

Deconstructing the associations between executive functioning, problematic alcohol use and intimate partner aggression: A dyadic analysis

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Abstract

Introduction and Aims. Problematic drinking and executive functioning deficits are two known risk factors for intimate partner aggression (IPA). However, executive functioning is a multifaceted construct, and it is not clear whether deficits in specific components of executive functioning are differentially associated with IPA perpetration generally and within the context of problematic alcohol use. To address this question, the present study investigated the effects of problematic drinking and components of executive functioning on physical IPA perpetration within a dyadic framework. **Design and Methods.** Participants were 582 heavy drinking couples (total $n = 1164$) with a recent history of psychological and/or physical IPA recruited from two metropolitan cities in the USA. Multilevel models were used to examine effects within an actor–partner interdependence framework. **Results.** The highest levels of physical IPA were observed among actors who reported everyday consequences of executive functioning deficits related to emotional dysregulation whose partners were problematic drinkers. However, the association between executive functioning deficits related to emotional dysregulation and IPA was stronger towards partners who were non-problematic drinkers relative to partners who were problematic drinkers. No such effect was found for executive functioning deficits related to behavioural regulation. **Discussion and Conclusions.** Results provide insight into how problematic drinking and specific executive functioning deficits interact dyadically in relation to physical IPA perpetration. [Parrott DJ, Swartout KM, Eckhardt CI, Subramani OS. Deconstructing the associations between executive functioning, problematic alcohol use and intimate partner aggression: A dyadic analysis. *Drug Alcohol Rev* 2017;36:88–96]

Key words: intimate partner violence, heavy drinking, domestic violence, emotion regulation, actor–partner interdependence model.

Intimate partner aggression (IPA) is a significant public health problem, with almost 7 million women and 5.5 million men experiencing physical aggression, stalking or rape from an intimate partner each year [1]. Although alcohol use is a robust contributing cause of IPA perpetration [2], this relation is not ubiquitous. Thus, development of interactional, etiological models of alcohol-related IPA is critical [3]. The present study addressed this need by testing an interactional model of physical IPA perpetration that considers problematic drinking and components of executive functioning within an actor–partner framework.

Executive functioning and alcohol-related intimate partner aggression

Executive functioning comprises numerous neurocognitive domains critical to planning and execution of adaptive

behavioural responses, including attentional control, response inhibition, working memory, cognitive flexibility and self-monitoring [4,5]. Narrative and meta-analytic reviews have established that executive functioning deficits are associated with a propensity for aggressive behaviour [6–8]. In addition, both executive functioning deficits and alcohol intoxication are associated with behavioural disinhibition [9,10]. Consistent with this view, numerous laboratory studies indicate that acute alcohol consumption facilitates aggression to a greater extent among persons with low, relative to high, premorbid executive functioning [11–13].

Extant research also suggests that executive functioning deficits are associated with an increased risk for IPA [for reviews, see 14,15]. However, two critical questions remain untested. First, it is not clear how executive functioning deficits portend risk within a relationship

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context, particularly when one or both partners drink heavily. Relationship conflict can lead to aggression for many reasons. One empirically supported explanation is that IPA results from an interaction between aggression-impelling forces (e.g. trait anger and antisocial traits) and aggression inhibiting/disinhibiting processes (e.g. self-regulation) in response to real or perceived partner provocation [16,17]. It is well established that heavy drinking compromises one's ability to adaptively regulate negative emotions elicited by relationship conflict [18,19]. In addition, executive functioning deficits are thought to underlie maladaptive coping efforts and related inhibitory failures that contribute to IPA perpetration [20,21]. In the presence of relationship conflict, the concomitant strong emotions and behavioural tendencies that impel aggression must be regulated to prevent IPA perpetration. Individuals who drink heavily and/or possess executive functioning deficits related to behavioural and emotional self-regulation are less capable of modulating these internal states and, as a result, are at greater risk for IPA. Second, it is not clear, which components of executive functioning best predict IPA perpetration [14]. To this end, executive functions can be deconstructed into distinct subcomponents and thus afford the potential to examine various facets of self-regulation.

