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ANGER AND INTIMATE PARTNER VIOLENCE IN YOUNG ADULTS: THE ROLE OF IMPULSIVITY

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ANGER AND INTIMATE PARTNER VIOLENCE IN YOUNG ADULTS: THE ROLE OF IMPULSIVITY

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ABSTRACT

ANGER AND INTIMATE PARTNER VIOLENCE IN YOUNG ADULTS:

THE ROLE OF IMPULSIVITY

Olga Gulyayeva Fuller

Intimate partner violence (IPV) is a widespread concern that has been associated with a number of negative outcomes, including mental health problems, and is especially prevalent among young adults (Black, 2011; Miller & McCaw, 2019). Anger has been identified as a risk factor for IPV perpetration, however not all instances of anger within a relationship result in the perpetration of IPV (Birkley & Eckhardt, 2015, Baumeister & Boden, 1998). Impulsivity has been proposed as a possible explanation for why some but not all instances of anger lead to aggression (Baumeister & Boden, 1998). Furthermore, some literature has suggested an interaction between anger and impulsivity in their association with IPV perpetration (Finkel, 2007; Derefinko et al., 2011; Whiteside & Lynam, 2001). Thus, the current study examined the anger – IPV relation through the lens of impulsivity as a moderating variable in a population of undergraduate college students. It was hypothesized that impulsivity would moderate the relation between partner anger and IPV perpetration, such that higher levels of total partner anger would be associated with greater IPV perpetration (physical and psychological IPV), for those participants who scored higher on impulsivity. It was also hypothesized that higher levels of externalizing anger would be associated with greater IPV perpetration (physical and psychological IPV and that higher levels of internalizing anger would be associated with less IPV perpetration (physical and psychological IPV). A sample of 241 undergraduate

students currently in a romantic relationship ages 18-24 completed self-report measures assessing impulsivity, psychological and physical partner violence, and intimate partner anger. Findings from this study indicated that higher levels of partner anger were associated with greater perpetration of both physical and psychological IPV, and that higher impulsivity levels were associated with greater perpetration of psychological IPV. However, impulsivity did not moderate the relation between anger and IPV perpetration. Findings highlight the need for future research with more multidimensional measures of impulsivity to investigate the ways that anger and impulsivity are related to IPV perpetration in young adults, and have implications for clinical practice and the development of interventions for IPV perpetrators.

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Introduction

Statement of the Problem

Intimate partner violence (IPV) is widespread and has been associated with a number of negative outcomes, including mental health problems (Campbell et al., 2002; Coker et al., 2002; Lang et al., 2002; Miller & McCaw, 2019; Straight, Harper, & Arias, 2003; Tjaden & Thoennes, 1998). IPV is especially prevalent among young adults, and the age of first incident of IPV is most common between the ages of 18-24 (Black, 2011; Miller & McCaw, 2019). Unfortunately, existing programs (batterer intervention programs; BIPs) intended to treat batterers and reduce IPV perpetration, are not particularly effective at reducing recidivism of abuse (Babcock et al., 2004; Cheng et al., 2019), and thus research is needed to identify more effective, evidence-based targets for intervention.

Anger has consistently been identified as a risk factor for IPV perpetration (Birkley & Eckhardt, 2015). However, anger is a commonly experienced emotion, and not all instances of anger within a relationship result in the perpetration of IPV. Self-regulatory processes such as impulsivity have been proposed as a possible explanation for why some but not all instances of experiencing anger lead to aggression and violence (Baumeister & Boden, 1998). If this is indeed the case, impulsivity may be an important target of treatment to include in BIPs. Furthermore, some of the existing literature has suggested an interaction between anger and impulsivity in their association with IPV perpetration (I^3 Theory, Finkel, 2007; Finkel et al., 2011; UPPS-P framework, Whiteside & Lynam, 2001; Derefinko et al., 2011). Yet, these studies often collapse and combine

the constructs of anger and impulsivity, and empirical studies examining impulsivity as a moderator within the anger-IPV perpetration relation are scarce.

Thus, the current study examines the anger – IPV relation through the lens of impulsivity as a moderating variable in an undergraduate college student population. The aims of the current study are to gain clarity in our understanding of the ways in which impulsivity and anger interact in predicting the perpetration of IPV among young adults and contribute to the development of targeted interventions to effectively reduce the perpetration of IPV.

Rationale

IPV is a prevalent problem in our society with serious negative consequences. A third of men and women in the United States report having experienced IPV (Miller & McCaw, 2019). The negative outcomes of IPV are far-reaching and costly, and encompass physical, psychological, and financial consequences (Miller & McCaw, 2019). The most prevalent age cohort for IPV is young adults (ages 18-24); and individuals in this developmental stage are at increased risk for IPV for a number of reasons, including more normative alcohol and substance use than during adolescence, longer and more serious relationships, increase of life stressors such as pursuing higher education than adolescents, entering the workforce, and transitioning to parenthood (Johnson et al., 2015).

To date, numerous interventions have been developed in the hopes of reducing IPV perpetration and recidivism. While some recent research (Romero-Martinez et al., 2019) has suggested that one possible novel target for intervention in BIPs may be impulsivity, existing batterer intervention programs (BIPs) have been tested largely on

adults who have been court-mandated to attend, and tend to implement psychoeducation, Cognitive Behavioral Therapy, address issues of power and control (the Duluth model), and anger management (Babcock, et al., 2004; Cheng et al., 2019). Meta-analyses of BIPs have found that existing BIPs are not very effective at reducing recidivism of abuse (d = 0.12-0.34; Babcock et al., 2004) and suggest that further research is needed to develop effective, evidence-based interventions (Babcock et al., 2004; Cheng et al., 2019). Thus, the present study aims to expand on the field's understanding of how factors like anger and impulsivity contribute to IPV perpetration.

