report exerting more effort to self-manage their attention than those in the no depletion condition (DeWall et al., 2007).

In the present study, 15 target participants (adults with ADHD, and the demographically similar adults without ADHD) were randomly assigned to the "depletion" condition, and 17 target participants were randomly assigned to the no depletion condition. All partners of the target participants received the no depletion condition. Participants rated how difficult it was to control their attention during the task (1 = *very slightly or not at all* to 7 = *very much or entirely*). The manipulation was effective (Cohen's $d = .53$), such that participants in the depletion condition ($M = 5.20$, $SD = 1.78$) reported exerting more effort to manage their attention during the video task than those in the no depletion condition ($M = 4.22$, $SD = 1.93$).

Afterward, the partners sat with each other on a couch and engaged in a 15-minute problem-solving discussion about three "hot topics" in their relationship. Participants were asked to rank order the top 5 areas of discord in their relationship from a list of 21 possible topics often reported to be sources of contention in relationships (Kerig, 1996). As is common in studies seeking to evaluate conflict management behaviors used by couples when provoked (e.g., Canu et al., 2014), the three most problematic/difficult to resolve topics across both partners were selected for them to discuss. Each discussion was recorded to allow for observational coding.

Measures

ADHD status. To assess for current ADHD symptoms, we used the Conners' Adult ADHD Rating Scale-Self Report (CAARS-S; Conners, Erhardt, & Sparrow, 1999) as well as the CAARS Observer Screener (CAARS-P). The CAARS-S is a 66-item self-report inventory of ADHD, appropriate for respondents 18 and older, and includes *DSM*-IV symptoms of inattention and hyperactivity/impulsivity. Responses are scored on a 4-point scale from *not at all* to *very much*, with responses of *pretty much* or *very much* considered to be clinically significant. The CAARS has strong test–retest reliability (1 month $r = .89$; Erhardt, Epstein, Conners, Parker, & Sitarenios, 1999) and internal consistency ($\alpha = .86$ to $.92$; Conners et al., 1999). CAARS scores are positively correlated with other self-report ADHD measures and show good sensitivity and specificity to adult ADHD diagnoses made via semi-structured clinical interview (Erhardt et al., 1999). The CAARS-P is a 30-item inventory of partner-reported ADHD symptoms (e.g., "My partner makes careless mistakes or has trouble paying attention to detail"). Responses are scored on the same 4-point scale, and responses of *pretty much* or *very much* are considered clinically significant. To determine the number of clinically significant symptoms of inattention and hyperactivity/impulsivity across self and partner ratings, the "or" rule was used, such that the total number of inattentive or hyperactive/impulsive symptoms was based on highest score from either rater.

To assess impairment, we administered a 12-item adapted version of the IRS (Fabiano et al., 2006) to participants and their partners. The original IRS assesses impairment in core functional domains for children and adolescents, such as relationships with peers, siblings, parents, and teachers, and academic progress at school. The adapted IRS for adults includes additional items assessing impairment in relationships with bosses, co-workers, and romantic partners. Participants or partners were asked to indicate their level of impairment, if applicable, by marking on a continuum from *no problem* to *extreme problem*, which were later recoded numerically (0 to 6), with scores of 3 or higher indicating clinically significant impairment. The IRS has been shown to be sensitive to ADHD diagnostic histories among adults (Sibley et al., 2012). The "or" rule was

used with the IRS as well, such that the higher score for the two informants (self, partner) counted.

