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Intimate partner violence as a predictor of substance use outcomes among women: a systematic review

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Abstract

Although the correlation between experience of intimate partner violence (IPV) and substance use among women has been well-established, there is no consensus on whether or how IPV impacts subsequent substance use behaviors or treatment success. To identify research gaps and implications for substance use treatment, we conducted a systematic review to identify and examine evidence on IPV as a predictor of subsequent substance use behaviors, substance use disorders (SUD), and treatment outcomes among women. We included studies published between 2010-2020 that assessed IPV experiences as a predictor of subsequent substance use behaviors (i.e., use initiation, increased use), SUD diagnosis, or treatment outcomes (i.e., incomplete treatment, relapse) among women. From 576 unique records, we included 10 studies (4 longitudinal, 4 cross-sectional, 2 qualitative). Alcohol use and alcohol use disorder were the most commonly studied outcomes (n=6); findings were mixed regarding the significance of IPV being associated with subsequent alcohol outcomes. Three studies examined illicit drug use, finding that physical and sexual IPV predicted crack/cocaine use and were associated with SUD diagnoses. Four studies examining SUD treatment outcomes found IPV to impede treatment engagement and completion, increasing the likelihood of relapse. To our knowledge, this is the first systematic review of the literature on IPV as a predictor of substance use behaviors and treatment outcomes among women. Findings highlight the need for diverse SUD treatment modalities to incorporate IPV screening and referral to appropriate services into their programming to improve SUD management and the overall health and wellbeing of women.

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Keywords

substance-related disorders; treatment outcome; recurrence; intimate partner violence; women; review

1. INTRODUCTION

In the past two decades, increasing prevalence of unhealthy substance use and related morbidity and mortality among women has led to increased attention to women's substance use and sex and gender differences in substance use disorder (SUD) treatment outcomes (CDC, 2015; McHugh, Votaw, Sugarman, & Greenfield, 2018; Meyer, Isaacs, El-Shahawy, Burlew, & Wechsberg, 2019; NIDA, 2018). Globally, there are documented gender disparities in SUD treatment access, with one-third of SUD diagnoses being among women but only one in five individuals in treatment being women (United Nations Office on Drugs and Crime, 2015).

Women who use substances often experience comorbid physical and mental health conditions, as well as economic hardship, homelessness, trauma, and violence, all of which interfere with SUD treatment engagement and increase the risk of relapse (Khazaee-Pool, Pashaei, Nouri, Taymoori, & Ponnet, 2019; McHugh et al., 2018; Meyer et al., 2019; United Nations Office on Drugs and Crime, 2020). Intimate partner violence (IPV), defined as psychological, physical, or sexual aggression from a current of former intimate partner, is particularly pervasive among women, with approximately one in three women experiencing IPV in their lifetime (Smith et al., 2018; WHO, 2013). IPV has been linked to numerous acute and chronic physical and mental health problems including chronic pain, posttraumatic stress disorder (PTSD), and substance use (Breiding, Black, & Ryan, 2008; Dillon, Hussain, Loxton, & Rahman, 2013; Sugg, 2015).

Associations between IPV and substance use among women have been widely documented, with many studies identifying increased prevalence of IPV among women with SUD and women seeking SUD treatment (Campbell et al., 2003; El-Bassel, Gilbert, Witte, Wu, & Chang, 2011; Engstrom, El-Bassel, & Gilbert, 2012; Schneider, Burnette, Ilgen, & Timko, 2009). IPV may affect women's substance use and treatment-related behaviors and outcomes through direct or indirect pathways as partners may coerce women to use substances (Warshaw, Lyon, Bland, Phillips, & Hooper, 2014). IPV can also result in psychological trauma or other mental health outcomes that lead to substance use as a coping mechanism (Gielen, Krumeich, Tekelenburg, Nederkoorn, & Havermans, 2016; Khantzian, 1997; Levy, 2019; Lewis et al., 2015). Abusive partners may also inhibit women's ability to access or stay engaged in SUD treatment services (Rodriguez, Valentine, Son, & Muhammad, 2009; K. S. Wilson, Silberberg, Brown, & Yaggy, 2007).

Prior reviews of existing evidence have identified relationships between IPV and substance use among women, though this work has been limited in scope and may benefit from updates to include newer research. Physical and sexual IPV experience has been associated with unhealthy alcohol use among women (Devries et al., 2014). Another review and meta-analysis demonstrated a relationship between IPV and subsequent drug use (i.e., heroin) but

not alcohol use among women (Bacchus, Ranganathan, Watts, & Devries, 2018). Not only were these meta-analyses restricted to certain types of substances or timeframes in which IPV occurred, they also omitted qualitative research. An improved understanding is needed of how specific forms of IPV (i.e., psychological, physical, or sexual) influence use of distinct substances (e.g., alcohol, opioids, psychostimulants) and SUD treatment outcomes. Such an understanding could help inform improved, tailored strategies for addressing IPV in the contexts of SUD screening and treatment, care coordination, and interventions for specific populations of women (Meyer et al., 2019; Weaver, Gilbert, El-Bassel, Resnick, & Noursi, 2015). We thus undertook a systematic review of qualitative and quantitative evidence on the role of specific forms of IPV as a predictor of subsequent substance use behaviors and SUD treatment outcomes among women.