Anger and IPV

The link between anger and IPV perpetration has been extensively studied across the literature (Birkley & Eckhardt, 2015; Norlander & Eckhardt, 2005). A meta-analysis of 61 studies (105 effect sizes) by Birkley and Eckhardt (2015) found that IPV perpetration was moderately, positively associated with anger (d = .48) with most studies measuring anger using measures of general anger, such as the State–Trait Anger Expression Inventory [STAXI; Spielberger, 1988, 1999] and Multidimensional Anger Inventory [MAI; Siegel, 1986]), with perpetrators of severe IPV reporting higher levels of anger than perpetrators of low or moderate IPV. Anger's association with IPV perpetration in married and dating relationships, including among samples of young adults, has been consistently found across existing studies, with anger predicting greater odds of IPV perpetration (Giordano et al., 2016), increased anger being linked to increased frequency of IPV perpetration (Crane & Testa, 2014), and IPV perpetrators scoring higher on anger measures than nonviolent controls (Eckhardt et al., 2002).

However, theory, such as the General Aggression Model proposed by Anderson and Bushman (2002), and existing research would both suggest that the relation between anger and IPV perpetration is not direct. Anger is a universal emotion, experienced frequently by most individuals (DiGiuseppe & Tafrate, 2006), yet it is clear that most instances of individuals experiencing anger do not result in violence or perpetration of IPV. Baumeister and Boden (1998) draw attention to the dilemma presented by aggression research, namely that in identifying causes of aggression, which are commonly occurring, such as experiencing anger, the literature fails to explain why aggression does not actually occur in most instances when such causes are present. Similarly, Murphy (2005) and Eckhardt et al. (2008) suggest that examining "whether and for whom specific patterns of anger problems are factors deserving of clinical attention" may be more informative than using a one-size-fits-all approach. Existing literature has suggested that anger alone does not sufficiently explain why and how perpetration of IPV occurs (Birkley & Eckhardt, 2015; Giordano et al., 2016). One variable that numerous theories have implicated as a potential moderator in the anger-IPV relation is the self-regulatory processes of impulsivity (Baumeister & Boden, 1998; Birkley & Eckhardt, 2015; Finkel, 2007; Finkel & Eckhardt, 2012; Finkel et al., 2009; Finkel et al., 2011; Whiteside & Lynam, 2001).

Impulsivity

Impulsivity can be defined as, "a multitude of behaviors and responses that are poorly conceived, premature, inappropriate, and frequently result in unwanted or deleterious outcomes" (Chamberlain & Sahakian, 2007, p. 255) or a lack of self-restraint (Berkowitz, 2008), and is an example of self-regulatory failure. Several theoretical

perspectives (Baumeister & Boden, 1998; DeWall et al., 2011) have proposed that instances of IPV perpetration occur when individuals act on impulses to cause harm to others, rather than resisting or inhibiting those impulses. More broadly, Berkowitz (2008) has conceptualized aggressive acts as being enacted by individuals who are aroused or stressed, and have weak cognitive control related to self-restraint.

Existing studies have demonstrated that impulsivity is related to IPV perpetration. Specifically, Romero-Martinez et al. (2018) found that compared to nonviolent controls, IPV perpetrators had higher trait impulsivity. Similarly, among couples in the United States, higher levels of IPV perpetration were associated with impulsivity (Schafer et al., 2004). Furthermore, across five studies that used diverse methodological approaches, self-regulatory failure was found to be a predictor of IPV perpetration (Finkel et al., 2009).

Despite literature linking impulsivity to IPV perpetration (Finkel, 2007, 2008; Finkel et al., 2009; Finkel et al., 2011; Finkel & Eckhardt, 2012; Schafer et al., 2004), few studies have tested the relation of anger and impulsivity with respect to IPV perpetration. Furthermore, those that have tested the association between anger, impulsivity and IPV perpetration have varied in their conceptualization of how these variables are related. Specifically, Stuart and Holzworth-Munroe (2005) tested the relation between impulsivity and IPV perpetration among married men with anger being tested as one of several mediating variables, and found that although anger did not mediate this relation, it was associated with both impulsivity and partner violence. Similarly, Shorey and colleagues (2011) tested the relation between anger, impulsivity and IPV perpetration among a sample of females arrested for perpetration of domestic

violence and found that both impulsivity and anger were significantly associated with IPV perpetration, and that anger mediated the impulsivity-IPV relation. In contrast, Persampiere and colleagues (2014) explored the relation between executive functions, including impulsivity, and other factors including anger control and anger expression and their association with IPV perpetration among a sample of partner-violent adult men, and did not find a meaningful association between anger and impulsivity, nor did they find a meaningful relation between impulsivity and IPV perpetration. These studies were conducted with adult samples, some of whom included married men, and females arrested for perpetration of IPV, and to date, no studies have explored the association or interaction of anger and impulsivity in terms of their relation to IPV perpetration with samples of young adults. Furthermore, the results of the above-mentioned studies suggest that the existing literature about the ways that the relation between anger and impulsivity contributes to IPV perpetration in adult samples has thus far yielded mixed findings, with some failing to find any meaningful associations between impulsivity and IPV perpetration, while others did find associations and mediational relations between impulsivity, anger, and IPV perpetration. Thus, there remains a need to better understand and clarify the ways these variables are related with respect to IPV perpetration in young adults.