Interpartner communication. Communication behavior between partners during the 15-minute problem-solving discussion task was measured using observational coding and partner ratings. These interactions were videotaped. Two undergraduate research assistants, who were unaware of study conditions, coded all of the couple interactions utilizing the Interactional Dimensions Coding System: Problem Discussion (IDCS-PD; Kline et al., 2004). The IDCS-PD is a global coding system in which overall scores for the entire discussion are derived from nine dimensions of individual problem-solving behavior (for which each member of the couple is rated separately): positive and negative affect, problem-solving skills, denial, dominance, support/validation, conflict, withdrawal, and communication skills. Each dimension is scored on a 9-point Likert-type scale (1 = *extremely uncharacteristic of the interaction* to 9 = *extremely characteristic of the interaction*). Intraclass correlations (ICCs) were outstanding for 8 of the 9 dimensions (ICC range: .74-.87). The lone dimension with poor ICC was communication skills (.47), and this was not included in any further analyses. Consistent with recommendations from Kline and colleagues (2004), as well as with procedures followed in more recent work (e.g., Doss, Rhoades, Stanley, & Markman, 2009; Stanley, Rhoades, Olmos-Gallo, & Markman, 2007), we created positive (i.e., positive affect, problem-solving skills, support/validation) and negative (i.e., negative affect, denial, dominance, conflict, withdrawal) communication composite factors. The internal consistency of the positive (α = .71) and negative (α = .77) factors were acceptable. The IDCS-PD dimensions have been shown to be associated with micro-analytic observational codes (Julien, Markman, & Lindahl, 1989) and to discriminate between distressed and non-distressed couples (Julien et al., 1989; Prado & Markman, 1998).

Immediately after the problem-solving discussion, participants rated how supportive and negative their partner communicated with them during the discussion. The questions were as follows: "Considering only the supportive communication behaviors exhibited by your partner to you, *and ignoring the negative ones*, evaluate how supportive your partner's communication behaviors were to you (0 = Not at all supportive to 10 = Completely supportive)?" and "Considering only the negative communication behaviors exhibited by your partner to you, *and ignoring the supportive ones*, evaluate how negative your partner's communication behaviors were to you (0 = Not at all negative to 10 = Completely negative)?" The format and scale of the partner ratings was adapted from Fincham and Linfield's (1997) Positive and Negative Quality in Marriage Scale, an empirically validated measure of positivity and negativity in romantic relationships. Prior research has shown a significant, albeit modest positive correlation between supportive communication rated by partners using this adaptive scale and observational coding of positive communication (r = .21), while also demonstrating a significant positive correlation between partner-rated and observer-coded negative communication (r = .42; Wymbs, 2011).

Table 1. Demographic Characteristics of Non-ADHD and ADHD Couples.

	Non-ADHD (n = 12 couples)	ADHD (n = 20 couples)	
	M (SD) or %	*M (SD) or %*	*p*
Females			
Age (years)	20.25 (1.22)	19.95 (1.50)	.56
Caucasian	91.67	85.00	.58
Exclusively heterosexual	75.00	90.00	.26
Year in college	2.42 (.79)	2.75 (1.62)	.51
Dating status	3.75 (.45)	3.55 (1.10)	.56
Males			
Age (years)	20.75 (1.22)	20.45 (1.61)	.58
Caucasian	91.67	100.00	.19
Exclusively heterosex3ual	100.00	95.00	.43
Year in college	2.83 (1.27)	2.60 (1.19)	.60
Dating status	3.42 (.52)	3.50 (1.00)	.79

Note. Caucasian = Percentage endorsing being of Caucasian descent; Year in college (1 = First, 2 = Second, 3 = Third, 4 = Fourth, 5 = Fifth or above, 6 = Graduate student); Dating status (1 = I do not date, 2 = I am casually dating, 3 = I am seriously dating; 4 = I am involved in a long-term exclusive relationship; 5 = I live with my partner); Exclusively heterosexual = Percentage endorsing being of exclusively heterosexual. ADHD = attention-deficit hyperactivity disorder.

Analytic Overview

Multiple regression analyses were conducted in Mplus 7.0 (Muthén & Muthén, 2012). The maximum likelihood estimator robust to data non-normality (MLR) was used for all regression analyses. Given the hierarchical nature of the data, the "cluster" command was used to account for individual adults nested within couples. To test whether adults with ADHD, especially those whose self-control resources were depleted, were at risk of discordant communication with their partners, ADHD status (ADHD, Non-ADHD) and depletion condition (depletion, no depletion) main effects and ADHD status × depletion interaction were entered into each regression equation. Partner-rated and observer-coded outcomes were tested separately.