2. METHODS

2.1 Study Design

Guided by the 2009 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist (PRISMA, 2015), we conducted a systematic review of recent literature on how IPV impacts subsequent substance use behaviors and SUD treatment outcomes among adult women. To enhance the relevance of our findings for current SUD treatment programs, we limited our literature search to studies published since 2010. To identify statistical associations as well as contextual factors and potential mechanisms of action, we included both quantitative and qualitative studies describing women's experiences with IPV and the subsequent use of alcohol, tobacco, marijuana, and illicit drugs as well as SUD treatment outcomes.

2.2 Data Sources

We utilized Embase and PubMed/MEDLINE databases to search for peer-reviewed studies published in English from January 1, 2010 to September 25, 2020. We included search terms related to IPV (e.g., "intimate partner violence," "battered women," and "domestic violence"), substance use (e.g., "drinking," "substance use," and "cannabis use"), relationship of IPV and substance use (e.g., "intersectionality," "syndemic," and "comorbidity"), substance use disorders (e.g., "substance-related disorders," and "alcoholism"), and other substance use treatment outcomes (e.g., "relapse," and "recurrence"). We used Emtree and MeSH terms to expand all search terms in order to conduct comprehensive searches within their respective databases.

2.3 Eligibility Criteria

We screened all unique articles identified from the two databases for topical relevance and eligibility through a two-stage process. First, we removed duplicate records and screened titles and abstracts to assess eligibility, which included the following characteristics: 1) study sample consisted of adult (≥18 years old) women; 2) IPV was conceptualized as an exposure variable (quantitative) or discussed in the context of substance use (qualitative) ; 3) substance use (i.e., use of alcohol, tobacco, opioids/heroin, crack/cocaine), SUD, or SUD treatment-related measures (e.g., treatment completion, relapse) were outcomes of interest; 4) if cross-sectional, the assessed period for IPV preceded the assessed period for substance

use. Second, articles retained after the first stage underwent a full text review to confirm eligibility. The review included all articles that met the eligibility criteria.

2.4 Data Abstraction

As this review included both quantitative and qualitative studies, data abstracted for all articles included general study information (e.g., study design, setting, population, measures assessed quantitatively or topics explored qualitatively) and main findings (e.g., measures of risk, thematic findings) related to IPV experience and impact on substance use behaviors, SUD diagnoses, and SUD treatment outcomes.

3. RESULTS

As detailed in Figure 1, database searches identified 344 records in Embase and 267 in PubMed/MEDLINE, resulting in 576 unique records once 37 duplicate records were removed. After article titles were screened for topic relevance, we screened 97 abstracts and excluded 68 records, primarily because IPV was not the exposure (n=24) and substance use was not an outcome of interest (n=21). The remaining 29 articles underwent a full-text review. At this stage, we removed an additional 19 articles for the following reasons: IPV was not the exposure and/or substance use was not an outcome, the assessed IPV referent period did not precede the substance use outcome(s) referent period, women's substance use was not assessed (only partner substance use), and experience of IPV was not assessed (only use of violence). We deemed the remaining ten articles to be eligible for inclusion in this review.

3.1 Overview of Included Studies

Of the ten studies included in this review, eight were quantitative and two were qualitative (Table 1). All studies were published between 2010 and 2020, with data collection occurring from 1999 to 2018. Eight studies were conducted in the United States (Dichter et al., 2017; Gilbert, El-Bassel, Chang, Wu, & Roy, 2012; Golder & Logan, 2011; Lipsky et al., 2010; Nydegger & Claborn, 2020; Pallatino, Chang, & Krans, 2019; Sullivan, Ashare, Jaquier, & Tennen, 2012), one in South Africa (Reed, Myers, Novak, Browne, & Wechsberg, 2015), and one in Japan (Yoshihama, Horrocks, & Bybee, 2010). Of the eight quantitative studies, four were cross-sectional (Golder & Logan, 2011; Iverson et al., 2015; Sullivan et al., 2012; Yoshihama et al., 2010) and four were longitudinal (Dichter et al., 2017; Gilbert et al., 2012; Lipsky et al., 2010; Reed et al., 2015). Six quantitative studies assessed associations between IPV experiences and subsequent substance use behaviors or SUD diagnoses, with two studies focusing on alcohol outcomes only (Iverson et al., 2015; Sullivan et al., 2012), one on alcohol and tobacco outcomes (Yoshihama et al., 2010), one on alcohol and crack outcomes (Golder & Logan, 2011), and two on alcohol and various other drug outcomes (Dichter et al., 2017; Gilbert et al., 2012). The studies relied almost exclusively on self-reported substance use, with only one study using clinical diagnoses (Dichter et al., 2017) and one using biologically-confirmed measures (Reed et al., 2015). Two quantitative studies assessed associations between IPV experiences and subsequent SUD treatment outcomes including treatment completion and re-entry within one year of discharge (Lipsky et al., 2010), and drug abstinence at 12-month follow-up (Reed et al., 2015). The qualitative

studies utilized semi-structured interviews to explore how experiences of IPV impacted subsequent substance use treatment seeking, recovery experiences, and "self-medication" behaviors involving substance use as a coping mechanism (Nydegger & Claborn, 2020; Pallatino et al., 2019).

