

Problematic Pornography Use and Physical and Sexual Intimate Partner Violence Perpetration Among Men in Batterer Intervention Programs

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Abstract

Recent decades witnessed a surge in pornography use, contributing to what some researchers referred to as problematic pornography use (PPU; excessive, compulsive, and uncontrollable pornography use). Informed by cognitive scripts theory, cross-sectional, longitudinal, and experimental research spanning several decades documented a positive association between men's pornography use and physical and sexual violence perpetration. However, there is a paucity of research investigating pornography use broadly, and PPU specifically, among men who perpetrate intimate partner violence (IPV). The present cross-sectional study investigated the association between self-reported PPU and physical and sexual IPV perpetration among 273 men in batterer intervention programs. After accounting for psychiatric

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symptomology and substance use and problems, results revealed a positive association between PPU and both physical and sexual IPV perpetration. Findings highlighted the need for continued investigation of the function of pornography use for violent men, particularly as it relates to physical and sexual IPV perpetration.

Keywords

batterers, domestic violence, media and violence, sexual assault

Pornography consumption among adults in the United States has steadily increased over the past four decades (Price, Patterson, Regnerus, & Walley, 2016). As many as 87% of men reported using pornography at least monthly, with as many as 58% of men viewing pornography weekly (Carroll et al., 2008; Regnerus, Gordon, & Price, 2016; Sun, Bridges, Johnson, & Ezzell, 2016). A content analysis of best-selling pornographic videos revealed that 88% of scenes portrayed physical violence (e.g., spanking, gagging, and slapping), 48% of scenes portrayed verbal aggression (e.g., insulting, threatening, and using coercive language), and 94% of aggressive scenes portrayed women as targets of aggression (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010). Furthermore, 96% of sexual and physical aggression scenes portrayed women expressing pleasure when aggressed against (Bridges et al., 2010). Although pornography may have some positive effects on romantic relationships (e.g., enhanced sexual comfort; Kohut, Fisher, & Campbell, 2017), the nature of the scenes depicted in mainstream pornography, and the frequency with which men consume pornography, may contribute to a culture that supports both physical (e.g., slapping, hitting, and choking) and sexual (e.g., sexual coercion and forced penetration) intimate partner violence (IPV) toward women (Sun et al., 2016). The purpose of the present study was to provide the first investigation of the relationships between problematic pornography use (PPU) and physical and sexual IPV perpetration among men in batterer intervention programs (BIPs).

A number of cross-sectional and experimental studies spanning several decades suggested that pornography use, particularly by men, is positively associated with sexual aggression and violence-condoning attitudes toward women (Donnerstein & Berkowitz, 1981; Donnerstein & Hallam, 1978; Hald & Malamuth, 2015; Malamuth, Addison, & Koss, 2000; Malamuth & Ceniti, 1986; Wright, Tokunaga, & Kraus, 2016). In a meta-analysis of cross-sectional and longitudinal studies, Wright and colleagues (2016) reported that pornography consumption among men in the general population, regardless of exposure

to violent content, was positively associated with men's sexual aggression perpetration (e.g., verbal coercion, sexual harassment, and the use of force to obtain sex). Similarly, M. Allen, D'Alessio, and Brezgel (1995) conducted a meta-analysis of experimental studies investigating the effects of pornography exposure on nonsexual aggression (i.e., intentional physical aggression, such as electric shocks) and concluded that exposure to pornography increased nonsexual aggression. Similarly, exposure to pornography in experimental studies related to increases in violence-supporting attitudes (M. Allen, Emmers, Gebhardt, & Giery, 1995). Together, these studies provided evidence that watching pornography is associated with increased aggressive behavior.