Results

Preliminary Analyses

As shown in Table 1, the demographic characteristics of the young men and women in the ADHD group were consistent with those in the Non-ADHD group. Moreover, the length

Table 2. Correlation Matrix for Predictor and Outcome Variables in This Study (*n*=54).

	M (SD)	1	2	3	4	5
1. ADHD status	—	—				
2. Depletion condition	—	.30*	—			
3. Positive communication (Observer)	5.67 (.89)	−.06	.05	—		
4. Negative communication (Observer)	1.55 (.65)	.27*	−.04	−.64**	—	
5. Supportive communication (Partner)	8.21 (2.09)	−.24	−.02	.37**	−.61**	—
6. Negative communication (Partner)	2.33 (2.67)	−.01	−.16	−.37**	.49**	−.58**

Note. ADHD status (–1 = Non-ADHD, 1 = ADHD); Depletion condition (–1 = No depletion, 1 = Depletion). Positive and negative communication (Observer) = Composite factors for observer coding using Interactional Dimensions Coding System: Problem Discussion (Kline et al., 2004; 1 = *extremely uncharacteristic of the interaction* to 9 = *extremely characteristic of the interaction*). Supportive and negative communication (Partner) = Individual communication behavior as rated by their partners (0 = *not at all supportive/negative* to 10 = *completely supportive/negative*). ADHD = attention-deficit hyperactivity disorder.
*$p < .05$. **$p < .01$.

of relationships for couples in the ADHD group (*M* months = 19.18, *SD* = 19.68) was similar to the length of relationships in the Non-ADHD group (*M* months = 16.10, *SD* = 9.61; $t[30] = .50$, $p = .62$). Two couples (10%) in the ADHD group included two adults with the disorder. Of those with only one adult with ADHD, most (67%) consisted of men with ADHD. Correlations among predictors (ADHD status, depletion condition) and outcomes (observer-coded positive and negative communication, partner-rated supportive and negative communication) are presented in Table 2. ADHD status was positively associated with observer-coded negative communication, such that adults with ADHD were more likely to be perceived by observers as communicating negatively with their partner than adults without ADHD. Depletion condition was not significantly associated with any of the outcome measures.

Table 3. Results of Regression Analyses Predicting Observer-Coded and Partner-Rated Interpartner Communication.

	Observational coding		Partner ratings	
	Positive	Negative	Supportive	Negative
	β	β	β	β
Depletion condition	.38*	−.12	.14	−.07
ADHD status	−.06	.17	.09	−.07
Depletion × ADHD	−.59**	.37*	−.44**	.12
	$R^2 = .56$	$R^2 = .22$	$R^2 = .21$	$R^2 = .02$

Note. Depletion condition (–1 = No depletion, 1 = Depletion); ADHD status (–1 = Non-ADHD, 1 = ADHD). ADHD = attention-deficit hyperactivity disorder.
*$p < .05$. **$p < .01$.

Testing Interactions Between ADHD Status and Depletion Condition

Results of the regression analyses predicting observer-coded and partner-rated interpartner communication are presented in Table 3. The ADHD status × depletion condition interaction predicted three of the four outcomes, although results differed somewhat depending on the outcome variable. According to observers (Figure 1A), emerging adults with ADHD exhibited little difference in positive communication across depletion conditions. However, focusing on those who were depleted, adults without ADHD were observed to communicate more positively than those with ADHD. Curiously, emerging adults without ADHD who were not depleted were observed to communicate less positively than those with ADHD who were not depleted. A similar pattern was found with partner-rated supportive communication (Figure 1B), as young adults without ADHD were more supportive when their resources for self-control had been depleted than those without ADHD who were depleted. Again, adults without ADHD who were not depleted were rated by partners as communicating less positively than those with ADHD who were not depleted. The ADHD status × depletion condition interaction also significantly predicted observer-coded negative communication between partners (Figure 2). As expected, among those who were depleted, young adults with ADHD were observed to communicate more negatively than those without ADHD. In contrast, adults with and without ADHD exhibited little difference in negative communication when they were not depleted. The ADHD status × depletion condition interaction did not predict partner-rated negative communication. Thus, partners of emerging adults with and without ADHD perceived no difference in negative communication across depletion conditions.