Studies' assessment of IPV used various approaches, including validated measures and clinical screening tools such as the Revised Conflict Tactics Scale (CTS2; Gilbert et al., 2012; Nydegger & Claborn, 2020; Sullivan et al., 2012) and the Extended-Harm, Insult, Threaten, Scream (E-HITS) instrument (Dichter et al., 2017; Iverson et al., 2015). Studies also used investigator-created sets of questions on the forms and frequency of IPV (Golder & Logan, 2011; Reed et al., 2015; Yoshihama et al., 2010), and one used a single-item measure of current IPV experience asked on an intake form for a publicly-funded SUD treatment program (Lipsky et al., 2010). In analyses, specific forms of IPV (e.g., psychological/verbal, physical, sexual) were often considered together as single, dichotomous exposure measures of "any IPV" (Dichter et al., 2017; Iverson et al., 2015), while some studies excluded psychological IPV, evaluating physical and/or sexual IPV only (Reed et al., 2015; Yoshihama et al., 2010). Studies used various referent time periods for assessing IPV experiences, including the past three months (Nydegger & Claborn, 2020; Sullivan et al., 2012), past six months (Gilbert et al., 2012; Reed et al., 2015), past year (Dichter et al., 2017; Iverson et al., 2015), and lifetime (Golder & Logan, 2011; Yoshihama et al., 2010). In addition to assessing lifetime experience, Yoshihama and colleagues also assessed the age of first IPV experience. Both qualitative studies asked participants to describe their IPV experiences in semi-structured interviews using a variety of open-ended questions and probes (Nydegger & Claborn, 2020; Pallatino et al., 2019).

3.2 IPV as a Predictor of Substance Use Behaviors or SUD Diagnosis Outcomes

Alcohol use was the most common outcome among the included studies, with six studies assessing alcohol use or alcohol use disorder (AUD) as outcomes of interest. These studies had mixed findings regarding the significance of IPV predicting subsequent alcohol-related outcomes, with only three of the six studies identifying significant associations between IPV and alcohol use or AUD (Dichter et al., 2017; Sullivan et al., 2012; Yoshihama et al., 2010). For example, while any lifetime IPV experience was associated with recent (past month) heavy drinking among women in Japan (Yoshihama et al., 2010), it was not associated past 24-month drinking in a U.S. sample (Golder & Logan, 2011). However, there were differences in how alcohol use was assessed: a continuous measure of drinking frequency compared to a binary cut-off (i.e., number of drinks determined to be "heavy drinking" based on national guidelines). Three of the studies found no associations between recent IPV experience (ranging from past-year to past three months) and subsequent alcohol use. In adjusted analyses, Gilbert and colleagues (2012) found no associations between any form of baseline past six-month sexual, physical, injurious, or verbal IPV (separately or combined) with alcohol use at six- or 12-month follow-up assessments. Iverson and colleagues (2011) found no association between past-year IPV and current alcohol dependence (assessed via the 10-item Alcohol Use Disorders Identification Test (AUDIT); WHO, 2001) among women receiving care at the Veterans Health Administration (VHA). However, Dichter and colleagues (2017) found that women at the VHA who screened positive for past-year IPV

had greater odds of AUD in the subsequent six months [AOR 2.58 (1.90-3.51)] than those who had screened negative. Additionally, in a sample of women who had experienced IPV, Sullivan and colleagues (2012) conducted one of the few studies that considered severity of IPV, finding that women who had experienced any severe IPV (as assessed by the CTS2, Sexual Experiences Survey, and Psychological Maltreatment of Women Inventory; Koss & Oros, 1982; Straus, Hamby, & Warren, 2003; Tolman, 1989) in the past three months had greater current hazardous alcohol use ($\beta = .28$, $p < .05$) and higher odds of current alcohol dependence [AOR 1.55 (1.55-2.29)] than those who had experienced less severe IPV. However, there were no associations between specific forms of IPV (i.e., sexual or physical) and drinking behaviors (Sullivan et al., 2012).