Deconstructing the associations between executive functioning and alcohol-related intimate partner aggression

Within the alcohol-aggression literature, executive functioning is often conceptualised as a unidimensional construct [11]. However, executive functioning can be broken down into meaningful components, which may evidence differential associations with IPA. Unfortunately, when specific, theoretically based components of executive functioning are targeted, studies are often limited by the use of single task measures that do not precisely assess the intended construct [22,23]. This approach increases the risk of overlooking nuanced associations between specific components and aggression, inclusive of IPA. Thus, moving forward, studies that examine associations between executive functioning deficits, alcohol use and IPA must assess subcomponents of executive functioning. To the extent that specific executive functions are identified as particularly relevant to the alcohol-IPA relation, intervention-based research and practice can be advanced.

Only one study to date has attempted to address this problem, although not specifically in relation to IPA. Giancola, Godlaski and Roth [24] assessed self-reported everyday consequences of component deficits in executive functioning in social drinkers who consumed an

alcoholic or placebo beverage prior to engaging in a laboratory aggression task. Consistent with prior work [11], alcohol intoxication predicted higher levels of aggression among participants who self-reported more frequent everyday consequences associated with greater deficits in general executive functioning. However, a specific component of executive functioning termed *behavioural regulation*, which represents an individual's ability to regulate behavioural and emotional responses, was a significantly stronger moderator of intoxicated aggression than general executive functioning or other subcomponents. This finding suggests that premorbid deficits in the regulation of behavioural and emotional responses significantly increase the likelihood that alcohol will facilitate aggression in response to provocation.

Pertinently, research indicates that deficits in emotion regulation are associated with a heightened risk for IPA perpetration [25,26]. Similarly, a recent daily diary study found that men and women's capacity to regulate state negative affect is central to their risk for IPA perpetration [27]. While informative, this line of research has not examined the relative influence of emotional and behavioural regulation on IPA risk.

The present study

The reviewed literature suggests that problematic alcohol use and components of executive functioning related to behavioural and emotional regulation are relevant to the prediction of aggression. However, emotion regulation deficits may be a particularly critical predictor of aggression within intimate relationships [26,27]. In addition, prior research also suggests the importance of considering the characteristics of both partners when understanding the association between alcohol use and IPA, given findings demonstrating that partner alcohol use predicts actor's IPA perpetration [28]. As such, the present study: (i) examined the independent and interactive associations between various subcomponents of executive functioning as manifested in everyday life and problematic alcohol use and the perpetration of physical IPA in a sample of men and women with a history of relationship conflict; (ii) decomposed components of executive functioning as manifested in everyday life to examine directly the relative contributions of behavioural and emotional regulation; and (iii) tested these effects within a dyadic actor-partner interdependence model (APIM) framework [29]. The APIM allowed for simultaneous analysis of individual and partner predictors of IPA perpetration while accounting for the interdependence of actor and partner variables.

Although no prior research has examined associations among problematic drinking, executive functioning and IPA within an APIM framework, several hypotheses were

examined in light of available non-dyadic findings. It was hypothesised that actor problematic drinking and actor executive functioning deficits would be positively related to actor physical IPA perpetration. Additionally, it was hypothesised that actor executive functioning deficits would moderate the association between actor problematic drinking and physical IPA, such that the relation between problematic drinking and physical IPA perpetration would be stronger among individuals with greater deficits in executive functioning. Based on prior literature [26,27], it was hypothesised that executive functions related to emotional, but not behavioural, regulation would moderate this association. Finally, although actor-partner interactions have only recently been examined in studies on alcohol-related IPA [28,30–33], research clearly indicates that a partner's heavy and/or problematic drinking can elicit greater relationship conflict and facilitate an actor's perpetration of more frequent and intense IPA [31,33]. Based on these data, it was hypothesised that partner problematic drinking would be positively related to actor physical IPA perpetration. In addition, two actor-partner interactions were advanced. First, it was expected that actor executive functioning deficits related to emotional, but not behavioural, regulation would be more positively associated with IPA perpetration towards partners who were problematic, relative to non-problematic, drinkers. Second, it was expected that actor problematic drinking would be more positively associated with actor physical IPA perpetration towards partners who were problematic, relative to non-problematic, drinkers.