The UPPS-P framework of impulsivity (Whiteside & Lynam, 2001) provides a theoretical framework through which to understand the ways anger and impulsivity are associated with IPV. Specifically, Derefinko et al. (2011) examined the facets of the UPPS-P model in relation to different types of aggression. They found that one facet of the UPPS-P model called negative urgency, or acting rashly under emotional conditions

like anger, predicted higher rates of IPV. Given that the concept of negative urgency combines both impulsivity and negative affect, and was found to predict IPV perpetration, this demonstrates that the combination of anger and impulsivity together predicts perpetration of IPV. Specifically, this shows that an individual who is impulsive may commit "rash or regrettable action" (violence towards an intimate partner) when experiencing "intense negative affect" (anger). However, given that negative urgency encompasses impulsive actions and negative affect (anger) as a unified construct, it fails to show the way these distinct variables interact in their relation to IPV perpetration.

Similarly, the I^3 theory (Finkel, 2007; Finkel et al., 2011) proposes that IPV perpetration occurs under the "perfect storm" of factors related to instigation (provocation), impellance (strong urge to aggress in the context of the provocation), and inhibition (factors that will increase or decrease the likelihood that one will act on the urges to aggress). Specifically, when strong instigation and impellance factors combine with weak inhibition, IPV perpetration is likely to occur. In this framework, one's intimate partner is viewed as the instigation, dispositional aggressiveness as impellance, and impulsivity as inhibition. Finkel at al. (2011) and Finkel and Eckhardt (2013) suggest both theoretically and empirically that inhibition may be viewed as a moderator in the relation between dispositional aggressiveness and IPV perpetration, including demonstrating this with samples of young adults. Although anger is one of the constructs encompassed within "dispositional aggressiveness," the variability in the operational definition of dispositional aggressiveness presents a difficulty in generalizing these findings specifically to the anger-IPV relation and the moderating role of impulsivity, and thus to the ways these findings may be used to inform potential interventions for IPV.

Taken together, the UPPS-P and I^3 models suggest that interaction of anger and impulsivity ought to be considered as a framework for understanding IPV perpetration. However, despite the strong theoretical base that suggests impulsivity may moderate the anger-IPV relation, there is little empirical data that supports this idea, and the empirical research that has been conducted on this topic leaves room for improvement in furthering our understanding of the ways that impulsivity may influence the anger-IPV relation.

Measurement Matters

Specifically, in its efforts to clarify the relation between anger, impulsivity and IPV perpetration in young adults, the present study aims to use context-specific measures of anger. In their review, Eckhardt, Barbour, and Stuart (1997) noted that the effect of anger on IPV varied across the literature. Specifically, while some studies found that violent men had higher anger ratings than nonviolent samples, others found no differences between the groups, or in some cases found that the violence perpetrators actually had lower anger scores. Eckhardt, Barbour, and Stuart (1997) attributed some of these inconsistencies to the psychometric limitations and lack of uniformity of the instruments used to assess anger. They note that researchers using measures of anger "must be more clear about the specific construct that they wish to assess" (Eckhardt, Barbour, & Stuart, 1997, p.353). Several studies have found that measures of context-specific anger better predict an individual's behavior in that context than measures of general anger (Del Vecchio et al., 2017; Deffenbacher et al., 1994; DiGiuseppe et al., 2020; MacMillan et al., 1988; Sedlar & Hansen, 2001). Existing studies examining anger and impulsivity and their link to IPV have used measures of general anger rather than partner-specific anger (Shorey et al., 2011; Stuart & Holzworth-Munroe, 2005). Thus, using a specific measure of anger in an intimate

relationship would improve upon prior research and address the issue noted by Eckhardt et al. (1997) by using a measure of anger that is specific to the context in which the anger is being assessed (romantic relationships).

Additionally, some have suggested that different subtypes of anger (internal or external anger) may be associated with aggression in differing ways (Smits & Kuppens, 2005; Sotelo & Babcock, 2013; Dye & Eckhardt, 2000). Specifically, when considering the behavioral inhibition/behavioral activation systems, individuals who tend to score higher on measures of behavioral activation also tend to display more external anger, whereas individuals who tend to score higher on measures of internal anger have more behavioral inhibition, which may inhibit them from perpetrating violence and may be a protective factor against IPV (Smits & Kuppens, 2005). Additionally, while anger out was associated with IPV perpetration in an undergraduate sample, anger in was not reported to predict perpetration of IPV (Dye & Eckhardt, 2000). Furthermore, Dye and Eckhardt (2000, p.346) conclude that "perpetrators of dating violence may have difficulty managing or otherwise controlling angry feelings when they arise, which eventuate in externally directed forms of anger expression." Thus, a measure of partner anger that includes both internalizing and externalizing anger scales was used in this study with the aim of understanding not just how total partner anger and impulsivity interact with regard to their effect on IPV perpetration, but whether this relation varies based on the type of anger (internal or external) being measured. Specifically, based on the findings of Smits and Kuppens (2005), one may expect that internal anger to be less strongly related to impulsivity and to perpetration of IPV.