One study (Yoshihama et al., 2010) also examined tobacco outcomes in addition to alcohol-related outcomes. The study found that women with lifetime experience of sexual or physical IPV had increased risks of ever smoking (ARR 1.49, $p<0.001$), current smoking (ARR 1.64, $p<0.001$), and initiating smoking after experiencing IPV [ARR 2.3 (1.44-3.67)] compared to women who had never experienced IPV

Three studies examined outcomes related to use of “illicit drugs” (including non-prescribed substances other than alcohol or cannabis) and also had mixed findings regarding associations between IPV and subsequent drug use outcomes. Golder and Logan (2011) found that lifetime experience of psychological and physical IPV were associated with recent (past 24-month) crack use (there were no significant associations between sexual, stalking, or any IPV and crack use). While Gilbert and colleagues (2012) found past-six-month sexual IPV at baseline to be associated with increased risk of subsequent crack/cocaine use [ARR 3.27 (1.13-9.48)] and combined crack/cocaine and heroin use [ARR 2.36 (1.16-4.80)] at six and 12-month follow-up, no other forms of IPV (physical, injurious, verbal) were significantly associated with subsequent crack/cocaine, heroin, or combined crack/cocaine and heroin use. Additionally, past-year IPV among women at the VHA was associated with higher odds of having a SUD diagnosis [AOR 3.19 (2.33-4.37)] in the following six months than those who did not experience past-year IPV (Dichter et al., 2017).

3.3 IPV as a Predictor of SUD Treatment Outcomes

Four studies, two quantitative, analyzed the effects of IPV on SUD treatment outcomes, providing evidence on the role of IPV in challenging SUD treatment success. Lipsky and colleagues (2010) found that women who were experiencing IPV at treatment entry were 25% less likely than those not experiencing IPV to complete their recommended treatment programs. Reed and colleagues (2015) found that, compared to those not reporting any IPV experience, women reporting past six-month physical or sexual IPV at treatment entry had a 40% reduced likelihood of abstinence from any substance use (methamphetamine, methaqualone, cocaine, opiates, marijuana, and alcohol) at 12-month follow-up.

The two included qualitative studies provided additional illumination of the mechanisms through which IPV may impact substance use and SUD treatment outcomes. Pallatino and colleagues (2019) interviewed women diagnosed with opioid use disorder (OUD) to explore how their IPV experiences influenced their drug use or engagement in medications for opioid use disorder (MOUD; e.g., methadone, buprenorphine). The study

identified psychological IPV as challenging women's engagement in MOUD. For example, participants noted ways in which abusive partners interfered with their recovery through undermining rather than supporting their self-esteem and self-confidence. Financial and physical abuse not only hindered women's financial independence but also contributed to continued use of opioids and/or other drugs. Additionally, participants described using substances to cope with IPV experiences as they would use immediately following an altercation as a way to deal with stress or emotional sequelae, while others discussed the lasting mental health impacts of IPV as needing to "numb" the psychological pain and spurring relapse.

Nydegger and Claborn (2020) also found that women used substances to cope with IPV experiences. This longitudinal study involved semi-structured interviews over six months that explored structural, social, and individual factors contributing to substance use among Black women, comparing those who stopped using their primary substance to those who made no changes to their substance use (including alcohol, marijuana, or other drugs). All participants reported experiencing IPV at some point in their lives and using substances to cope with those experiences. However, differences emerged between the two subsamples, with more participants who continued using their primary substance describing their substance use as instrumental in helping them cope with the distress and trauma resulting from their IPV experiences. Consistent with Pallatino and colleagues' (2019) study, participants also described using substances to feel "numb."

4. DISCUSSION

Through the synthesis of recent research on IPV as a predictor of substance use and treatment-related outcomes among women, we found evidence that IPV is associated with subsequent substance use, SUD diagnoses, and treatment outcomes. The limited research in this area reveals mixed findings regarding the impact of IPV on various substance use outcomes, and the cross-sectional study designs limit the ability to draw causal conclusions. However, our inclusion of qualitative studies helps contextualize and further describe the underlying mechanisms through which IPV could impact substance use and treatment-related outcomes among women. Despite being unable to adequately assess the temporal relationship between IPV and subsequent substance use and SUD treatment outcomes, the state of the evidence lends itself to important implications for research and practice.

4.1 Implications for Research

This review highlights the need for improved evidence on the influence of IPV and subsequent substance use-related outcomes through the identification of several research gaps. First, there is a persistent lack of clarity around the types and timing of IPV that are most likely to lead to substance use among women. The contrasting results found in the included studies may have resulted from the varying measurement methods employed. For example, different methods used to assess IPV (e.g., timeframes ranging from lifetime experience to past three months) and alcohol-related outcomes may have contributed to divergent findings across studies. These inconsistencies were identified in reviews of earlier evidence supporting the association between lifetime sexual/physical IPV (Devries et al.,

2014) but not for recent (occurring within the past 12 months) IPV and alcohol use (Bacchus et al., 2018).

Second, differences in the types and forms of substance use among women who have experienced IPV are not well understood. We found sparse recent evidence on the role of IPV influencing the use of drugs other than alcohol that are known to cause health and social harms (e.g., methamphetamine, heroin, opioids). Importantly, in the context of the ongoing opioid and polysubstance use crises (Mathers et al., 2013; Wilson, Kariisa, Seth, Smith, & Davis, 2020), more research is needed on the role of IPV in shaping the unhealthy use of a broader array of substances. For example, some research focused on multiple "illicit" drugs combined together. To maximize the public health utility of research findings, studies should carefully and precisely conceptualize and measure outcomes relating to these "other" or "illicit drugs" and avoid aggregating multiple drugs together (i.e., specific drugs or classes of drugs with the highest local relevance can be assessed with respect to potential IPV predictors). Furthermore, in many contexts, "illicit" is a potentially stigmatizing term that lacks precision (e.g., prescribed opioids may not be "illicit" but can still be addictive and harmful if overused).