Cognitive scripts theory broadly provided a basis for understanding the associations between pornography use and physical and sexual IPV (Simon & Gagnon, 1986; Sun et al., 2016; Wright, 2011). According to script theories, heuristic models developed in response to media portrayals of behaviors, responses, and outcomes of certain behaviors (Simon & Gagnon, 1986). Informed by cognitive script theory, sexual script theory posited that sexual decision-making, expectations, desires, and norms are modeled after pornography and other cultural portrayals of sex (e.g., film and media; Wright, 2011). Social learning theory (Bandura, 1986) was used by researchers to bolster script theory by suggesting that pornography may reinforce certain behaviors, including physical and sexual violence toward women, by portraying men's and women's pleasure in response to physical and sexual violence in the absence of negative consequences (Bridges et al., 2010; Seto, Maric, & Barbaree, 2001; Sun et al., 2016). As such, consumers of pornographic material were repeatedly exposed to these gendered, heuristic scripts for how to behave with intimate partners, and may subsequently use these scripts as templates for navigating real-world intimate encounters (Harkness, Mullan, & Blaszczynski, 2015; Malamuth, Hald, & Koss, 2012).

In support of the hypothesis that pornographic content provides a script for real-world sexual encounters, pornography use among men positively related to viewing pornography during sex with a partner, requesting that a partner enact a sexual scene from pornographic material, role-playing scenes from a pornographic film during sex with a partner, and relying on pornography to obtain or maintain sexual arousal during sex (Sun et al., 2016). Notably, longitudinal evidence did not suggest that individuals who were sexually aggressive chose to view sexual content that conforms to their sexual scripts (Brown & L'Engle, 2009). For example, adolescent boys' early exposure to pornography predicted sexual aggression perpetration 2 years later (Brown & L'Engle, 2009). Similarly, risky sexual scripts mediated the relationship between young adult men's pornography use and later sexual aggression perpetration, but sexual aggression perpetration was a poor predictor of later pornography use

(D'Abreu & Krahe, 2014). Moreover, 48% of men were exposed to pornography before age 13 (Alexy, Burgess, & Prentky, 2009; Kraus & Rosenberg, 2014), and a significant proportion of adolescents relied on pornography for sexual education (Rothman, Kaczmarzsky, Burke, Jansen, & Baughman, 2015; Sun et al., 2016). Together, these findings suggested that men may have ample opportunities to develop problematic scripts for intimate relationships early in life, which may contribute to subsequent sexual aggression perpetration.

Despite the associations reported between pornography use and physical and sexual violence toward women, minimal research investigated pornography use in relation to IPV, and no research examined pornography use among men arrested for domestic violence. Data collected from samples of service-seeking women who were abused by a romantic partner revealed a positive association between women's reports of their partner's pornography use and women's sexual IPV, rape, and stalking victimization (Cramer & McFarlane, 1994; Cramer et al., 1998; Shope, 2004; Simmons, Lehmann, & Collier-Tenison, 2008). In addition, more shelter-based women than college women reported that their partners tried to get them to do things portrayed in pornography (Sommers & Check, 1987). One notable limitation from these prior studies is that data were collected from female partners, which may not accurately portray men's PPU.

In addition to script theory, other mechanisms may explain the PPU-IPV link. Compulsive sexual behaviors, including PPU, was a method some men endorsed using to help regulate or avoid negative affect (Brem, Shorey, Anderson, & Stuart, 2017; Wetterneck, Burgess, Short, Smith, & Cervantes, 2012). Furthermore, negative affect was a risk factor for IPV perpetration (Shorey, McNulty, Moore, & Stuart, 2015). It is plausible that men who perpetrate IPV lack adaptive emotion regulation skills and use pornography to help cope with distress. Men who use pornography to cope with distress may be exposed to problematic sexual scripts in pornography more frequently, which may in turn influence IPV perpetration.

These prior studies provided important foundations from which to conceptualize pornography use by male IPV perpetrators. However, data investigating pornography in relation to IPV were collected from female partners, which may not accurately portray men's pornography use. Furthermore, prior research did not account for potential third variables that might explain the pornography-IPV link (e.g., antisociality, mental health problems, relationship satisfaction, and substance use). Additional research that assesses male IPV perpetrators' pornography use, IPV perpetration, as well as potential confounding variables would allow researchers and clinicians to better understand the extent to which pornography use relates to violence and sexual activity among men who perpetrate IPV.