Aims

Several theories propose that IPV perpetration stems from an interplay of impulsivity and anger (Derefinko et al., 2011; Finkel et al., 2011; Whiteside & Lynam, 2001). However, these theories tend to propose complex models that collapse and combine constructs and fall short in explaining the specific ways in which the distinct constructs of anger and impulsivity interact in their relation to IPV. Baumeister and Boden's (1998) perspective, namely that impulsivity or a failure to self-regulate explains why anger does not always lead to aggression, and so why anger towards one's partner does not always result in IPV perpetration has been explored empirically, but its empirical applications have methodological concerns regarding operational definitions and measures used.

The present study explores the ways in which specific partner anger and impulsivity interact in their relation to perpetration of IPV in a population of young adults and will improve upon the existing literature about the anger-impulsivity-IPV relation by testing impulsivity as a moderator in the relation between anger and IPV perpetration and specifying the anger type (context-specific anger towards one's intimate partner) being measured.

Thus**,** I hypothesized that impulsivity would moderate the relation between partner anger and IPV perpetration, such that higher levels of total partner anger would be associated with greater IPV perpetration (physical and psychological IPV), for those participants who score higher on impulsivity. Additionally, I hypothesized that higher levels of externalizing anger would be associated with greater IPV perpetration (physical

and psychological IPV). I also hypothesized that higher levels of internalizing anger would be associated with less IPV perpetration (physical and psychological IPV).

Method

Participants

Participants included 241 undergraduate students currently in a romantic relationship. Participants were recruited as part of a larger, study (IRB # IRB-FY2020-249) examining other aspects of executive functioning and IPV perpetration. The mean age of participants was 19.71 (*SD* = 1.27), with a range from 18-24. In terms of gender identity 81% self-reported as female. Participants described themselves as Caucasian (54.8%), African American (28.2%), Asian (16.6%), and Native American or Pacific Islander (1.2%). Additionally, 30.3% of participants identified as Hispanic. Students were recruited by being offered extra credit for several undergraduate courses for their participation in the study.

Procedure

Students completed the study remotely, using their own personal computers. After providing informed consent, students completed a series of behavioral executive functioning tasks via Inquisit 5 (2016), followed by a series of self-report questionnaires on Qualtrics (2020).

Measures

Barratt Impulsiveness Scale – Brief. The Barratt Impulsiveness Scale-Brief (BIS-Brief; Steinberg et al., 2013) is an 8-item measure of attentional, motor, and non-planning impulsiveness (e.g. "I plan tasks carefully;" "I act on spur of the moment"). Participants rated frequency on a 4-point scale from Rarely/ never to Almost always/ always. Five of the items were reverse scored prior to summing the total score. Higher scores on the BIS-Brief indicated greater impulsivity (ω = .79).

Intimate/Romantic Partner Anger Scale. The Intimate/Romantic Partner Anger Scale (IPAS; DiGiuseppe et al., 2020) is a self-report measure of specific anger about one's romantic/intimate partner (e.g. "When I get angry with my partner, I lose my temper"). Participants rated their responses on a 7-point Likert scale, ranging from 1 (never/not at all strong/a few seconds/ strongly disagree) to 7 (several times a day/extremely strong/several weeks/strongly agree), with higher scores indicating higher levels of romantic partner anger). The complete version of the IPAS is 20 items long, however an earlier version of the scale during its development was used in the beginning of data collection for the present study (impacting 51 participants), containing 17, rather than 20 items. Given that the 17 and 20-item versions of the scale for this were very highly correlated within this study sample ($r = 0.96$, $p < .05$), the 17-item version of the scale was used for all analyses for the present study. The IPAS produces a total score, as well as an internalizing anger score and an externalizing anger score based on the two subscales it contains. All 17 items were summed to calculate the total score ($\omega = .91$). The internalizing scale is scored by summing 7 items ($\omega = .87$), and the externalizing scale is scored by summing 10 items ($\omega = .89$).

Revised Conflict Tactics Scale. The Revised Conflict Tactics Scale (CTS-2; Straus et al., 1996) is a 20-item measure used to assess partner aggression (e.g. "I called my partner fat or ugly;" "I choked my partner"). Participants were asked to use an 8-point Likert scale to rate how often they engaged in conflictual behaviors over the past year. Participants rated frequency from 0 = never to 6 = more than 20 times in the past year. An additional frequency rating allowed participants to disclose conflict that occurred outside of the requested timeframe (7 = not in the past year, but it did happen before).

Only the 8-item psychological aggression and 12-item physical assault scales were used. Item responses were averaged (separately for psychological and physical aggression), with scores indicating the frequency and variety of psychological and physical aggression perpetration (O'Leary et al., 2007).

Analysis Plan

Prior to conducting moderation analyses, missing data were examined at the scale level using Little's MCAR test and were determined to be missing completely at random, $\chi^2(6) = 0.00$, $p = 1.00$. Of the 241 participants, 1 participant (0.4%) did not complete the BIS-Brief, and 7 participants (2.9%) did not complete the IPAS. These missing data were handled using expectation maximization (EM; Dempster, Laird, & Rubin, 1977). Data were also examined for outliers, skew, and kurtosis. Several variables had a significant positive skew and kurtosis, including the total IPAS score, the External Anger Scale of the IPAS, and both the psychological and physical aggression scales of the CTS, and all variables had extreme value outliers (values that are greater than the third quartile plus three times the interquartile range, or lower than the first quartile minus three times the interquartile range; Yang et al., 2019). Bias-corrected bootstrapping was used to correct for presence of skew, kurtosis, and outliers. Interaction of partner anger and impulsivity on IPV perpetration were tested using multiple linear regression models with bias-corrected bootstrapped estimation using SPSS Version 21 (IBM Corp, 2012). Ninety-five percent bias-corrected confidence intervals were examined to determine significant effects. Predictor variables were mean-centered prior to computing interaction terms, and all predictor variables, including the interaction term were entered into one step of the regression model. The analyses were run separately to test this hypothesis in the context

of psychological aggression and physical aggression, as well as to test whether the results differed based on total partner anger, internalizing partner anger, or externalizing partner anger. Alternative models testing a mediational approach were also performed using the PROCESS Macro for SPSS Version 3 (Hayes, 2017).