Method

The distinct set of hypotheses tested herein used data that were drawn from a larger investigation on the effects of acute alcohol intoxication and IPA. Thus, couples were required to meet eligibility criteria for an alcohol administration study (see in the following section). The present hypotheses are novel, and the analytic plan was developed specifically to address these aims.

Participants

Participants were 1224 individuals nested within 612 intimate couples recruited from two US cities through online and print advertisements. To be eligible, couples had to be dating for at least 1 month, be at least 21 years of age and identify English as their native language. Couples were excluded if either partner reported serious head injuries, a condition in which alcohol is medically contraindicated, or a desire to seek treatment for alcohol use. At least one partner was required to meet two additional eligibility criteria. First, this individual had to

report consumption of an average of at least five (for men) or four (for women) alcoholic beverages per occasion at least twice per month during the past year. Second, this individual had to be identified as perpetrating psychological or physical IPA towards their current partner via self or partner report on the Revised Conflict Tactics Scale [34]. Site 1 enrolled 708 (57.8%) of the individuals in the study, with the remaining 516 (42.2%) individuals enrolled at site 2.

Couples were screened separately by telephone to assess eligibility, which was then verified in a more comprehensive in-person laboratory assessment. Four couples ($n=8$) were same-sex, and at least one member of 26 couples failed to provide either alcohol use or executive functioning data and were excluded from the current analyses, resulting in a total sample of 582 heterosexual couples ($n=1164$). Table 1 contains sample demographics. The average relationship length was 52.15 [standard deviation (SD)=56.88] months. Most participants were not married and either non-cohabitating (40.8%) or cohabitating (35.4%), whereas only 15.1% were married. Most participants self-identified as African American (63.6%) or Caucasian (27.0%); 5.5% identified as Hispanic or Latino/a. Participants had a median income range of \$10 000 to \$20 000 per year. This study was approved by each university's Institutional Review Board.

Measures

Revised Conflict Tactics Scale. The Revised Conflict Tactics Scale [34] is a 78-item self-report instrument that measures a range of events that occur during disagreements within intimate relationships. Participants are instructed to indicate on a seven-point scale how many times they have perpetrated or experienced the listed behaviours over the past 12 months. Responses may range from 0 (never) to 6 (more than 20 times). Frequency scores are calculated by adding the midpoints of the score range for each item to form a total score. For example, if a participant indicates a response of '3–5' times in the past year, a score of '4' would be assigned. Physical IPA perpetration was operationalised as the total number of acts reported on the respondent's Physical Assault Perpetration Subscale or the partner's Physical Assault Victimization Subscale; thus, for each participant, we operationalised that individual's physical IPA perpetration as the higher of these two scores [35,36]. Sample items include 'I have thrown something at my partner that could hurt' and 'I choked my partner'.

Alcohol Use Disorder Identification Test. The Alcohol Use Disorder Identification Test (AUDIT) [37] is a 10-item Likert-type scale developed as a screening measure for

Table 1. Sample demographics

	Gender	
	Female	Male
No. (%)	582 (50)	582 (50)
Age, mean (SD)	31.52 (9.98)	33.26 (10.54)
Years of education, mean (SD)	14.27 (2.77)	13.83 (2.72)
Drinks per day, mean (SD)	4.62 (3.45)	5.74 (4.00)
Drinking days per week, mean (SD)	2.20 (1.89)	2.04 (1.99)

hazardous and harmful patterns of alcohol consumption. Participants rate items on a 0 to 4 scale, with higher scores indicative of greater problematic drinking. Both members of the dyad reported on their own alcohol use. Sample items include ‘how often during the past year have you failed to do what was normally expected of you because of drinking’, and ‘How often do you have a drink containing alcohol’. The AUDIT has high internal consistency across a range of samples [37], which is consistent with the current sample ($\alpha = 0.85$).