To address these gaps, the present study investigated the relationships between PPU (excessive or compulsive consumption of pornography, an urge to use pornography to escape or avoid negative affect, poor self-control over pornography use, and continued engagement in pornography use despite adverse consequences; Kor et al., 2014) and physical and sexual IPV perpetration among men arrested for domestic violence. Because both pornography use and IPV perpetration related to antisociality (Brem, Florimbio, Elmquist, Shorey, & Stuart, 2018; Fisher, Kohut, Di Gioacchino, & Fedoroff, 2013), depression symptoms (Reid, Li, Gilliland, Stein, & Fong, 2011; Stith, Smith, Penn, Ward, & Tritt, 2004), posttraumatic stress disorder (PTSD) symptoms (Hahn, Aldarondo, Silverman, McCormick, & Koenen, 2015; Konkolý Thege et al., 2017), relationship satisfaction (Poulsen, Busby, & Galovan, 2013; Stuart et al., 2006), and substance use and problems (Carroll et al., 2008; Stuart et al., 2006), these factors were examined as confounding variables. Based on previous cross-sectional, longitudinal, and experimental research that linked men's pornography use to physical and sexual violence perpetration, we hypothesized that

Hypothesis 1: PPU would positively relate to men's physical IPV perpetration, controlling for antisociality, depression symptoms, PTSD symptoms, relationship satisfaction, and substance use and problems.

Hypothesis 2: PPU would positively relate to men's sexual IPV perpetration, controlling for antisociality, depression symptoms, PTSD symptoms, relationship satisfaction, and substance use and problems.

Method

Participants

A sample of 273 men who were arrested for domestic violence and court-ordered to attend BIPs in Rhode Island were recruited. Participant mean age was 34.58 ($SD = 10.68$) years. The majority of the sample identified as Caucasian (66.2%), followed by Hispanic/Latino (13%), African American/non-Hispanic (9.8%), "Other" (8%), American Indian or Alaskan Native (2.4%), and Asian or Pacific Islander (0.5%). The employment status of the sample was employed (67.0%), unemployed and looking for work (16.8%), unable to work (7.7%), unemployed and not looking for work (4.5%), retired (1.9%), homemaker (1.3%), and student (0.8%). The mean income was US\$29,809 ($SD = US\$31,612$). The mean number of years of education was 12.19 ($SD = 2.02$) years. With regard to relationship status, 26.4% reported they were in a dating relationship, 24.5% reported having no current romantic

partner, 19.7% were living with a partner but were not married, 14.1% were married, 8% were separated, 6.4% were divorced, and 0.8% were widowed. The mean relationship length for the most recent romantic relationship was 5.69 years ($SD = 6.27$). Although sexual orientation was not assessed, a majority of the sample reported their current partner was a woman (83.7%). The remainder of the sample reported having no current partner (14.0%) or did not report their partner's gender (2.3%).

Measures

Demographic questionnaire. Participants reported demographic information including age, gender, employment status, race/ethnicity, relationship status, and relationship length.

PPU use. The Problematic Pornography Use Scale (PPUS; Kor et al., 2014) assessed self-reported PPU in the year prior to BIP entry across four domains: distress and functional problems (e.g., "I risked or put in jeopardy a significant relationship, place of employment, educational or career opportunity because of the use of pornographic materials"), excessive use (e.g., "I spend too much time planning to and using pornography"), control difficulties (e.g., "I feel I cannot stop watching pornography"), and use for escape/avoid negative emotions (e.g., "I use pornographic materials to escape my grief or to free myself from negative feelings"). Participants responded to each of the 12 items based on a 6-point scale ranging from 0 (*never true*) to 5 (*almost always true*). Total scores were computed by summing responses to each item; higher scores represented higher levels of PPU. Possible total scores range from 0 to 60. For the present study, the PPUS demonstrated good internal consistency ($\alpha = .96$). The PPUS was chosen to assess PPU as it was previously used to conceptualize PPU as an addictive process that related to relationship difficulties above and beyond pornography consumption (A. Allen, Kannis-Dymand, & Katsikitis, 2017; Kor et al., 2014). Although there is no cut-off score for the PPUS (Wéry & Billieux, 2017), the mean score was 5.73 ($SD = 8.71$) in a community sample of men and women, and 29.19 ($SD = 11.98$) among adults (94.8% men) who self-reported functional impairment due to pornography use (A. Allen et al., 2017; Kor et al., 2014).