Results

Table 1 presents the means, standard deviations and correlations among study variables. Total partner anger was significantly positively correlated with impulsivity, physical aggression, and psychological aggression. Internalizing anger and externalizing partner anger each also had positive significant correlations with impulsivity, physical aggression, and psychological aggression. Impulsivity was positively significantly correlated with psychological aggresion, however it was not significantly correlated with physical aggression. No significant group differences emerged between males and females in terms of perpetration of physical aggression t (235) = 1.10, $p > .05$, or psychological aggression, t (235) = 1.68, $p > .05$. Similarly, there were no significant group differences between males and females in terms of impulsivity, t (235) = 0.05, $p > .05$, or total partner anger, t (235) = 1.89, $p > .05$, nor were there differences in internal partner anger t (235) = 1.86, $p > .05$, or external partner anger t (235) = 1.56, $p > .05$ between males and females.

Total Partner Anger and IPV Perpetration

There was no significant interaction of total partner anger and impulsivity on perpetration of physical or psychological aggression, indicating that there was no moderating effect of impulsivity on the relation between total partner anger and IPV perpetration (Table 2)[1].

[1] Two items on the IPAS were determined to be reflective of impulsivity (e.g. losing one's temper and difficulty controlling emotions when angry at one's romantic partner) and analyses including correlations, as well as the regression analyses which tested interaction effects between total and external partner anger (both of which included these two items) and impulsivity, and physical and psychological IPV perpetration were conducted with and without these two items included. No differences were found between the two sets of analyses in terms of statistically significant correlations or moderation effects, suggesting that the two items on the IPAS that reflect impulsivity, did not impact the outcomes of these results in a statistically significant way.

Alternative Model

An alternative model was also tested to explore whether a mediation model would better explain the relation among these variables. The links between anger and IPV perpetration, and between impulsvity and IPV perpetration have both been well established within the literature (Birkley & Eckhardt, 2015; Norlander & Eckhardt, 2005; Finkel, 2007; Finkel, 2008). Existing research has also shown that anger is related to impulse control, and that individuals with higher levels of anger have difficulties with impulse control (Lievaart et al., 2018). Thus, testing impulsivity as a mediating variable within the anger-IPV perpetration relation, such that impulsivity accounts for part of the relation between anger and IPV perpetration, may be a plausible alternative model for conceptualizing the ways these variables are related.

Impulsivity was tested as the mediating variable between partner anger and perpetration of psychological and physical aggression. Despite direct effects of total, externalizing, and internalizing anger on both psychological and physical aggression, no significant indirect effects of anger on psychological or physical aggression were present (Table 3)[2].

[2] Mediation analyses testing impulsivity as a mediator in the relation between partner anger (total and external) and IPV perpetration (physical and psychological) were also conducted both with and without the two items on the IPAS that are reflective of impulsivity (e.g. losing temper and difficulty controlling emotions). No differences were found between the two sets of analyses in terms of statistically significant mediation effects suggesting that the two items on the IPAS that reflect impulsivity did not impact the outcomes of these results in a statistically significant way.

Discussion

The purpose of this study was to investigate whether impulsivity and specific partner anger interact in their relation to perpetration of IPV among young adults. Contrary to my hypothesis, findings from this study indicated that impulsivity did not moderate the relation between anger and IPV perpetration, neither in terms of physical aggression nor psychological aggression, in a sample of college students. This was true for total partner anger, as well as the internalizing and externalizing sub-categories of partner anger. Consistent with prior research, anger, impulsivity, and IPV perpetration were significantly related in this study, yet no significant interaction was found among these variables.

However, despite theory as well as some empirical studies suggesting that impulsivity moderates the relation among negative emotions like anger and the perpetration of IPV (I^3 Theory; Finkel, 2007; UPPS-P framework, Whiteside & Lynam, 2001), with individuals who have lower levels of behavioral inhibition, or higher levels of impulsivity being more likely to have high levels of anger to be associated with more IPV perpetration, no moderating relation was found in the present study. Although the I^3 theory and the UPPS-P model do suggest that anger, impulsivity, and IPV perpetration are related and that there may be an interaction between anger and impulsivity in their relation to IPV perpetration, these two frameworks differed in the way they conceptualize the constructs of impulsivity and anger, which may at least in part explain why the findings of the present study are inconsistent with existing research. The UPPS-P model is a framework for conceptualizing impulsivity in its many different facets, and negative urgency (acting impulsively in the context of negative affect) is considered to be one part

of the larger model of impulsivity, and has been linked to IPV perpetration (Whiteside & Lynam, 2001, Derefinko et al., 2011). However, the UPPS-P model encompasses both the negative affect (anger) and impulsivity into one construct (negative urgency) suggesting that they are related, but does not actually present data that demonstrates the interaction of the distinct constructs of anger and impulsivity as they are conceptualized in the present study. Additionally, the I^3 model, which describes the "perfect storm" of instigation, impellance, and inhibition has some empirical research that supports the notion that anger and impulsivity in a specific context (relationships) interact to result in violence (Finkel, 2007). However, these studies did not find that the interaction of anger and impulsivity contributed to IPV perpetration, but rather that the interaction of "dispositional aggressiveness" and "weak inhibition" did so (Finkel at al., 2011; Finkel & Eckhardt, 2013). The operational definition and conceptualization of the term "dispositional aggressiveness" may not capture the construct of partner anger and may be referring to a trait-like general tendency towards aggression. While this construct may be closely related to anger, it is perhaps distinct enough from a measure of romantic partner anger to help explain why the results of the present study did not support the existing research using the I^3 model to understand IPV perpetration.