Third, the need to further explore the underlying mechanisms through which IPV influences substance use outcomes among women. We identified few qualitative studies on this subject which prevents a full understanding of women's motivations for substance use and other mechanisms of action. The two qualitative studies we included (Nydegger & Claborn, 2020; Pallatino et al., 2019) provided insight into the various mechanisms women's partners can interfere with their substance use treatment either through direct partner interference, psychological abuse that impedes self-confidence or self-worth, or self-medication to cope with experiences of abuse. This suggests a need for future quantitative research that could take what we learned about women's motivations and mechanisms for substance use in the qualitative studies to analyze specific partner behaviors (i.e., partner not allowing women to attend treatment or diminishing their confidence/self-worth) that may or may not significantly contribute to substance use behaviors or SUD treatment outcomes.

The qualitative findings also align with what human and animal studies have discovered about sex and gender differences in substance use and its severity of consequences, which further illuminate mechanisms of action that lead to substance use among women. Evidence suggests that females are more likely to use substances in response to stress than males (Becker & Koob, 2016; McHugh et al., 2013, 2018; Peltier et al., 2019) and may be more susceptible to relapse and cravings (Fox, Morgan, & Sinha, 2014; Kennedy, Epstein, Phillips, & Preston, 2013; Kippin et al., 2005). In the particular context of the opioid crisis, women experience higher opioid-related cravings, hospitalizations, and opioid-related overdose incidents than men (Back et al., 2011; Hedegaard, Warner, & Miniño, 2017; Weiss et al., 2014). More broadly, research has also found that women can also be socially influenced or coerced to use substances by intimate partners who use substances. Women can rely more on their partners to facilitate their use, such as in the case of injection drug use in which women may need assistance with drug procurement and injection, factors that are also associated with IPV and drug-related overdose (Bryant, Brener, Hull, & Treloar, 2010; El-Bassel et al., 2019; Simmons & Singer, 2006).

Fourth, additional social and cultural context is needed for understanding the documented associations between IPV and subsequent SUD treatment outcomes among subpopulations of women. The two studies included here (Nydegger & Claborn, 2020; Pallatino et al., 2019) provided insight into how recent and lifetime IPV experiences contribute to women's substance use and poor SUD treatment outcomes. However, both samples were from very specific populations, postpartum women (Pallatino et al., 2019) and Black women at high-risk for contracting HIV (Nydegger & Claborn, 2020), calling for more research among different populations.

4.2 Implications for Service Delivery

Despite the limitations of existing studies, the findings from our review have important implications for future research and service delivery. The evidence regarding the adverse impacts of IPV on SUD treatment-related outcomes illuminates the ways in which the impacts on health extend beyond substance use into access to recovery and indicates a need for expansion of care to support those who experience IPV. Impacts of IPV on SUD treatment access and outcomes is problematic given the high prevalence of IPV in SUD treatment-seeking populations. For example, identifying the role of IPV in client's access to treatment engagement may lead to tailored care that can address the IPV-related barriers. Notably, other impediments to treatment may also be at play. Systemic social and financial inequities among Black, Hispanic and other people of color have contributed to lower treatment retention and completion rates than their white counterparts (Guerrero, Amaro, Kong, Khachikian, & Marsh, 2021; Saloner & Cook, 2013), indicating the need for increased access to low-barrier services and culturally-sensitive care and treatment.

It may be beneficial for IPV screening and treatment referral to occur systematically in substance use treatment programs given the evidence on IPV interfering with treatment engagement and longer-term recovery. Concurrently addressing IPV experiences and resulting mental health conditions may assist in substance use treatment adherence and successful management of SUD, while also improving overall health and wellbeing. However, this integration of services is not widely implemented. A meta-analysis of the few (n=11; nine of which were from the U.S. Substance Abuse and Mental Health Services Administration's Women and Co-occurring Disorders and Violence study) interventions that integrated services that addressed co-occurring substance use and IPV among women, found greater reductions in substance use among women who were experiencing current IPV than those who had experienced IPV in the past (Fowler & Faulkner, 2011). A more recent review of interventions that aimed to reduce PTSD symptoms and substance use among with women who experienced IPV found 20 trials that aimed to address the co-occurring disorders and some evidence that a reduction in PTSD symptoms can lead to reduced substance use, supporting the concept of PTSD as a mechanism of action (Bailey, Trevillion, & Gilchrist, 2019). However, they found additional pathways that led to substance use, including the self-medication hypothesis (Khantzian, 1997), coping skills (e.g., safety planning, self-care, and addressing negative self-talk), social supports (e.g., family, friends, and peers), and emotional regulation.

