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Risk Factors Associated with Depressive Symptoms among Women Experiencing Intimate Partner Violence

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RISK FACTORS ASSOCIATED WITH DEPRESSIVE SYMPTOMS AMONG WOMEN
EXPERIENCING INTIMATE PARTNER VIOLENCE

by

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Abstract

One in three women endure intimate partner violence (IPV), with common consequences relating to depression and substance use. The co-occurring relationships of these factors have received limited empirical attention. This study examined how risk factors of IPV, stressful life events, and problematic substance use were related to depressive symptoms among women who have experienced IPV in the past 6 months. Participants included 112 women (M_{age}=32.26; 67% Black) recruited from community organizations in the U.S. Midsouth. Results from a hierarchical multiple regression analysis indicated that after accounting for age, income, racial minority status, physical health, and violence- and stress-related factors, more frequent IPV and more problematic tobacco use were associated with increased depressive symptomatology. These findings highlight a meaningful connection between problematic tobacco use and depressive symptoms, indicating the need to incorporate tobacco use psychoeducation and cessation strategies into treatment programs for women experiencing depression in the context of IPV.

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Introduction

Depression is a prevalent, debilitating mental health condition characterized by symptoms such as sadness, hopelessness, and irritability (American Psychiatric Association, 2013). Adults in the United States are at high risk for developing depression, with women being nearly twice as likely as men to have this diagnosis (World Health Organization [WHO], 2013). Per a recent national report, one in ten women will experience a depressive episode within her lifetime, and depression accounts for 41% of the diagnosed mental health disorders among women (WHO 2013). Further, depression is the leading cause of disease burden among women, which refers to the severity or intensity of disease impact on daily psychological, physical, and social functioning (Gidron, 2013). The current study seeks to examine risk factors for increased depressive symptoms among women exposed to intimate partner violence (IPV).

Depressive Symptoms among Women Experiencing IPV

IPV is defined as acts of sexual violence, physical assault, stalking, and psychological aggression perpetrated by a current or former intimate partner (Smith et al., 2017). In line with the gender differences in the prevalence of depressive symptoms, gender differences are also evident regarding exposure to IPV (Smith et al., 2017). Approximately one in three women in the United States experience IPV (Smith et al., 2017), which is linked to a myriad of psychological, physical, social, and financial complications (Simmons, Knight, & Menard, 2018). Women are more likely than men to experience negative consequences in response to IPV, with one of the most common maladaptive experiences being depression (Lagdon, Armour, & Stringer, 2014; White & Satyen, 2015). Depressive symptoms among IPV-exposed women are often significantly higher compared to women not experiencing IPV (Peterson, 2013). Specifically, women with a history of IPV are 3.26 times more likely to develop Major Depressive Disorder

and 1.85-4.5 times more likely to experience depressive symptoms than women not exposed to IPV (Beydoun, Beydoun, Kaufman, Lo, & Zonderman, 2012). IPV-exposed women report depressive symptoms related to difficulty sleeping, loss of interest, difficulty concentrating, and irritability (Flanagan, Gorson, Moore, & Stuart, 2015).

If left untreated, depression can cause a domino effect throughout one's ecological system, with consequences relating to self-esteem (Orth, Robins, & Meier, 2009), shame (Kim, Thibodeau, & Jorgensen, 2011), and interpersonal relationships (Hames, Hagan, & Joiner, 2013). Further, IPV-exposed women are more likely to experience suicidal ideation (Devries et al., 2013b), with depressive symptoms playing a significant role in the severity of suicidality (Beydoun et al., 2012). Given the impactful role of depressive symptoms on women's ability to adapt and function following adversity, it is critical to identify potential risk factors that could affect depression in the aftermath of IPV.

Substance Use as a Risk Factor for Depressive Symptoms

Substance use in the forms of tobacco, alcohol, and illicit drug use is an additional source of disease burden among women that has received little empirical attention in the context of experiencing IPV (Whiteford et al., 2013). Women enduring IPV vary widely in reports of substance use, with 18%-72% endorsing using substances (Jessup, Dibble, & Cooper, 2012; Nathanson, Shorey, Tirone, & Rhatigan, 2012), as compared to 0.32%-86% of women in the general population (Center for Behavioral Health Statistics and Quality [CBHSQ], 2016). Regarding the use of specific substances, it is estimated that 67% of women in the United States use tobacco (CBHSQ, 2016), with IPV-exposed women being considerably more at risk to engage in tobacco use compared to non-IPV-exposed women (Fluharty, Taylor, Graski, & Munafò, 2017). Tobacco use is a well-documented source of serious health complications among

women (U.S. Department of Health and Human Services, 2014), with deleterious physical effects relating to cancer, cardiovascular disease, and respiratory illnesses (Bonnie, Kwan, & Stratton, 2015). In addition to the physical health consequences of tobacco use, it has also been identified as a risk factor for increased depressive symptomatology (Fluharty et al., 2017). Tobacco users are estimated to experience depressive symptoms at twice the rate compared to non-smokers (Munafo & Araya, 2010). Female smokers in particular are more likely than male smokers to report past or current depression (Husky, Mazure, Paliwal, & McKee, 2008). Despite the well-documented association between tobacco use and depressive symptoms, few studies have examined this association among IPV-exposed women.