Some existing literature has shown that not only are anger, or in some cases "dispositional aggressiveness," and impulsivity (or "weak inhibition") each associated with higher levels of IPV perpetration (Birkley & Eckhardt, 2015; Norlander & Eckhardt, 2005; Finkel, 2007; Finkel, 2008), but that higher anger is also associated with decreased impulse control (Lievaart et al., 2018). This suggests that impulsivity may potentially mediate the anger-IPV relation and so, to better understand and explore alternative ways

that the variables in this study may be related, a mediational model was also tested. Specifically, I tested whether impulsivity might mediate the relation between anger (total, internalizing, and externalizing) and IPV perpetration (physical and psychological). However, the findings demonstrated that impulsivity was not a significant mediator in this relation. This suggests that impulsivity was not found to be the mechanism by which anger affects IPV perpetration. Given that prior research links anger and IPV perpetration, impulsivity and IPV perpetration, and higher levels of anger being linked to poor impulse control, this finding is somewhat surprising (Birkley & Eckhardt, 2015; Norlander & Eckhardt, 2005; Finkel, 2007; Finkel, 2008, Lievaart et al., 2018). However, no other studies to the best of my knowledge have previously demonstrated a mediating effect of impulsivity in the anger- IPV perpetration relation, so in this respect, the findings are consistent with the existing literature.

Correlations between total partner anger and both physical aggression and psychological aggression were present in this study. More specifically, individuals with higher levels of total partner anger also had higher levels of IPV perpetration, for both psychological aggression and physical aggression. This is consistent with prior research, which has demonstrated that anger is a significant predictor of aggression and IPV. For instance, Birkley and Eckhardt's (2015) meta-analysis showed that across studies using a variety of methodologies, anger, along with other negative emotions, is moderately associated with perpetration of IPV. The results of the current study are in line with the findings of prior research examining the association of anger and IPV perpetration in samples of young adults (Eckhardt et al., 2002; Giordano et al., 2016). Specifically, Eckhardt and colleagues' (2002) study found that among college-aged males, those who

perpetrated IPV scored higher on trait anger, internal anger, external anger, and that these men both experience and express more intense levels of anger arousal than those who are non-violent. Additionally, among both males and females in adolescent and young adult relationships, anger was a significant contributor to reports of IPV perpetration (Giordano et al., 2016). However, when examining the various types of partner anger (total, internal, and external), no significant differences were found in their relation to either type of IPV perpetration (physical or psychological). This suggests that total, internal, and external partner anger were comparable in their relation to IPV perpetration. The results of the current study support Eckhardt et al. (2002) and Giordano et al.'s (2016) findings linking IPV perpetration to higher anger levels among young adults. Inconsistent with the hypothesis that higher internal anger would be associated with less IPV perpetration, the findings of the present study showed that internal anger, along with external and total anger, was correlated with more IPV perpetration. Although this finding is inconsistent with existing research by Smits and Kuppens (2005), it is in line with other studies which have shown that internal anger is associated with greater IPV perpetration (Eckhardt et al., 2002), suggesting that there is conflicting evidence with regard to the relation between internal anger and IPV perpetration.

As expected, impulsivity had a significant positive correlation with perpetration of psychological IPV. This suggests that individuals who are more impulsive also perpetrated more psychological aggression towards their romantic partners. Surprisingly, impulsivity was not correlated with physical IPV perpetration, contrary to existing theories and empirical research. This suggests that physical IPV perpetration did not vary based on level of impulsivity. Previous studies have reported that impulsivity is

associated with, and is a significant predictor of, IPV perpetration (Finkel et al., 2009), and theory suggests that occurrences of IPV perpetration take place when individuals act impulsively rather than controlling their impulses and exhibiting self-restraint (Baumeister & Boden, 1998; DeWall et al., 2011). Still, impulsivity is a complex, multidimensional construct that has been conceptualized, defined, and measured in a multitude of ways across the literature (Kocka & Gagnon, 2014). For the purposes of the current study, impulsivity was defined as a lack of self-restraint or self-regulatory failure (Berkowitz, 2008), and "a multitude of behaviors and responses that are poorly conceived...and frequently result in unwanted or deleterious outcomes" (Chamberlain & Sahakian, 2007, p. 255). However, some studies (Whiteside & Lynam, 2001) have conceptualized impulsivity as dimensions of negative urgency, a lack of premeditation, a lack of perseverance, and sensation seeking, others have defined impulsivity as an inability to control, inhibit or suppress ongoing motor, behavioral or emotional responses or interference from distractions (deficit of inhibition), and have at times conflated the concepts of impulsivity and inhibition (Sohlberg & Mateer, 2001; Kocka & Gagnon, 2014). Just as there have been various definitions of impulsivity across the literature, there has also been a broad range of methodologies by which impulsivity is measured (Kocka & Gagnon, 2014. The current study used the Barratt Impulsiveness Scale-Brief (BIS-Brief; Steinberg et al., 2013), which assessed attentional, motor, and non-planning impulsiveness using an eight-item self-report measure. While this is a valid, reliable, well-supported measure of impulsivity in the literature, other studies have measured impulsivity using different self-report questionnaires, structured interviews, direct observation, computerized tasks such as delay-discounting, and electroencephalographic