The limited evidence supporting the various pathways of substance use among women who experience IPV warrants more research to explore the impact of how treating IPV (e.g., empowerment counseling, safety planning, advocacy) affects substance use behaviors. Furthermore, more research is needed to further differentiate between types of SUD or treatment modalities (e.g., women in treatment for use of alcohol, marijuana, methamphetamine, and opioids were combined together in analyses) in order to tailor treatment interventions.

4.3 Limitations of the Review

Although we conducted a thorough search of the global literature, the review is not without limitations. Only one reviewer utilized two of the largest biomedical research databases to capture articles published within the past decade to determine eligibility for inclusion and abstract relevant data. However, the reviewer went through the process twice and conferred with a second reviewer whenever there was uncertainty about inclusion. Due to language limitations of the research team, our review included studies published in English only. Additionally, our review focused on women as they often experience co-occurring IPV and SUD, thereby leaving a gap in research synthesis for gender non-binary populations that experience high levels of discrimination, IPV, and psychological trauma that may result in unhealthy substance use (Hughto et al., 2021; Liszewski, Peebles, Yeung, & Arron, 2018)

5. CONCLUSIONS

To our knowledge, this was the first systematic review of evidence on the role of IPV as a predictor of subsequent substance use-related outcomes among women. The ten studies we identified investigated wide-ranging associations between various forms of IPV and substance use outcomes; however, due to study design and inconsistencies in measurement of IPV we are unable to draw causal conclusions. While the studies included in this review could not establish a causal link between IPV and subsequent substance use among women, overall, this literature identified temporal associations that support prior assumptions on the direct (i.e., coercion) and indirect (i.e., self-medication or distress coping behaviors) pathways that link IPV and substance use. There is need for quantitative and qualitative evidence to further uncover the mechanisms through which IPV impacts substance use behaviors and SUD treatment outcomes. Nevertheless, our findings highlight the need for diverse SUD treatment modalities to incorporate IPV screening and response into their programming to improve SUD management and wellbeing among women affected by IPV and SUD.

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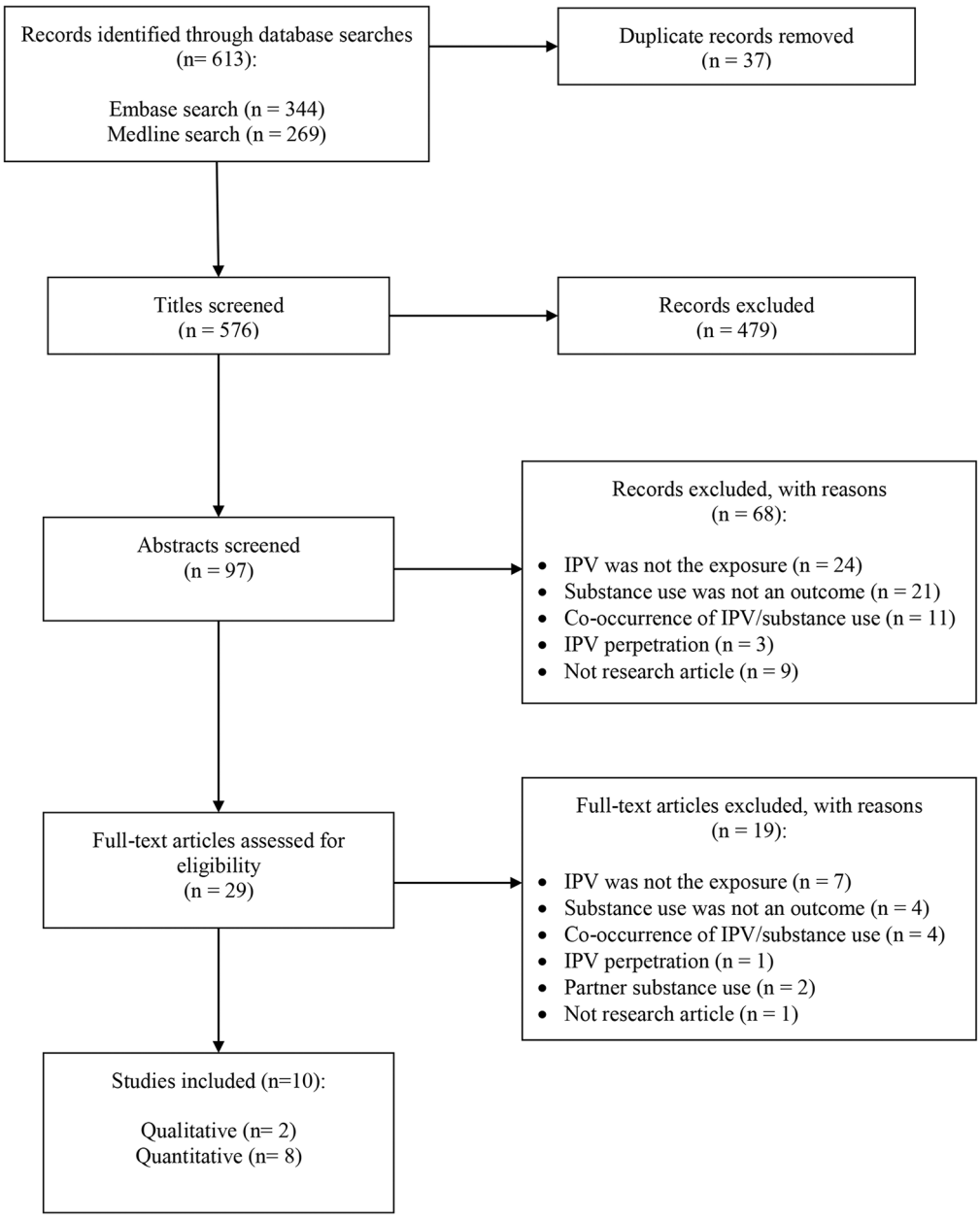