Compared to tobacco, alcohol has received less empirical attention in the context of IPV among women. Alcohol is the most commonly used substance among women, with an estimated 86% of women consuming alcohol in their lifetime (CBHSQ, 2016). Two meta-analyses have found significant relations between increased alcohol use and IPV among women, though the temporal relationship between alcohol use and IPV remains unclear, with some studies indicating that alcohol use precedes violence whereas other studies report that violence precedes alcohol use (Caetano, Schafer, & Cunradi, 2017). Women who have endured physical or sexual violence are especially at risk for problematic alcohol use (Devries et al., 2013a). Alcohol has the potential to negatively impact women's reproductive health, pregnancy outcomes, and has been associated with complications of the liver, heart, and brain (Centers for Disease Control and Prevention, 2016). Alcohol use has also been identified as having a causal link with depression, with a recent meta-analytic review suggesting alcohol use disorders precede depressive disorders (Boden & Fergusson, 2011); however, it was noted in this review that additional research is warranted to explore and clarify the relation between alcohol use and depressive symptoms.

In line with the lack of empirical focus on alcohol use among IPV-exposed women, research is limited on illicit substance use in this population. Current literature suggests that women exposed to IPV may be at an increased risk to develop dependence relating to cannabis, cocaine, opioid, and heroin as compared to women not exposed to IPV (El-Bassel, Gilbert, Wu, et al., 2005; Smith, Homish, Leonard, & Cornelius, 2012); however, findings have been mixed (Stuart et al., 2013). Regarding prevalence rates, the CBHSQ (2016) reports that only about 0.32% of American women engage in illicit substance use. However, various studies have evidenced much higher rates. El-Bassel and colleagues (2005) found that between 10% and 20% of female participants reported illicit substance use across three time-points within a one-year period, with heroin being the most frequently endorsed, followed by cocaine, crack, and cannabis. The lack of research on IPV-exposed women's experiences with illicit substance use, especially within the context of understanding depressive symptoms, is a research gap this study aims to address.

The Relational Theory of Depression

The relational theory of depression is a useful guide to aid in conceptualizing the multitude of effects IPV and substance use have on depressive symptomatology. This theory posits that an individual's internal and external relational factors impact the severity of depressive symptoms (Kruse, Hagerty, Byers, Gatien, & Williams, 2014). Factors such as decreased sense of belonging, conflict within relationships, social isolation, and loneliness are theorized mechanisms by which depressive symptoms are worsened, and interactions of these mechanisms may exacerbate depressive symptoms. Sense of belonging is defined as feeling involved and valued within a system or environment (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992). Conflict within an intimate relationship, specifically IPV, can greatly impact one's sense of belonging and isolation from other social supports, resulting in

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loneliness, further conflict, and, ultimately, increased depressive symptoms (Kruse, Williams, & Seng, 2014; Lanier & Maume, 2009). Furthermore, substance use is often associated with increased feelings of isolation and loneliness, which have been significantly linked to worse depressive symptoms (Chou, Liang, & Sareen, 2011). The isolating effects of IPV and substance use, compounded by decreased sense of belonging and increased loneliness, highlight the importance of examining women's experiences of depression within this relational framework. The current study expands previous literature regarding relational theory by exploring the unique contributions of key demographic factors, stressful life events, and substance use on depressive symptoms among women recently exposed to IPV.

Additional Risk Factors Associated with Depressive Symptoms

Depressive symptoms among women exposed to IPV may also be affected by individual demographic factors, such as age, income, race, and physical health. While research is mixed (Jorm, 2000; Mirowsky & Ross, 1992), a large body of literature suggests that women between the ages of 21 and 40 are especially vulnerable to depressive symptoms (Hegarty, Gunn, Chondros, & Small, 2004; Mirowsky & Reynolds, 2000). Further, women in this age range report disproportionate exposure to IPV (Bauer et al., 2000; Coker et al., 2002). Income has also been identified as a covariate for depressive symptoms, with women who are experiencing poverty reporting higher depressive symptoms (Abrams & Curran, 2009). This may be especially relevant to the current study given the high prevalence of poverty in the geographic location in which the sample was recruited from. Additionally, women who identify as African American or Black are disproportionately exposed to poverty (Fontenot, Semega, & Kollar, 2018) and frequently face barriers related to discrimination (Keith, Lincoln, Taylor, & Jackson, 2010) and access to resources (Taft, Bryant-Davis, Woodward, Tillman, & Torres, 2009), which can worsen