(EEG) activity (Kocka & Gagnon, 2014; Lievaart et al., 2018). Kocka and Gagnon's (2014) review of definitions and measures used to assess impulsivity conclude that a multidimensional model such as the UPPS model is best used to conceptualize and measure impulsivity, as it may "bridge the gap" in the discrepancies between using personality based vs. neuropsychological measures of impulsivity. Thus, although the current study's methodology strived to define and measure the construct of impulsivity in a valid, reliable, and accurate way, given the lack of consistency and agreement across existing literature as to how impulsivity ought to be defined and measured, it is possible that using a different instrument or combination of measures to assess impulsivity, particularly using a more multi-dimensional measure of impulsivity such as the UPPS-P Behavior Scale, may have yielded different results and could explain the discrepancy between findings of prior research and this current study.

When considering the findings of the current study, it is important to note that overall, the sample was not particularly aggressive (while overall reporting average levels of impulsivity and partner anger), and that the majority of participants did not endorse perpetration of physical IPV. Thus, it is possible that impulsivity did not moderate the relation between partner anger and physical IPV perpetration due to an insufficiently large sample of individuals who endorse physical IPV perpetration. Furthermore, the present study was predominantly female, and although some studies investigating IPV perpetration have included both male and female samples, the majority of research on IPV perpetration has been conducted with males. Still, the results of the present study are in line with the findings of Birkley and Eckhardt's (2015) meta-analysis, which reported

that rates of IPV perpetration are comparable for males and females, and that the relation between anger and IPV perpetration was consistent between males and females.

Despite these limitations, the present study had a number of strengths and improved on several methodological shortcomings and concerns that were present in previous studies. These strengths included using a context-specific measure of partner anger, rather than using a general, or trait-level measure of anger, as research has demonstrated that context-specific measures of anger tend to be better predictors of a person's behaviors than measure of general anger (Del Vecchio et al., 2017; Deffenbacher et al., 1994; DiGiuseppe et al., 2020; MacMillan et al., 1988; Sedlar & Hansen, 2001). However, despite using this context- specific measure of intimate partner anger, the results of this study ultimately supported the findings of studies that have linked trait anger to IPV perpetration, concluding that higher anger is indeed associated with more perpetration of IPV (Birkley & Eckhardt, 2015), and it is thus possible that using a trait-level measure of anger may have yielded similar results in this study. Additionally, this study was unique in that it tested a moderation model to conceptualize the relation between anger, impulsivity and IPV perpetration among young adults, which to date has been scarcely found in the literature on these topics.

In conclusion, this study examined the relation between partner anger and perpetration of physical and psychological IPV, to see if impulsivity is a moderating variable within a sample of undergraduate students. This study provided support for the finding that higher levels of partner anger are indeed associated with greater perpetration of both physical and psychological IPV in young adults. The findings of this study did not support the hypothesis that impulsivity moderates the anger-IPV perpetration relation,

nor did it mediate this relation. Based on the results of this study, it appears that impulsivity is unrelated to perpetration of physical IPV, and that young adults who exhibit higher levels of partner anger and higher levels of impulsivity do not report more or less perpetration of IPV than those who have lower levels of impulsivity. However, this is in contradiction of the findings of the existing literature on the subject, which fairly consistently suggests that impulsivity is related to physical IPV perpetration. This discrepancy may be due to the way that impulsivity was measured and defined in this study, and it is possible that a more thorough, multidimensional measure of impulsivity would yield different results. A study by Barratt and colleagues (1999) describes the difference between impulsive and premeditated aggression and its relation to various factors of impulsivity as measures by the BIS. Specifically, Barratt et al. (1999) found that impulsive and premeditated aggression are distinct, independent constructs and that motor and attentional impulsiveness are related to impulsive aggression primarily, while non-planning impulsiveness was not. Thus, it is possible that impulsivity was unrelated to physical aggression in this study because the aggression was potentially premeditated rather than impulsive, though to fully assess this, an additional measure would need to be used to inquire about whether aggression was impulsive or premeditated. In contrast, when considering psychological aggression, impulsivity was significantly related to perpetration of psychological IPV, demonstrating a difference in the relation of impulsivity to the kind of IPV being perpetrated. This may be due to the perceived social acceptability of each type of partner violence. While physical aggression may be clearly perceived to be undesirable/unacceptable in the context of interpersonal relationships, some studies have suggested that psychological or emotional abuse is more difficult to

define and recognize when is it is happening (Keashly, 2001; Smullens, 2010). Thus, psychological abuse may be perpetrated without intention or forethought, with an individual acting impulsively by swearing at or degrading one's partner, but not perceiving themselves as perpetrating IPV or even acting in an unacceptable way, and not controlling or preventing their impulse to do so. Additionally, Persampiere et al. (2014) failed to find associations between markers of neuropsychological functioning like impulsivity and self-reported IPV perpetration (physical and psychological). Persampiere and colleagues (2014) attributed this surprising finding to the possibility that although impulsivity may be associated with an initial angry reaction, that this does not necessarily result in individuals' inability to then down-regulate their reactions. These authors also suggested poor insight on the part of the participants as a possible explanation and recommended that a more exhaustive battery of neuropsychological functioning be used to assess these constructs. It is possible that some of these explanations may also be applicable to the present study.