Behaviour Rating Inventory of Executive Function—Adult Version. This 75-item self-report inventory assesses a variety of executive functions used in everyday life [38]. Participants are instructed to indicate on a three-point Likert-type scale (1 = never; 2 = sometimes; 3 = often) the extent to which they have experienced problems with various behaviours related to executive functioning in the past month. Higher scores indicate poorer executive functioning. The original Behaviour Rating Inventory of Executive Function—Adult Version (BRIEF-A) yielded two primary factors: the Behavioural Regulation Index and the Metacognition Index. However, consistent with the BRIEF designed for children and adolescents [39,40], recent exploratory and confirmatory factor analyses with adult samples support a three-factor structure that retains the metacognition factor but separates the original behavioural regulation index into a behavioural regulation factor and an emotion regulation factor [41,42]. The behavioural regulation factor reflects one’s ability to inhibit inappropriate behaviours and judge the appropriateness of one’s behaviour in social situations. The emotion regulation factor reflects one’s ability to regulate emotional responses, think flexibly and adjust to changes in the social environment. Past research indicates that these factors, relative to the Metacognition Index, are more robust and proximally antecedent predictors of aggression [24]. Thus, only the behavioural and emotional regulation factors were examined. The validity of the BRIEF-A has been well documented in healthy [42,43] and clinical populations [41,44]. Internal

consistency for the major scales ranges from 0.93 to 0.96. In the present sample, reliability for the behavioural and emotional regulation factors exceeded 0.86.

Procedures

Upon the couple’s arrival to the laboratory, each participant was led to a private testing room. After providing informed consent, participants completed the questionnaire battery on a computer using MediaLab 2006 software [45]. The experimenter provided instructions on how to operate the computer program and answered any questions during the session. After completion of the questionnaire battery, participants were compensated and thanked for their time.

Results

Analysis strategy

Data were analysed using a multilevel approach to modelling actor–partner interdependence [29,46] within MPLUS version 7.11. The count outcome, physical IPA, was significantly skewed (skewness = 2.28, standard error = 0.07) with a preponderance of zeros; therefore, we tested a variety of analytic techniques specifically suited for count data with a high proportion of zeros. Negative binomial regression was ultimately selected because it modelled the data best compared with other count-based models based upon the Akaike information criterion [47,48]. Specifically, actor physical IPA was modelled as a function of both actor and partner AUDIT scores, emotional regulation, behavioural regulation and five empirically based actor–partner interaction effects (see in the following texts). Dyads were distinguishable by gender in regard to the main effects ($\chi^2[6] = 39.23$, $P < 0.05$) and the intercepts ($\chi^2[1] = 670.57$, $P < 0.05$). Gender was therefore effect coded and entered as a model covariate to account for intercept distinguishability, and interactions between gender and all other predictors and interactions were estimated to account for effect

distinguishability [49]. All predictors were standardised with regard to the respective grand means prior to computing interactions and analysis; standard errors were similar across standardised and unstandardised effects and therefore produced consistent significance levels [50]. All effects presented are standardised with respect to the predictor to aid interpretation—once exponentiated, the coefficients represent the multiplicative effect that a one SD change in the predictor has on the rate of physical IPA, an incidence rate ratio.

Two separate negative binomial regression models were initially estimated: the first model contained main effects of the predictors detailed earlier on physical IPA with additional effects to control for gender and site; the second model contained all of the model 1 effects plus five two-way interactions derived from the literature: (i) actor emotional regulation * actor problematic drinking; (ii) actor behavioural regulation * actor problematic drinking; (iii) actor emotional regulation * partner problematic drinking; (iiii) actor behavioural regulation * partner problematic drinking; and (v) actor problematic drinking * partner problematic drinking. This initial interaction model was subsequently trimmed; one hypothesised interactive effect at a time, to strengthen model fit and parsimony. The resulting model contained one significant interaction effect: actor emotional regulation * partner problematic drinking; trimming the other four non-significant interaction effects did not hinder model fit ($\chi^2[4] = 1.15, P > 0.75$). To rule out an alternative interpretation that the interaction between actor and partner emotion regulation accounts for the effect of emotional regulation * partner problematic drinking, we added as covariates to the model the two-way actor–partner emotion regulation interaction as well as the three-way interaction between actor and partner emotion regulation and partner AUDIT.