Physical and sexual IPV perpetration. Participants completed the Physical Assault (11 perpetration items) and Sexual Coercion (seven perpetration items) subscales of the Revised Conflict Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; Straus, Hamby, & Warren, 2003) to assess physical assault and sexual coercion perpetration in the year prior to

BIP entry. Responses to the items ranged from 0 (*this never happened*) to 6 (*more than 20 times*). Total scores were calculated by adding the midpoint for each item response (e.g., a “4” for the response “3-5 times”) such that higher scores represented more frequent IPV perpetration. The CTS2 demonstrated adequate internal consistency across studies and was widely used as a measure of IPV in offender samples with an overall alpha of .84 (Straus et al., 1996, 2003).

Psychiatric symptomology. The 22-item Antisocial Personality Disorder (ASPD) Scale of the Personality Diagnostic Questionnaire-4 (PDQ-4; Hyler, 2004) assessed self-reported ASPD traits. Items on the PDQ-4 ASPD scale were presented in Yes/No answer format designed to closely mirror criteria reported in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994). The PDQ-4 was used to assess dimensions of ASPD traits rather than to diagnose participants. Therefore, continuous scores were used for the present study by summing participants’ responses to items; higher scores represented more ASPD traits. Possible scores range from 0 to 22. The PDQ-4 was previously used to assess ASPD traits among men who perpetrated IPV (Brem et al., 2018). The PDQ-4 demonstrated good psychometric properties in offender populations (Guy, Poythress, Douglas, Skeem, & Edens, 2008) and demonstrated good internal consistency in the present sample ($\alpha = .91$).

The 21-item Major Depressive Disorder (MDD) subscale and the 15-item PTSD subscale of the Psychiatric Diagnostic Screening Questionnaire (PDSQ; Zimmerman, 2002; Zimmerman & Mattia, 2001) assessed self-reported symptoms of depression and PTSD. Participants responded either “Yes” or “No”; affirmative responses were scored 1 point. Possible scores ranged from 0 to 21 on the MDD subscale and from 0 to 15 on the PTSD subscale, higher scores represented higher self-reported depression or PTSD symptoms, respectively. The PDSQ was previously used in samples of men who perpetrated IPV and demonstrated good psychometric properties in IPV populations (Shorey, Febres, Brasfield, & Stuart, 2012). The PDSQ had excellent internal consistency in the present sample ($\alpha = .93$ and $.95$ for MDD and PTSD, respectively).

Relationship satisfaction. The seven-item Relationship Assessment Scale (RAS; Hendrick, 1988) is a self-report measure of relationship satisfaction. Respondents answered each item (e.g., “In general, how satisfied are you with your relationship?”) using a 5-point scale ranging from 1 (*low satisfaction*) to 5 (*high satisfaction*). Two items were reverse scored. Items were summed such that higher scores represented higher relationship satisfaction.

Possible scores ranged from 7 to 35. The RAS was used to assess relationship satisfaction among men who perpetrated IPV (Stuart, Moore, Kahler, & Ramsey, 2003) and demonstrated good psychometric properties within a sample of men (Burn & Ward, 2005). The RAS had good reliability in the present sample ($\alpha = .89$).

Substance use and problems. The 10-item Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) and the 14-item Drug Use Disorders Identification Test (DUDIT; Stuart et al., 2003) assessed self-reported alcohol and drug (i.e., cannabis, cocaine, hallucinogens, stimulants, sedatives/hypnotics/anxiolytics, opiates, and other substances, for example, inhalants) use and problems in the year prior to BIP entry. Each measure examined the intensity and frequency of use, symptoms of tolerance and dependence, and negative consequences of use. Scores were summed such that higher scores indicated greater use and problems. The AUDIT had excellent reliability and validity across multiple populations (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Both the AUDIT and DUDIT demonstrated good psychometric properties and were used with IPV populations (Stuart et al., 2003). The internal consistencies of the AUDIT ($\alpha = .90$) and the DUDIT ($\alpha = .87$) in the present study were acceptable.