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depressive symptoms. Lastly, physical health is a common factor associated with depressive symptoms, with women reporting depressive symptoms often also endorsing significant physical health problems (National Collaborating Centre for Mental Health [NCCMH], 2010). Furthermore, physical health difficulties may exacerbate depression due to overlapping functional impairments associated with fatigue, appetite disturbance, and sleep difficulties (Hegarty et al., 2004; NCCMH, 2010).

Depression among women experiencing IPV may also be exacerbated due to adversity-related factors, such as the frequency of IPV (Bonomi et al., 2006; Dutton et al., 2006) and other stressful life events (Beydoun et al., 2012; Black, 2011). Regarding frequency of IPV, women who have experienced more recent and frequent IPV report more pronounced physical and mental health problems (Bonomi et al., 2006; Dutton et al., 2006). For example, women who experienced IPV within the past 5 years endorsed higher rates of severe and minor depressive symptoms compared to women who experienced IPV more than 5 years ago (Bonomi et al., 2006). Stressful life events, including previously experienced interpersonal traumas, put women at risk of enduring further IPV as well as increased depressive symptoms (Beydoun et al., 2012; Black, 2011). Additionally, stressful life events have been identified as a primary mechanism underlying the association between IPV and subsequent depressive symptoms (Hyde, Mezulis, & Abramson, 2008).

The Current Study

Risk factors associated with depressive symptoms among individuals exposed to adversity have received substantial empirical attention; however, there is a lack of research on the intersection between substance use, depression, and IPV in women. Therefore, the current study investigates the effects of different types of substance use on depression, while accounting

for demographics and adversity-related factors. Specifically, this study investigates how problematic tobacco, alcohol, and illicit substance use contribute to depressive symptomatology, while accounting for demographic variables (i.e., age, income, racial minority status, and physical health), IPV frequency, and total stressful life events.

It is hypothesized that (1) older age, lower income, identifying as African American or Black, and worse physical health will be associated with higher levels of depressive symptoms, (2) while accounting for demographic variables, more frequent IPV and greater number of stressful life events will be associated with higher levels of depressive symptoms, (3) while accounting for demographic and adversity-related variables, more problematic tobacco, alcohol, and illicit substance use will contribute to increased depressive symptoms.

Methods

Participants

Participants included 112 women aged 22 to 49 years ($M = 32.26$, $SD = 5.84$) who experienced IPV within the past 6 months. Of these women, 67% self-identified as Black, 15% as Multiracial, 12% as White, and 6% as other racial groups. The majority of participants (71.3%) reported an annual income below the Federal Poverty Line for a family of four ($24,250). Regarding physical health, 6.1% reported having poor physical health, 22.6% reported having fair physical health, 47.8% reported having good physical health, 12.2% reported having very good physical health, and 11.3% reported their physical health as excellent.

Procedure

Following IRB approval, women were recruited from local community organizations serving individuals affected by intimate partner violence. Specifically, women were recruited through flyers posted at the community organization or direct referral from study staff or

community organization staff. Potential participants who expressed interest in the study completed a screening to assess eligibility (e.g., over age 18, fluent in English). Eligible and interested women completed interviews at a time and location of their choosing. Through the consenting process prior to the interview, participants were informed that they could stop at any point or skip items without penalty. During the interview, study staff read all questions aloud and recorded participants' answers into an online survey software program. Upon completion of the interview, which lasted approximately 1 hour, participants received a gift card as compensation for their time. They were also given a list of local mental health resources.

Measures

　　Demographics. Women provided information regarding their age, income, race, and physical health as part of a demographics questionnaire. Physical health was assessed using a single item: "How would you rate your overall physical health?" Potential response options included: excellent, very good, good, fair, and poor. This single-item assessing physical health is based on the findings of Cunny and Perri (1991) who identified that a single item measuring physical health performed well in comparison to a full 20-item measure of physical health.