Actor–partner model results

Descriptive statistics are presented in Table 2. There was significant covariation within couples on problematic drinking, emotional regulation and behavioural regulation. In the preliminary, main effects model, the average rate of physical IPA significantly differed across the couples ($\mu_0 = 1.77$, 95% confidence interval = 1.49–2.04, $P < 0.001$). All of the actor and partner physical IPA predictors were statistically significant predictors of IPA, with the exception of the marginally significant effect of partner problematic drinking (Table 3). A one SD increase in actor problematic drinking corresponded with a 13% increase in the physical IPA incidence rate, and partner problematic drinking corresponded with a 7.5% increase. For actors, a one SD increase in emotional

Table 2. Descriptive statistics for unstandardised model variables

Variable	Mean	SD	<i>r</i> with partner's score
AUDIT	8.47	6.20	0.381*
ER	23.18	6.20	0.14*
BR	21.00	5.00	0.20*
IPA	2.35	2.35	— ^a

* $P < 0.001$. ^aNot applicable because IPA is count. AUDIT, Alcohol Use Disorders Identification Test score; BR, behavioural regulation; ER, emotional regulation; IPA, intimate partner aggression.

regulation and behavioural regulation deficits corresponded with increases of 44% and 17% in the physical IPA rate, respectively. A one SD increase in partner emotional and behavioural regulation deficits corresponded with 40.1% and 18.2% increases in actor physical IPA rate, respectively. Men had a 5% lower rate of physical IPA perpetration.

As noted earlier, the hypothesised actor–partner interaction—between actor emotional regulation and partner problematic drinking—significantly predicted physical IPA, even while accounting for numerous control variables (Table 4). Figure 1 illustrates how increases in emotion regulation deficits are associated with IPA rates among individuals whose partners had either high (1 SD above the mean) or low (1 SD below the mean) AUDIT scores. This interactive effect can be visually detected by attending to the curvature of the accelerating lines; compared with individuals whose partners are problematic drinkers (partner AUDIT +1 SD, $b = 0.327$), the acceleration is more pronounced among individuals whose partners are non-problematic drinkers (partner AUDIT –1 SD, $b = 0.413$), indicating a stronger association between emotional regulation and IPA rates within this group.

Discussion

The present study was the first to investigate the effects of problematic drinking and subcomponents of executive functioning as manifested in everyday life on physical IPA perpetration. The highest levels of physical IPA were observed among actors who reported everyday consequences of executive functioning deficits related to emotional dysregulation whose partners were problematic drinkers. Studies indicate that a partner's problematic drinking contributes to greater relationship conflict and facilitates their partner's (i.e. actor) perpetration of more frequent and intense IPA [31,33]. In essence, individuals with problematic drinking partners are exposed to more conflict and concomitant negative affect relative to

Table 3. Main effects model results

Predictor		Estimate	SE	95% CI	IRR	P value
Actor	AUDIT	0.12	0.04	0.04, 0.20	1.13	0.002
	ER	0.36	0.07	0.22, 0.50	1.44	<0.001
	BR	0.16	0.07	0.02, 0.29	1.17	0.025
Partner	AUDIT	0.07	0.04	-0.005, 0.15	1.07	0.068
	ER	0.34	0.07	0.19, 0.48	1.40	<0.001
	BR	0.17	0.07	0.03, 0.31	1.18	0.019
Control	Actor gender	-0.11	0.02	-0.15, -0.07	.90	<0.001
	Site	-0.10	0.12	-0.34, 0.14	.90	0.412
	Actor AUDIT * gender	0.06	0.06	-0.05, 0.16	1.06	0.309
	Actor ER * gender	0.01	0.07	-0.12, 0.15	1.01	0.844
	Actor BR * gender	-0.001	0.06	-0.13, 0.13	1.00	0.993
	Partner AUDIT * gender	-0.07	0.06	-0.18, 0.04	0.93	0.213
	Partner ER * gender	0.001	0.07	-0.14, 0.14	1.00	0.986
	Partner BR * gender	0.02	0.07	-0.11, 0.14	1.02	0.815