Procedure

The institutional review board of the last author approved the procedures for the study. Participants provided informed consent to participate in the study prior to completing paper-and-pencil questionnaires in small groups during regularly scheduled BIP sessions; no compensation was provided. With regard to BIP programming, data were collected from 53 BIP groups across Rhode Island. The BIP contained 40-hr of group BIP, with content and training of group facilitators dictated by the Batterer Intervention Program Standards Oversight Committee of Rhode Island. The program curriculum included the following: communicating that violence is a serious crime, challenging excuses and justifications for abuse, devising a plan to reduce risk for future abuse, explaining models of abuse, identifying cultural and social influences that contribute to violence, providing communication skills training, discussing the impact of abuse on others, and assigning homework. One group session was dedicated to substance use and its relationship to domestic violence. Participants spread out throughout the group rooms as space allowed to maximize privacy. Questionnaire packets in folders were handed out in random order to interested participants. To ensure privacy, consent forms were kept separately from participant data, and participant identification numbers were

not tracked and were not connected to participant consent form. All questionnaire responses were confidential and not shared with BIP facilitators or anyone within the criminal justice system. Surveys were generally completed in less than 1 hr. Participants were asked to respond to the items based on the 12 months prior to their first BIP session. Participants completed an average of 9.99 ($SD = 6.84$) BIP sessions prior to completing the questionnaires. Bivariate correlations revealed that the number of BIP sessions completed did not significantly relate to any study variables. As such, the number of BIP sessions completed was not included in analyses. The participation rate was 84.03%. Data were collected from approximately 2014 until 2015.

Data Analytic Strategy

Descriptive analyses were conducted using SPSS Version 21.0. We first conducted a one-way analysis of variance to determine whether PPUS total scores differed based on relationship status. To examine potential confounding variables to include as control variables, we conducted bivariate correlation analyses among all study variables. Relationship satisfaction was excluded as a control variable following bivariate correlation analyses as it was not significantly related to IPV perpetration.

We then conducted a regression analysis using Mplus 7.2 to test whether PPUS total scores related to physical and sexual IPV perpetration while controlling for potential confounding variables (i.e., substance use and problems, antisociality, and symptoms of PTSD and depression). Mplus allows a series of structural regression equations to be simultaneously analyzed. That is, the model illustrated in Figure 1 was created by simultaneously regressing physical IPV perpetration and sexual IPV perpetration on PPU, as well as all control variables, at the same time. Full information maximum likelihood estimation (FIML) handled missing data. FIML provided more efficient and less biased estimates than alternative strategies (e.g., pairwise or listwise deletion; Enders, 2010; Kline, 2010). As all possible paths among variables were tested, the model was fully saturated and produced a perfect fit to the data (Kline, 2010). Thus, model fit indices were neither examined nor reported.

Results

Descriptive Statistics

Means, standard deviations, and bivariate correlations are reported in Table 1. A majority of men endorsed at least one concern related to pornography use

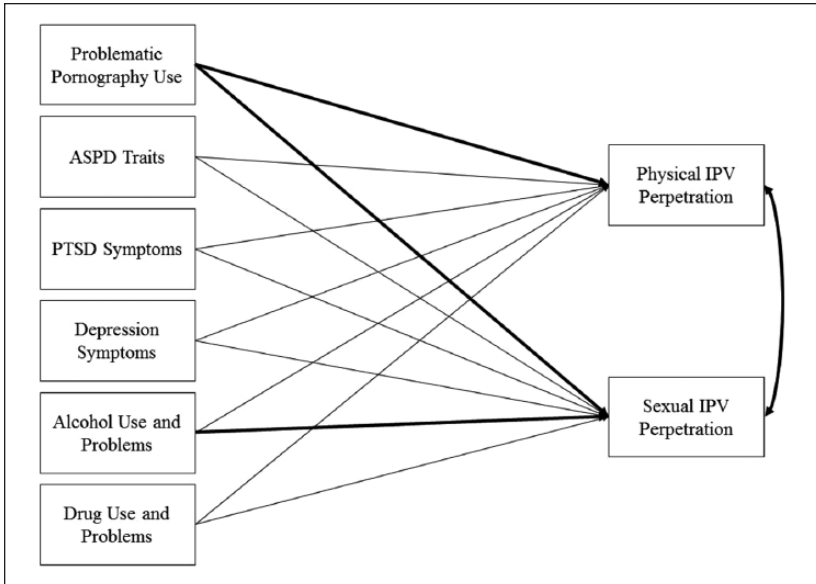


Figure 1. Problematic pornography use is associated with physical and sexual IPV perpetration among men in batterer intervention programs.