These findings have implications for clinical practice, specifically in the kinds of interventions practitioners use when working with perpetrators of IPV and when developing prevention and intervention programs for these populations. As research has demonstrated, existing batterer-intervention programs (BIPs) are not particularly effective at reducing recidivism of abuse and most focus on power and control, anger management and use psychoeducation and Cognitive Behavioral Therapy as the primary modality (Babcock et al., 2004; Cheng et al., 2019). Given that impulsivity was not found to be associated with physical IPV perpetration, or to moderate the partner anger-IPV perpetration relation, but that partner anger was associated with perpetration of both

physical and psychological IPV, it would make sense to focus on developing BIPs that target anger in a partner-specific context, which is similar to the existing models of BIPs. Furthermore, existing BIPs have largely been tested on court-mandated adult perpetrators of IPV, while it has been well-established that young adults are a particularly vulnerable group for IPV perpetration prevalence, and that many perpetrators of IPV are not involved in the criminal justice system (Black, 2011; Miller & McCaw, 2019) and may benefit from a different approach to reducing IPV perpetration. Specifically, research has suggested that a focus on prevention of IPV perpetration rather than interventions like BIPs, which are implemented after the fact, may be more effective (Langhinrichsen-Rohling & Capaldi, 2012). Additionally, and in contrast to approaches that target individual characteristics and qualities, campus-wide bystander intervention strategies may be effective in helping to reduce IPV perpetration by engaging peers as agents of helping to recognize and intervene in potentially violent situations (Coker et al., 2016).

This study supported findings of previous research conducted by Giordano and colleagues (2016) and Eckhardt and colleagues (2002), that the association between higher anger and greater IPV perpetration was present in samples of young adults. By applying the findings of this study, and of future studies like this, to the development of effective, evidence-based prevention and intervention programs for young adults, we may hopefully take a step in the direction of reducing the prevalence and recidivism of IPV perpetration.

Table 1. Means, Standard Deviations, and Correlations among Study Variables

	Total Anger	Internal Anger	External Anger	Impulsivity	IPV (Psych)	IPV (Physical)	Age
Total Anger	-						
Internal Anger	0.92**	-					
External Anger	0.89**	0.66**	-				
Impulsivity	0.23**	0.17*	0.27**	-			
IPV (Psych)	0.46**	0.36**	0.48**	0.16*	-		
IPV (Physical)	0.30**	0.19**	0.38**	0.04	0.65**	-	
Age	-0.02	-0.03	-0.01	-0.13*	0.08	0.13*	-
Mean	31.20	16.70	14.50	16.10	0.99	0.25	19.71
Std. Deviation	12.83	7.48	6.61	4.06	1.21	0.80	1.27

Note. * $p < .05$, ** $p < .01$,

Table 2. Regressions of Partner Anger and Impulsivity on IPV Perpetration, and Their Interactions

	Physical Aggression					Psychological Aggression				
Predictor	*B*	*SE B*	β	R^2	*F*	*B*	*SE B*	β	R^2	*F*
				.09	8.24**				.23	23.34**
Total Anger	.02**	.01	.29			.04**	.01	.39		
Impulsivity	-.01	.01	-.03			.02	.02	.06		
Total Anger X Imp.	.00	.00	.05			.00	.00	.13		
				.04	3.29*				.16	14.65**
Internal Anger	.02	.01	.17			.05**	.01	.32		
Impulsivity	.00	.01	.01			.03	.02	.10		
Internal Anger X Imp.	.00	.00	.07			.01	.00	.12		
				.15	13.42**				.25	26.02**
External Anger	.05**	.01	.39			.07**	.02	.39		
Impulsivity	-.01	.01	-.06			.02	.02	.06		
External Anger X Imp.	.00	.00	.00			.01	.00	.15		

Note. *$p < .05$, **$p < .01$.

Table 3. Multiple Regression Analyses Testing Impulsivity as a Mediator of the Relation between Partner Anger and IPV Perpetration

	Physical Aggression					**Psychological Aggression**				
	B	*SE B*	β	R^2	*F*	*B*	*SE B*	β	R^2	*F*
Model 1				.05	17.74**				.05	17.74**
Total Anger	.07	.02	.23**			.07	.02	.23**		
Model 2				.14	7.75**				.23	26.95**
Total Anger	.02	.01	.37**			.04	.01	.46**		
Impulsivity	-.00	.01	-.01			.02	.02	.07		
Model 1				.03	6.70*				.03	6.70*
Internal Anger	.09	.04	.17*			.09	.04	.17*		
Model 2				.04	4.30*				.14	19.84**
Internal Anger	.02	.01	.18*			.06	.01	.35**		
Impulsivity	.00	.013	.01			.03	.02	.10		
Model 1				.07	18.15**				.07	18.15**
External Anger	.16	.04	.27**			.16	.04	.27**		
Model 2				.15	20.21**				.23	35.78**
External Anger	.05	.01	.39**			.09	.01	.47**		
Impulsivity	-.01	.01	-.06			.01	.02	.03		

Note. *$p < .05$, **$p < .001$.

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