Discussion

Using an evidence-based experimental manipulation of self-control resources (DeWall et al., 2007), we found that emerging adults with ADHD, who were provoked when their self-control resources were depleted, communicated

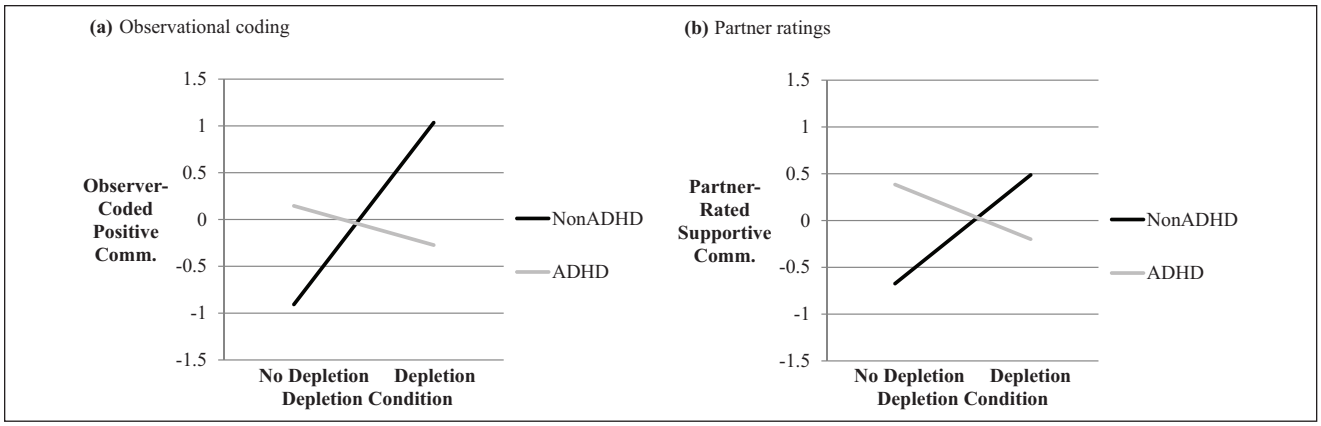

Figure 1. Interaction between depletion condition and ADHD status predicted positive communication between partners according to observation coding (a) and partner ratings (b). Positive communication is zero-centered; thus, "0" is the average level of positive communication observed.
Note. ADHD = attention-deficit hyperactivity disorder.

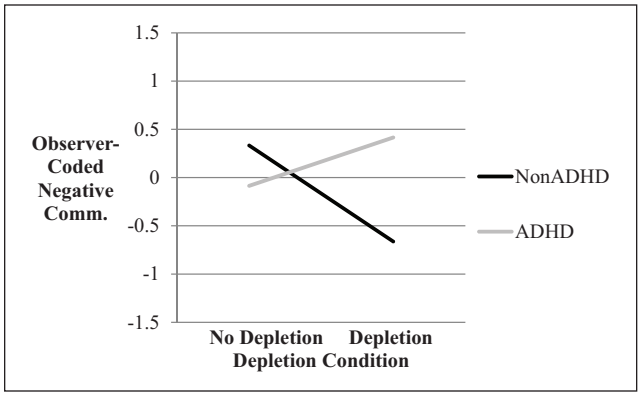

Figure 2. Interaction between depletion condition and ADHD status predicted negative communication between partners according to observation coding. Negative communication is zero-centered; thus, "0" is the average level of negative communication observed.
Note. ADHD = attention-deficit hyperactivity disorder.

less positively with their partners than those without ADHD whose resources were depleted. This finding was robust across partner and observer ratings of positive communication. Adults with ADHD were also observed to communicate more negatively with their partners in the depletion condition than depleted adults without ADHD. The same finding was not found with partner ratings of negative communication. Taken together, our findings generally indicate that young adults with ADHD may be differentially susceptible to aversive interpartner communication when provoked during periods of self-control resource depletion (i.e., when fatigued).