Figure 1.
Flow Diagram of Included and Excluded Publications

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Table 1

Synthesis of Literature on Intimate Partner Violence as a Predictor for Substance Use Outcomes

Authors and Publication Date	Sample Population & Study Period	Number of Participants	Study Design	Measures	Main Findings
Lipsky, et al. (2010)	Women admitted for substance use treatment at a Washington State publicly funded facility 2004 to 2007	31,829	Longitudinal quantitative study	**IPV:** 1 question – current experience reported at treatment entry **Co-occurring mental health problem:** at least one of the following – received mental health care within the past year; currently taking psychiatric medications; or was diagnosed with a psychological problem, was referred to be psychologically evaluated, or needed a reevaluation **Treatment re-entry:** began treatment again within a year after discharge **Substance use treatment completion:** at recommended level of care for index event	• Co-occurring mental health issues decreased the odds of substance use treatment completion by 30% • IPV experience decreased the odds of substance use treatment completion by 24% • Co-occurring mental health issues increased risk for program re-entry within one year of discharge by 12%, but experience of IPV was not significant
Yoshihama, Horrocks, & Bybee (2010)	Women in Yokohama, Japan who participated the WHO Multi-County Study of Women's Health and Domestic Violence 2000 to 2001	2,400, population-weighted sample	Cross-sectional quantitative study	**IPV:** questions for each of 6 acts of physical violence and 3 acts of sexual violence were combined to lifetime experience of physical or sexual violence or both; also reported at what age they first experienced IPV **Tobacco use:** ever smoked if not currently and current smoking – daily or occasionally; also asked at what age smoking began **Alcohol use:** questions on types and amounts of alcohol typically consumed on the days they drank in the past 30 days and dichotomized as heavy or non-heavy drinking, based on standardized measure in Japan	• Lifetime experience of sexual or physical IPV was associated with ever smoking (ARR 1.49, p<0.001) and current smoking (ARR 1.64, p<0.001) • Risk of initiating smoking after experiencing IPV was 2.3 (1.44-3.67) higher than women who had not experienced IPV • IPV was not associated with any drinking • Women who had lifetime experience of IPV were more likely to be a heavy drinker (ARR 1.97, p=0.019) • There was no significant risk of initiating drinking following IPV [HR 0.87; (0.57-1.33)]
Golder & Logan (2011)	Women who completed the Kentucky NIDA AIDS Cooperative Agreement and had opposite sex partners within 30 days prior to the program and had crack/cocaine use 02/1999 to 08/2002	149	Cross-sectional quantitative study	**IPV:** types of IPV measured by summative response to specific acts for each type (psychological, physical, sexual, stalking), which formed dichotomous y/n measuring any lifetime experience of IPV and individual types (psychological, physical, sexual, stalking) **Substance Use:** crack and alcohol use over the past 24 months; patterns of substance use were coded from 1 (1-2 times per month; never to extreme intoxication) to 12 (almost every day; usually to extreme intoxication)	• Lifetime experience of psychological IPV, physical IPV, and loneliness predicts recent crack use (they account for about 11% of crack use variance) • None of the other types of IPV (stalking, sexual, any) or IPV frequency or number of violent partners did not predict crack use • Lifetime experience of any of the IPV variables do not predict recent alcohol use
Gilbert, El-Bassel, Chang, Wu, & Roy (2012)	Low-income women in the Bronx, New York who had injurious emergency department visits	241	Longitudinal quantitative study	**IPV (baseline):** CTS2 for occurrence and frequency of sexual, physical, injury-related, and verbal abuse in the past six months, assessed individually and combined for a measure of any	• Experience of sexual IPV significantly associated with subsequent crack/cocaine [ARR 3.27 (1.13-9.48)] and hard drug use [ARR 2.36 (1.16-4.80)]