Note. Bolded paths were significant at $p < .05$. IPV = intimate partner violence; ASPD = antisocial personality disorder; PTSD = posttraumatic stress disorder.

(51.5%), perpetrating at least one act of sexual IPV (32.2%), and perpetrating at least one act of physical IPV (72.5%) in the year prior to BIP entry; 2.6% of men did not endorse perpetrating any sexual or physical IPV in the year prior to BIP entry. Men's mean PPUS score was 6.55 ($SD = 12.02$), which was comparable to the mean score of adults in the general population, but lower than adults with self-reported functional impairment due to pornography use (A. Allen et al., 2017; Kor et al., 2014). Substance use, antisociality, depression, and PTSD scores were similar to those reported in prior samples of men arrested for domestic violence (Brem et al., 2018; Shorey et al., 2012; Stuart et al., 2003).

PPUS total scores did not differ based on relationship status, $F(6, 327) = 1.33$, ns . No significant associations were found between PPUS total scores and other sociodemographic variables (i.e., age, relationship length, income, and years of education). Examination of bivariate correlations revealed the PPUS total score was positively related to physical IPV perpetration, sexual IPV perpetration, alcohol and drug use and problems, and depression, ASPD, and PTSD symptoms. Both physical and sexual IPV

Table 1. Means, Standard Deviations, and Bivariate Correlations Among Study Variables.

Variable	1	2	3	4	5	6	7	8	9
1 AUDIT	—								
2 DUDIT	.35**	—							
3 Physical IPV	.28**	.36**	—						
4 Sexual IPV	.31**	.14**	.50**	—					
5 Depression	.25**	.30**	.29**	.24**	—				
6 PTSD	.15*	.38**	.26**	.15*	.59**	—			
7 ASPD	.29**	.44**	.29**	.20**	.40**	.54**	—		
8 Relationship satisfaction	-.07	-.06	-.11	-.12	-.29**	-.21**	-.13	—	
9 PPUS	.32**	.31**	.56**	.48**	.30**	.25**	.27**	-.18**	—
M	8.76	6.11	7.32	5.54	5.34	4.77	7.11	22.66	6.55
SD	8.73	7.91	14.01	12.64	5.58	5.27	5.90	6.81	12.02

Note. AUDIT = Alcohol Use Disorders Identification Test; DUDIT = Drug Use Disorders Identification Test; Physical IPV = physical IPV perpetration; Sexual IPV = sexual IPV perpetration; Depression = depression symptoms; PTSD = posttraumatic stress disorder symptoms; ASPD = antisocial personality disorder symptoms; PPUS = Problematic Pornography Use Scale total score.

* $p < .05$. ** $p < .01$.

perpetration were positively related to alcohol and drug use and problems, and depression, ASPD, and PTSD symptoms. Relationship satisfaction was negatively associated with education, depression symptoms, and PTSD symptoms, but was not included as a control variable as it did not associate with any other study variables.

Regression Analyses

Physical IPV perpetration. The model explained 39.6% of the variance in physical IPV perpetration (see Figure 1). Hypothesis 1 was supported. The PPUS total score significantly associated with men's physical IPV perpetration over and above all measures of psychiatric symptoms and substance use and problems (see Table 2). No other variables were significantly associated with physical IPV perpetration.

Sexual IPV perpetration. The model explained 25.7% of the variance in men's sexual IPV perpetration (see Figure 1). Hypothesis 2 was supported. Although alcohol use and problems remained significantly associated with sexual IPV perpetration, the PPUS total score significantly related to men's sexual IPV perpetration after accounting for psychiatric symptomology and substance use and problems (see Table 2).

Table 2. Standardized Coefficients From Problematic Pornography Use and Control Variables to IPV Outcomes.

	IPV Outcomes	
	Physical IPV Perpetration	Sexual IPV Perpetration
Problematic pornography use	.31 (.12)**	.37 (.14)**
ASPD traits	.05 (.16)	.05 (.14)
PTSD symptoms	-.04 (.21)	.01 (.18)
Depression symptoms	.08 (.19)	.07 (.18)
Alcohol use and problems	.00 (.09)	.20 (.10)**
Drug use and problems	.20 (.17)	-.03 (.15)

Note. IPV = intimate partner violence; ASPD = antisocial personality disorder; PTSD = posttraumatic stress disorder.