The present study builds upon existing research in two ways. First, in line with I^3 theory (Finkel & Eckhardt, 2013), it highlights a clinically relevant dispositional (i.e., impellance) characteristic, ADHD, that increases risk of adults communicating less positively and more negatively with their partners during periods of self-control resource depletion (i.e., weak situational inhibition) and provocation (i.e., strong instigation). Prior studies conducted with community samples have highlighted trait aggression (Finkel et al., 2012) and negative emotionality (Watkins et al., 2013) as dispositional variables that increase the risk of interpartner aggression when individuals are depleted and provoked. This study extends the literature base by highlighting adults with ADHD as a clinically relevant group who are at risk for interpartner conflict when depleted and provoked. To our knowledge, no studies have shown that adults with ADHD report higher trait aggression or negative emotionality than adults without ADHD. However, constructs similar to these (i.e., negative urgency, or tendency to act rashly when in a bad mood) are associated with ADHD and relationship functioning (e.g., Wymbs & Dawson, 2015; Wymbs et al., 2012). Thus, it may be that our findings were explained in part by third variables. Research is needed to replicate these findings, and to investigate whether additional variables (e.g., negative urgency) that may facilitate aversive communication with partners when adults with ADHD are provoked during periods of self-control resource depletion.

Second, the present study was the first to highlight a situational inhibition risk factor for interpartner discord that is particularly problematic for emerging adults with ADHD. Research by Canu and colleagues (2014) highlighted how conflictual young adults with ADHD are when provoked during discussions with their partners, while Robin and Payson (2002) reported specific behaviors exhibited by those with ADHD that spark discordant relations with their partners. However, to our knowledge, no study has identified situational variables that weaken inhibition and trigger discordant communication in couples including emerging adults with ADHD. By identifying one

such trigger—self-control resource depletion—to which young adults with ADHD appear differentially susceptible, this study highlights a potentially modifiable precursor to interpartner conflict among those with ADHD. If these findings are replicated, clinicians providing services for emerging adults with ADHD in romantic relationships should consider assessing how often their self-control resources are depleted (e.g., How many "long days at school/work" do you have each week? How often do you find yourself mentally fatigued before engaging in important discussions with your partner?). Collecting this information could indicate the need to discuss with clients their risk of interpartner discord and ways to remediate this risk (e.g., eating to replenish resources; DeWall, Deckman, Gailliot, & Bushman, 2011; Pfundmair et al., 2015).

Curiously, testing indicated that emerging adults without ADHD communicated more positively and less negatively when they were depleted than when they were not depleted. It is unclear why adults without ADHD were less conflictual with their partners when their self-control resources were at suboptimal levels. Perhaps heightened disinhibition spurred the young adults without ADHD to be more participatory during problem-solving discussions with their partners. In contrast, emerging adults with ADHD may be affected more adversely by the temporary depletion of what little resources they have available for self-control. Regardless, studies are needed to evaluate whether it is only adults with ADHD or other at-risk traits (e.g., aggressiveness, negative affect) who experience relationship impairment when depleted.

This investigation has limitations of note. For example, the sample is largely comprised of Caucasian college students in heterosexual dating relationships. It is unclear whether results would differ for older, non-college student, married, or more diverse samples, for example, racial/ethnic minorities, lesbian, gay, bisexual, and transgender (LGBT) couples. Moreover, the experimental manipulation of self-control resources used in the present study (i.e., watching a woman being interviewed without sound and with distractors flashing on the screen) is not a typical source of depletion. The novelty has value in an experimental context, but studies are also needed to examine more typical temporary deficits in inhibitory control (e.g., alcohol intoxication) as well as to test hypotheses outside of lab settings and over time (e.g., Crane, Testa, Derrick, & Leonard, 2014).