Authors and Publication Date	Sample Population & Study Period	Number of Participants	Study Design	Measures	Main Findings
	2001 to 2013			IPV **Substance use (6 and/or 12-month follow-up):** Drug Use and Risk Behavior Questionnaire for frequency counts of alcohol, heroin, crack, cocaine, marijuana and/or other drug use in the past six months, assessed individually and a combination of crack, cocaine, or heroin use for hard drugs	• Women who experienced injurious IPV were less likely to report subsequent marijuana use [ARR 0.53 (0.31-0.93)] and any illicit drug use [ARR 0.68 (0.46-0.99)] • No associations found with other forms of IPV (verbal, or physical, or any IPV) and subsequent drug use once adjusting for covariates
Sullivan, Ashare, Jaquier, & Tennen (2012)	Women in New England who recently experienced (past 3 months) IPV 2007 to 2010	143	Cross-sectional quantitative study	**IPV:** CTS2 for physical IPV; SES and PMWI for more comprehensive information about sexual and psychological IPV respectively; assessed past 3 months IPV **Alcohol use:** AUDIT for current patterns of hazardous, harmful, or dependent drinking; and DSM-IV Alcohol Dependence SCID for current dependence disorder	• Recent greater IPV severity associated with greater hazardous alcohol use (β = .28, $p <$ .05) and current alcohol dependence [AOR 1.55 (1.05-2.29)] • PTSD symptom severity identified as a mediator for the relationship between physical IPV severity and hazardous, harmful, and dependent alcohol use • Psychological and sexual IPV were not associated with any alcohol variables
Iverson, et al. (2015)	New England Veterans Health Administration female patients who had an intimate partner in the past year 2012	160	Cross-sectional quantitative survey	**IPV screen:** HITS score ≥6 for past-year IPV **Alcohol use:** AUDIT ≥8 for positive screen for current dependence	• Past-year IPV positive screen was not associated with current alcohol dependence after adjusting for covariates [AOR 2.88 (0.94-8.82)]
Reed, Myers, Novak, Browne, & Wechsberg (2015)	Women in Cape Town, South Africa who had used at least two drugs at least once a week in the past 3 months and were part of a randomized clinical trial for integrated HIV and drug risk-reduction program in low-income communities 2008 to 2012	603	Longitudinal quantitative study	**IPV:** physical and sexual IPV assessed through individual acts of violence over the past 6 months; decreased IPV determined as those who reported any IPV at baseline and no IPV at 12-month follow-up **Drug abstinence:** biologically confirmed abstinence from all drugs: methamphetamine, methaqualone, cocaine, opiates, and marijuana, and recent alcohol use tested with a breathalyzer	• Those who experienced baseline IPV (physical or sexual) had a 40% reduced likelihood of drug (methamphetamine, methaqualone, cocaine, opiates, and marijuana) abstinence at 12-month follow-up [AOR 0.6 (0.4-0.9)] • Those who experienced a decrease in IPV over the one-year period did not have different outcomes from those who experienced continued IPV
Dichter, et al. (2017)	Veterans Health Administration female patients who were screened for past-year IPV across 11 U.S. facilities 04/2014 to 04/2016	8888	Longitudinal quantitative study	**IPV:** E-HITS score ≥7 for past-year IPV **Substance use:** ICD-9 and ICD-10 diagnostic codes for alcohol or drug abuse within the six months following the IPV screen	• Women had higher odds of being diagnosed with drug and alcohol abuse following a positive IPV screen than those who had screened negative [AORs 3.19 (2.33-4.37) and 2.58 (1.90-3.51) respectively]

Authors and Publication Date	Sample Population & Study Period	Number of Participants	Study Design	Measures	Main Findings
Pallatino, Chang, & Krans (2019)	Women in Pittsburgh, PA who participated in a postpartum contraception clinical trial with opioid use disorder 09/2017 to 01/2018	40	One-time semi-structured interviews	**IPV:** participant characterization of violence/ abuse in their intimate relationship and description of physical and non-physical violence **Opioid treatment:** participant description of a partner who has interfered with seeking or continuing drug treatment or recovery	• Psychological abuse impeded women's engagement in their recovery • Women continued substance use to cope with IPV experience • Participants described IPV as the catalyst for substance use behaviors (including relapse)
Nydegger & Claborn (2020)	Black women in Milwaukee, WI who were at high-risk for HIV and either experienced IPV in the past 3 months or engaged in problematic substance use in the past 30 days 07/2016 to 04/2017	31	Longitudinal qualitative study (four interviews over six months)	**IPV:** CTS2 to assess physical, sexual and psychological IPV in the past 3 months **Substance use:** (for eligibility) any illicit drug use, 8+ drinks of alcohol/week or 4+ drinks on one occasion, or marijuana use 14+ times/month in the past 30 days **Self-medicate:** participant description of misusing substances in response to mental health symptoms **Recovery:** participant description of alcohol or drug misuse or addiction in their past for at least 3 months and did not relapse by misusing that substance (drug of choice) again	• 18 reported alcohol misuse, 17 marijuana misuse, and 6 used illicit substances • All women had used substances to cope with IPV in their lifetimes • Women who were in recovery from their drug of choice reported more IPV in their past but were less likely to currently use substances as a means to cope with stress • Women who were actively using their drug of choice reported less prior IPV but more substance use in response to IPV • Over the 6-month period, women in the recovery group did not relapse (drug of choice) or increase other substance use in response to IPV, while those who were actively using their drug of choice alternated between excessive alcohol and marijuana use