** $p < .01$.

Discussion

The present study was the first to examine PPU among men arrested for domestic violence and court-ordered to BIP. Results of the present study suggested that PPU positively associated with physical and sexual IPV perpetration after accounting for antisociality, symptoms of PTSD and depression, and substance use and problems. The path from alcohol use and problems to sexual IPV was significant, but paths from all other covariates to physical and sexual IPV were nonsignificant. Findings from the present study were consistent with, and extended, prior research that evidenced an association between pornography use and physical and sexual violence (M. Allen, Alessio et al., 1995; Wright et al., 2016). These data provide a foundation from which future research may investigate mediating mechanisms between PPU and IPV perpetration to inform prevention and intervention efforts.

Results from the present study suggested that men who self-reported higher levels of excessive, compulsive, and uncontrollable pornography use perpetrated more frequent physical and sexual IPV than did men with lower levels of such pornography use. Prior research grounded in script theory posited that pornography use increases one's exposure to sexual scripts that frequently portray physical and sexual violence toward women, and portray women experiencing pleasure in response to such violence (Bridges et al., 2010; Sun et al., 2016). These scripts were theorized to provide a heuristic from which individuals may organize intimate behaviors within romantic relationships. It is plausible that men in the present study who evidenced PPU were more likely to perpetrate physical and sexual IPV due, in part, to their

exposure to problematic, gendered scripts portrayed in pornography. Indeed, qualitative data revealed that many women experienced their partner attempting to imitate humiliating, degrading, and/or violent acts seen in pornography within their intimate relationship (DeKeseredy & Hall-Sanchez, 2017). Some men filmed sex with their partners without their consent, some of whom later used the videotape to maintain control within the relationship postseparation (DeKeseredy & Hall-Sanchez, 2017). Furthermore, pornography use related to nonsexual controlling behaviors among partners of women seeking IPV services, which provided support for an association between PPU and nonsexual forms of IPV (Simmons et al., 2008). These findings, paired with the results from the present study, highlighted the need for additional research investigating how abusive men might use pornography, and the scripts depicted therein, within the context of their romantic relationship to maintain emotional, physical, and sexual control over partners.

Although previous research supported script theory as a plausible framework for interpreting the associations between pornography use and violence toward women (e.g., D'Abreu & Krahe, 2014), recent research examining the function of PPU for men provided an alternative explanation. Wetterneck and colleagues (2012) linked problematic Internet pornography use to impulsivity, compulsivity, and experiential avoidance, all of which associated with IPV perpetration (Romero-Martínez, Lila, Williams, González-Bono, & Moya-Albiol, 2013; Shorey et al., 2014). Prior research linked IPV perpetration to negative affect and poor emotion regulation (Shorey et al., 2015). In addition, some researchers suggested that men engaged in sexually compulsive behaviors, including excessive pornography use, to cope with negative affect (Brem et al., 2017). It is plausible that men with limited adaptive coping resources were more likely to engage in PPU and IPV in response to negative affective experiences. Nonetheless, men who rely on pornography as a mechanism for regulating negative affect may be frequently exposed to the problematic sexual scripts depicted in pornography. Explicating both the function and consequences of pornography use among violent men will be an important aim for future research.

In his review of pornography use within romantic relationships, Rasmussen (2016) suggested that PPU may instead highlight ongoing difficulties within the romantic relationship (e.g., poor communication between partners, fantasies regarding infidelity, low commitment to a partner, withdrawal from the romantic relationship, and decreased sexual satisfaction), of which pornography could be both a cause and a consequence. Furthermore, prior research linked pornography use with extra-dyadic relationships, which may facilitate feelings of betrayal by a partner and conflict within a romantic relationship (Braithwaite, Coulson, Keddington, & Fincham, 2015; Morrisette, 2012). In

other words, the relationship between PPU and IPV perpetration may be indirect and moderated by a number of personal and sociocultural variables that are beyond the scope of the present study. Nonetheless, these preliminary findings provide a basis for future research to examine intrapersonal and contextual factors that may attenuate the pornography-IPV link.