The present study highlights the differential susceptibility of emerging adults with ADHD to communicating less positively and more negatively with partners when provoked during periods of self-control resource depletion. Conflict in relationships is normative (Finkel & Eckhardt, 2013), but how it is managed by couples varies widely. This is concerning given that adults who routinely communicate less positively and more negatively with their partners when problem-solving or otherwise are at risk of being violent (Capaldi et al., 2012) and their relationships are at increased risk of dissolving (Bradbury, 1998; Gottman, 1994). Beyond these risks, there are additional reasons to consider intervening to preserve the romantic relationships of young adults with ADHD. For example, romantic partners may provide much-needed support and assistance to partners with ADHD to help make ends meet on a daily basis (Eakin et al., 2004). As emerging adults with ADHD are impaired across numerous functional domains (Barkley et al., 2008), losing the potential benefits of a romantic partner could be quite problematic. Moreover, there is reason to suspect that emerging adults with ADHD may be more likely to experience resource depletion than those without ADHD. Given the academic difficulties typical of college students with ADHD (Weyandt & DuPaul, 2013) and the hardships faced by young adults with ADHD trying to keep a job (Barkley et al., 2008), they may have more situations that deplete their resources and thereby increase their susceptibility to relationship discord. More research is needed to examine the toll that school and work have on the relationships of adults with ADHD, and to address these processes accordingly so as to prevent unnecessary relationship discord or dissolution.

Acknowledgments

This study could not have been completed without the tireless efforts of the study coordinators, Shannon Arnett and Natasha Seiter, and our strong team of undergraduate research assistants. Many thanks to all of you.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

Arnett, J. J. (2004). *Young adulthood: The winding road from the late teens through the twenties*. New York, NY: Oxford University Press.

Barkley, R. A. (2014). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (4th ed.). New York, NY: Guilford Press.

Barkley, R. A., Murphy, K. R., & Fischer, M. (2008). *ADHD in adults: What the science says*. New York, NY: Guilford Press.

Baumeister, R. F., Vohs, K., & Tice, D. (2007). The strength model of self-control. *Current Directions in Psychological Science*, *16*, 351-355.

Biederman, J., Faraone, S. V., Spencer, T. J., Mick, E., Monulenux, M. C., & Aleardi, M. (2006). Functional impairments in adults with self-reports of diagnosed ADHD: A controlled study of

1001 adults in the community. *Journal of Clinical Psychiatry*, *67*, 524-540.

Bradbury, T. N. (1998). *The developmental course of marital dysfunction*. New York, NY: Cambridge University Press.

Canu, W. H., Tabor, L. S., Michael, K. D., Bazzini, D. G., & Elmore, A. E. (2014). Young adult romantic couples' conflict resolution and satisfaction varies with partner's attention-deficit/hyperactivity disorder type. *Journal of Marital and Family Therapy*, *40*, 509-524.

Capaldi, D. M., Knoble, N. B., Shortt, J. W., & Kim, H. K. (2012). A systematic review of risk factors for intimate partner violence. *Partner Abuse*, *3*, 231-280.

Christiansen, P., Cole, J., & Field, M. (2012). Ego depletion increases ad-lib alcohol consumption: Investigating cognitive mediators and moderators. *Experimental and Clinical Psychopharmcology*, *20*, 118-128.

Conners, C. K., Erhardt, D., Epstein, J. N., Parker, J. D. A., Sitarenios, G., & Sparrow, E. (1999). Self-ratings of ADHD symptoms in adults I: Factor structure and normative data. *Journal of Attention Disorders*, *3*, 141-151.

Conners, C. K., Erhardt, D., & Sparrow, E. P. (1999). *Conners' Adult ADHD Rating Scales (CAARS)*. North Tonawanda, NY: Multi-Health Systems.

Crane, C. A., Testa, M., Derrick, J. L., & Leonard, K. E. (2014). Daily associations among self-control, heavy episodic drinking, and relationship functioning: An examination of actor and partner effects. *Aggressive Behavior*, *40*, 440-450.

DeWall, C. N., Baumeister, R. F., Stillman, T. F., & Gailliot, M. T. (2007). Violence restrained: Effects of self-regulation and its depletion on aggression. *Journal of Experimental Social Psychology*, *43*, 62-76.

DeWall, C. N., Deckman, T., Gailliot, M. T., & Bushman, B. J. (2011). Sweetened blood cools hot tempers: Physiological self-control and aggression. *Aggressive Behavior*, *37*, 73-80.

DeWall, N., Finkel, E., & Denson, T. (2011). Self-control inhibits aggression. *Social and Personality Psychology Compass*, *5*, 458-472.

Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An 8-year prospective study. *Journal of Personality and Social Psychology*, *96*, 601-619.

Eakin, L., Minde, K., Hechtman, L., Ochs, E., Krane, E., Bouffard, R., . . . Looper, K. (2004). The marital and family functioning of adults with ADHD and their spouses. *Journal of Attention Disorders*, *8*, 1-10.

Erhardt, D., Epstein, J. N., Conners, C. K., Parker, J. D. A., & Sitarenios, G. (1999). Self-ratings of ADHD symptoms in adults II: Reliability, validity, and diagnostic sensitivity. *Journal of Attention Disorders*, *3*, 153-158.

Fabiano, G. A., Pelham, W. E., Waschbusch, D. A., Gnagy, E. M., Lahey, B. B., Chronis, A. M., . . . Burrows-MacLean, L. (2006). A practical measure of impairment: Psychometric properties of the Impairment Rating Scale in samples of children with attention deficit hyperactivity disorder and two school-based samples. *Journal of Clinical Child and Adolescent Psychology*, *35*, 369-385.

Fincham, F. D., & Linfield, K. J. (1997). A new look at marital quality: Can spouses feel positive and negative about their marriage? *Journal of Family Psychology*, *11*, 489-502.

Finkel, E. J., DeWall, C. N., Slotter, E. B., McNulty, J. K., Pond, R. S., & Atkins, D. C. (2012). Using I3 theory to clarify when dispositional aggressiveness predicts intimate partner violence perpetration. *Journal of Personality and Social Psychology*, *102*, 533-549.

Finkel, E. J., DeWall, C. N., Slotter, E. B., Oaten, M., & Foshee, V. A. (2009). Self-regulatory failure and intimate partner violence perpetration. *Journal of Personality and Social Psychology*, *97*, 483-499.

Finkel, E. J., & Eckhardt, C. I. (2013). Intimate partner violence. In J. A. Simpson & L. Campbell (Eds.), *The Oxford handbook of close relationships* (pp. 452-474). New York, NY: Oxford University Press.

Gottman, J. M. (1994). *What predicts divorce? The relationship between marital processes and marital outcomes*. Mahwah, NJ: Lawrence Erlbaum.

Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. D. (2010). Ego depletion and the strength model of self-control: A meta-analysis. *Psychological Bulletin*, *136*, 495-525.

Halperin, J. M., Trampush, J. W., Miller, C. J., Marks, D. J., & Newcorn, J. H. (2008). Neuropsychological outcome in adolescents/young adults with childhood ADHD: Profiles of persisters, remitters and controls. *The Journal of Child Psychology and Psychiatry*, *49*, 958-966.

Julien, D., Markman, H. J., & Lindahl, K. M. (1989). A comparison of a global and a microanalytic coding system: Implications for future trends in studying interactions. *Behavioral Assessment*, *11*, 81-100.

Kerig, P. K. (1996). Assessing the links between interparental conflict and child adjustment: The Conflicts and Problem-Solving Scales. *Journal of Family Psychology*, *10*, 454-473.

Kessler, R. C., Adler, L., Ames, M., Demler, O., Faraone, S., Hiripi, E., & Walters, E. E. (2005). The World Health Organization adult ADHD Self-Report Scale (ASRS): A short screening scale for use in the general population. *Psychological Medicine*, *35*, 245-256.

Kessler, R. C., Adler, L., Barkley, R., Biederman, J., Conners, C. K., Demler, O., . . .Zaslavsky, A. M. (2006). The prevalence and correlates of adult ADHD in the United States: Results from the National Comorbidity Survey replication. *American Journal of Psychiatry*, *163*, 716-723.

Kessler, R. C., Adler, L., Gruber, M. J., Sarawate, C. A., Spencer, T., & Van Brunt, D. L. (2007). Validity of the World Health Organization adult ADHD self-report scale (ASRS) Screener in a representative sample of health plan members. *International Journal of Methods in Psychiatric Research*, *16*, 52-65.