AUDIT, Alcohol Use Disorders Identification Test score; BR, behavioural regulation; CI, confidence interval; ER, emotional regulation; IRR, incidence rate ratio; SE, standard error.

individuals with non-problematic drinking partners. As evident in the present findings, individuals who self-report negative consequences in everyday life that are associated with executive functioning deficits related to emotional regulation are at particularly high risk to perpetrate physical IPA towards problematic drinking partners. However, the crossover interaction between actor emotional regulation and partner problematic drinking was driven primarily by a stronger effect of emotional regulation on IPA towards non-problematic,

relative to problematic, drinking partners. While further work is needed to fully reveal the nature of this finding, these results may align with the General Aggression Model, which posits that an aggressive response is influenced initially by the interaction of individual differences and situational factors [51]. Thus, the strength of the association between deficits in actor emotion regulation (an individual difference factor) and physical IPA may depend upon a partner's level of problematic drinking (a situational factor). Collectively, these findings

Table 4. Final actor-partner interaction model results

Predictor		Est.	SE	95% CI	IRR	P value
Actor	AUDIT	0.13	0.04	0.05, 0.20	1.14	0.001
	ER	0.37	0.07	0.23, 0.51	1.45	<0.001
	BR	0.15	0.07	0.01, 0.29	1.16	0.03
Partner	AUDIT	0.08	0.04	0.00, 0.16	1.08	0.05
	ER	0.36	0.08	0.21, 0.50	1.43	<0.001
	BR	0.15	0.07	0.01, 0.29	1.16	0.033
Interaction Controls	Actor ER * partner AUDIT	-0.04	0.02	-0.23, -0.02	0.96	0.046
	Site ¹	-0.08	0.12	-0.32, 0.16	0.92	0.498
	Actor gender ²	-0.11	0.02	-0.15, -0.07	0.90	<0.001
	Actor ER * partner ER	-0.13	0.05	-0.08, -0.01	0.88	0.015
	Actor ER * partner ER * partner AUDIT	0.04	0.02	-0.01, 0.09	1.04	0.089
	Actor ER * partner ER * gender	0.02	0.02	-0.02, 0.05	1.02	0.312
	Actor AUDIT * gender	0.05	0.05	-0.05, 0.16	1.05	0.331
	Actor ER * gender	0.04	0.07	-0.10, 0.17	1.04	0.582
	Actor BR * gender	-0.02	0.06	-0.14, 0.11	0.98	0.796
	Partner AUDIT * gender	-0.08	0.06	-0.19, 0.03	0.92	0.153
	Partner ER * gender	-0.03	0.07	-0.17, 0.11	0.97	0.663
Partner BR * gender	0.03	0.07	-0.10, 0.15	1.03	0.688	

¹Site effect coded. ²Gender effect coded with male = 1 and female = -1. AUDIT, Alcohol Use Disorders Identification Test score; BR, behavioural regulation; CI, confidence interval; ER, emotional regulation; SE, standard error.

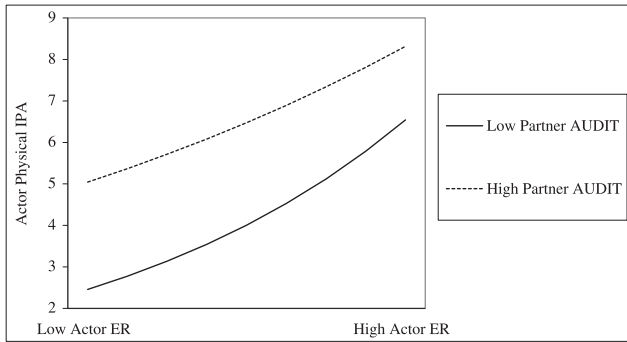


Figure 1. Interaction plot: partner AUDIT score moderates the association between actor emotion regulation deficits and actor IPA. Point estimates reflect the natural log of the physical IPA rate; AUDIT, Alcohol Use Disorders Identification Test score; ER, emotional regulation; IPA, intimate partner aggression; higher ER scores reflect greater deficits in emotional regulation.

are consistent with recent research, which found that proximal negative affect was associated with an increased likelihood of IPA among persons with poorer emotion regulation skills [27] as well as numerous studies that suggest affect regulation is a critical predictor of IPA perpetration [52]. Together, these data support prior calls for interventions that promote perpetrators' adaptive emotion regulation skills [53].