The present study produced the surprising finding that, apart from the path from alcohol to sexual IPV, none of the paths from any of the other covariates to physical or sexual IPV were significant with other paths included in the model. In contrast, prior research supported alcohol as a robust correlate of IPV perpetration among offender samples (Brem et al., 2017; Stuart et al., 2003). It is plausible that other variables measured better captured the variance in physical IPV, especially given that alcohol and drug use and problems positively related to physical IPV at the bivariate level. Given that prior research consistently supported a distal and proximal association between substance use and physical IPV (see Crane, Godleski, Przybyla, Schlauch, & Testa, 2016, for a review; Stuart et al., 2003), this surprising finding is likely sample specific.

Although the present study provided foundational data for the association between PPU and IPV perpetration among men in BIP, there are several limitations to consider when interpreting the results. First, our sample was comprised of primarily Caucasian men who had female partners. These results may not extend to more heterogeneous populations including women who perpetrate IPV, men who have male partners, and men with various ethnic backgrounds. More research is needed to determine whether PPU is associated with IPV perpetration in various populations. Second, our data were collected using a cross-sectional research design, which cannot determine temporal associations between study variables. Longitudinal research designs using event-level research methods (e.g., daily diary design) within a sample of men who perpetrated physical and sexual IPV would provide additional insight into the temporal associations between PPU and IPV perpetration. Although prior longitudinal research with adolescent and young adult samples supported the assertion that pornography exposure occurs prior to sexual aggression (Brown & L'Engle, 2009), and sexual scripts mediated this association (D'Abreu & Krahe, 2014), these findings were not conclusive of a causal relation between PPU and IPV and have not been replicated in a sample of men who perpetrated IPV. Given that our data were collected from men enrolled in BIP using self-report methodology, future research investigating the association between PPU and IPV perpetration may also benefit from collecting supplemental reports of IPV (e.g., partner reports and police records), and collecting data prior to the initial BIP session. Indeed, participants may have had difficulty accurately recalling information prior to the initial BIP

session. Although PPU remained significantly associated with IPV after controlling for well-established IPV risk factors, additional research should examine other potential mediating mechanisms or confounding variables that may account for the present study's results.

Despite these limitations, there are a number of clinical and research implications to be gleaned from the present findings. This was the first study to examine PPU, as opposed to any pornography use, in relation to physical and sexual IPV perpetration among a sample of men in BIP. Data from the present study do not imply that PPU occurred prior to, or in the presence of, physical or sexual IPV. Neither data from the current study, nor data from prior studies, suggested that pornography use proximally preceded or caused IPV perpetration. It remains possible that an unexamined, third variable contributed to both PPU and physical and sexual IPV. Exploring the intra- and interpersonal factors that explain how pornography use transitioned into excessive and problematic use may provide insight into how and why violent men use pornography, as well as its potential consequences on relationship functioning.

This line of research would benefit from further investigation of the function of pornography use for men who perpetrate IPV, as well as their partners' experiences of the effect of pornography use on their relationship functioning. Indeed, given the large percentage of men who consumed pornography weekly, it can be inferred that a number of men with PPU do not perpetrate IPV; more research is needed to investigate factors that strengthen the association between PPU and IPV for some men, and not others. Employing qualitative data collection methodologies within a sample of men arrested for domestic violence may provide insight into potential moderators and mediators of the PPU-IPV association that would benefit both researchers and clinicians. In addition, some forms of pornography (e.g., violent pornography) were suggested to provide a fantasy that, for some criminal offenders, might increase the risk of recidivism (Johnson, 2014). Specifically, Johnson (2014) suggested that pornography may provide a trigger for recidivism for men who perpetrate sex crimes (e.g., rape). While data to support this claim are severely lacking, this supposition highlighted the need for researchers to examine the potential impact of PPU on violent recidivism among men in BIP.

As pornography becomes more accessible and normalized, a broader population may be exposed to misogynistic and violent pornographic content relative to previous generations (Alexy et al., 2009; Price et al., 2016). Such accessibility and normalization may have implications for pornography consumers' romantic relationships, the broader cultural perception of violence toward women, and IPV perpetration. Continued investigation of pornography use broadly, and PPU specifically, within violent and nonviolent populations will be an important endeavor for future research in this domain.

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