Kline, G. H., Julien, D., Baucom, B., Hartman, S., Gilbert, K., Gonzales, T., & Markman, H. J. (2004). The interactional dimensions coding system: A global system for couple interactions. In P. K. Kerig & D. H. Baucom (Eds.), *Couple observational coding systems* (pp. 113-126). Mahwah, NJ: Lawrence Erlbaum.

Muraven, M., Collins, R. L., & Nienhaus, K. (2002). Self-control and alcohol restraint: An initial application of the self-control strength model. *Psychology of Addictive Behaviors*, *16*, 113-120.

Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

Nigg, J. T., Butler, K. M., Huang-Pollock, C. L., & Henderson, J. M. (2002). Inhibitory processes in adults with persistent

childhood onset ADHD. *Journal of Consulting and Clinical Psychology*, *70*, 153-157.

Pfundmair, M., DeWall, C. N., Fries, V., Geiger, B., Kramer, T., Krug, S., & Aydin, N. (2015). Sugar or spice: Using I3 metatheory to understand how and why glucose reduces rejection-related aggression. *Aggressive Behavior*, *41*, 537-543.

Prado, L. M., & Markman, H. J. (1998). For better or worse the second time around: Analyzing the communication patterns of remarried couples. In *The formation, functioning and stability of families* (pp. 51–85). Mahwah, NJ: Lawrence Erlbaum.

Robin, A. L., & Payson, E. (2002). The impact of ADHD on marriage. *The ADHD Report*, *10*, 9-13.

Sibley, M. H., Pelham, W. E., Molina, B. S. G., Gnagy, E. M., Waxmonsky, J. G., Waschbusch, D. A., & Kuriyan, A. B. (2012). When diagnosing ADHD in adults emphasize informant reports, DSM items, and impairment. *Journal of Consulting and Clinical Psychology*, *80*, 1052-1062.

Stanley, S. M., Rhoades, G. K., Olmos-Gallo, P. A., & Markman, H. J. (2007). Mechanisms of change in a cognitive behavioral couples prevention program: Does being naughty or nice matter? *Prevention Science*, *8*, 227-239.

Stucke, T., & Baumeister, R. (2006). Ego depletion and aggressive behavior: Is the inhibition of aggression a limited resource? *European Journal of Social Psychology*, *36*, 1-13.

Watkins, L. E., DiLillo, D., Hoffman, L., & Templin, J. (2013). Do self-control depletion and negative emotion contribute to intimate partner aggression? A lab-based study. *Psychology of Violence*, *5*, 35-45.

Weyandt, L. L., & DuPaul, G. J. (2013). *College students with ADHD: Current issues and future directions*. New York, NY: Springer.

Wymbs, B. T. (2011). Mechanisms underlying the impact of disruptive child behavior on interparental communication. *Journal of Family Psychology*, *25*, 873-884.

Wymbs, B. T., & Dawson, A. E. (2015, November). *Seeking mediators underlying risk of intimate partner violence perpetration and victimization among adults with ADHD*. Symposium presented at the 49th Annual Convention of the Association for Behavioral and Cognitive Therapies, Chicago, IL.

Wymbs, B. T., Dawson, A. E., Egan, T. E., & Sacchetti, G. M. (2016). Rates of intimate partner violence perpetration and victimization among adults with ADHD. *Journal of Attention Disorders*. Advance online publication. doi:10.1177/1087054716653215

Wymbs, B. T., & Molina, B. S. G. (2015). Integrative couples group treatment for emerging adults with ADHD symptoms. *Cognitive and Behavioral Practice*, *22*, 161-171.

Wymbs, B. T., Molina, B. S. G., Pelham, W. E., Cheong, J., Gnagy, E. M., Belendiuk, K. A., . . . Waschbusch, D. (2012). Risk of intimate partner violence among young adult males with childhood ADHD. *Journal of Attention Disorders*, *16*, 373-383.

Author Biography

Brian T. Wymbs, PhD, is an assistant professor of psychology at Ohio University. His primary research interests focus on examining links between ADHD and romantic relationship difficulties. Dr. Wymbs has examined rates of interparental discord and divorce in families including children with ADHD, as well as rates of intimate partner violence and potential explanatory factors among young adults with ADHD.