Although qualified by the aforementioned interaction, it is worth noting that actor and partner main effects of problematic alcohol use and everyday consequences of executive functioning deficits on physical IPA perpetration were found. First, actor and partner problematic alcohol use were associated with 13% and 7% increases, respectively, in the rate of actor physical IPA perpetration, although the latter finding was marginally significant. Of course, it is well established that alcohol use is a contributing cause of IPA perpetration [2] and victimisation [54]. However, these findings are noteworthy because they remained robust within the actor-partner framework. Second, actor and partner executive functioning deficits related to emotional regulation as manifested in everyday life were associated with 44% and 40% increases, respectively, in the rate of actor physical IPA perpetration. Also, actor and partner executive functioning deficits related to behavioural regulation as manifested in everyday life were associated with a 17% and 18% increases, respectively, in the rate of actor physical IPA perpetration. These are the first data to indicate that both partners' emotional and behavioural regulation difficulties contribute to the rate of actors' physical IPA perpetration. And, consistent with extant literature [52], results highlight the substantially larger impact of actor deficits in emotional, relative to behavioural, regulation on actor physical IPA.

Two null findings merit discussion. First, contrary to our hypothesis, actor problematic drinking did not interact with actor executive functioning deficits. Although

contrary to extant literature [10], the dyadic nature of the present data suggests that associations between problematic alcohol use and executive functioning deficits may differ based on whether findings are perpetrator-based or are derived from dyadic data sources. Second, it merits attention that everyday consequences of executive functioning deficits related to behavioural regulation were not differentially associated with physical IPA perpetration towards problematic and non-problematic drinking partners. As indicated by the aforementioned significant actor main effect, actor behavioural regulation is an important correlate of actor physical IPA perpetration. However, it seems that the additional conflict and concomitant negative affect associated with problematic drinking partners does not exacerbate this effect. Perhaps this is because the self-regulatory abilities captured by the behavioural regulation factor require one to judge the appropriateness of behaviour within the content of relevant social norms. Thus, whereas behavioural regulation may indicate one's receptivity to strong social norms, which prohibit physical IPA, it does not appear to differentiate one's reaction to heightened conflict and/or negative affect within the relationship.

Several limitations merit attention. First, due to the cross-sectional design, the temporal relationships among problematic alcohol use, executive functioning and physical IPA perpetration cannot be unequivocally determined. Moreover, physical IPA during the past year was assessed via retrospective self-report and is thus vulnerable to inaccurate reporting and social desirability bias. Assessment of IPA within a relational context via laboratory-based [3] or event-based designs [28] can elucidate temporal relationships and minimise these limitations of self-report. Second, the decision to use the BRIEF-A was based on its ability to assess the functional consequences of executive dysfunction [55] and its high ecological validity [56]. However, these advantages come at a cost, as this measurement approach is not designed to identify the neurobiological substrates of those consequences [55]. Moreover, unlike behavioural measures, the validity of the BRIEF-A is more dependent on the respondent's language and reading processing skills [57]. Clearly, the administration of both behavioural and self-report measures of executive functioning would address these weaknesses.

In conclusion, the present study is the first to disentangle the various subcomponents of executive functioning as manifested in everyday life that best predict IPA perpetration generally and within the context of problematic alcohol use. Results provide insight into how problematic drinking and specific, everyday consequences of executive functioning deficits interact dyadically in relation to physical IPA perpetration. Findings are consistent with the broader literature that

considers IPA as a result of aggression-impelling forces (e.g. partner's drinking) and aggression disinhibiting processes (e.g. actor's executive functioning), and thus highlight the importance of considering etiological determinants of IPA within a dyadic context.

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