　　Depressive symptoms. The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item assessment of dimensions of depression, including: depressed mood (e.g., "I felt that I could not shake off the blues even with help from my family or friends."), feelings of guilt and worthlessness (e.g., "I thought my life had been a failure."), psychomotor impairment (e.g., "I felt that everything I did was an effort."), loss of appetite (e.g., "I did not feel like eating; my appetite was poor."), and sleep disturbance (e.g., "My sleep was restless."). Using a four-point Likert scale, participants indicated the frequency of depressive symptoms over the past week, with 0 = rarely or none of the time (less than a day) and 3 = most

or all of the time (5-7 days). Items are summed to create a total score, with higher scores indicating more depressive symptoms. The CES-D has demonstrated satisfactory criterion validity (Haringsma, Engels, Beekman, & Spinhoven, 2004), high internal consistency (Lewinsohn, Seeley, Roberts, & Allen, 1997), and good discriminant validity (Thomas, Jones, Scarinci, Mehan, & Brantley, 2001). In the present study, internal consistency for the CES-D was $\alpha = .90$.

Stressful life events. The Life Events Checklist (LEC; Gray, Litz, Hsu, & Lombardo, 2004) was used to screen for participant's lifetime exposure to seventeen potentially traumatic events (e.g., natural disaster, motor vehicle accident, combat, life-threatening illness or injury). Participants indicated if each event happened to them in their lifetime, and responses were summed to create a total life stressors score, ranging from 0 to 17. The LEC has demonstrated appropriate construct, convergent, and discriminant validity (Gray et al., 2004). Because participants may endorse one traumatic event without necessarily experiencing another, reliability need not be calculated for this measure.

IPV frequency. The Revised Conflict Tactics Scale (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; Straus, 1979) is a 78-item measure used to assess psychological, physical, and sexual violence in a dating, cohabitating, or marital relationship. For the current study, the 39 items pertaining to violence perpetrated against the woman by her partner were administered. The CTS2 includes five subscales: Physical Assault (e.g., "My partner pushed or shoved me."), Psychological Aggression (e.g., "My partner insulted or swore at me."), Injury (e.g., "I had a broken bone from a fight with my partner."), Sexual Coercion (e.g., "My partner used force to make me have sex."), and Negotiation (e.g., "My partner agreed to try a solution I suggested."). Participants used a 7-point Likert scale to indicate the frequency of each form of

violence over the past 6 months, which ranged from never to more than 25 times. Items from the physical assault, injury, psychological aggression, and sexual coercion subscales were summed to create a total score, with higher scores indicating greater IPV frequency. The CTS2 has displayed good internal consistency (Jones, Ji, Beck, & Beck, 2002) and adequate construct and discriminant validity (Straus et al., 1996). In the present study, internal consistency for the CTS2 was $\alpha = .95$.

Substance use. The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST v3.1; WHO ASSIST Working Group, 2002) assesses problematic patterns of licit and illicit substance use. The current study assessed use of tobacco products, alcohol, cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, and opioids over the past six months. For each substance, five behaviors related to problematic patterns of use consistent with the Diagnostic and Statistical Manual of Mental Health Disorders (5th ed.; American Psychiatric Association, 2013) were assessed: urges to use "*During the past 6 months, how often have you had a strong desire or urge to use [substance]?*", problems related to use "*During the past 6 months, how often has your use of [substance] led to health, social, legal, or financial problems?*", failed expectations due to use "*During the past 6 months, how often have you failed to do what was normally expected of you because of your use of [substance]?*", concerns from others about use "*Has a friend or relative or anyone else ever expressed concern about your use of [substance]?*", and failed attempts to control or cut down use "*Have you ever tried and failed to control, cut down, or stop using [substance]?*".

Participants responded yes/no to each item regarding problematic use over the past 6 months. Responses were summed to create a total problematic use score for tobacco products, alcohol, and illicit substances. Specifically, the problematic illicit substance use variable was

created by summing responses to the five items listed above for cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, and opioids. The ASSIST v3.1 has demonstrated acceptable concurrent validity, acceptable discriminant validity, and high internal consistency, with $\alpha = .80$ for most domains (WHO ASSIST Phase II Study Group, 2006). Because participants may have endorsed using one substance without necessarily using another, reliability for this measure in the current study need not be calculated.

Data Analytic Plan

Hierarchical multiple regression analyses were completed using IBM SPSS Statistics Version 25.0 to assess relations between substance use and symptoms of depression, while accounting for age, income, race, physical health, IPV frequency, and stressful life events. The race variable was created by dichotomizing race into African American/Black versus all other racial and ethnic groups. African American/Black was selected as the reference group because the majority of participants in the sample identified as African American/Black. Model 1 included demographic variables related to depressive symptoms (i.e., age, income, race, physical health); Model 2 added stressful life events and frequency of IPV; and Model 3 added problematic tobacco use, problematic alcohol use, and problematic illicit substance use. Variables were entered in this order to follow established parameters for hierarchical multiple regression; specifically, demographic variables were entered in the first step, known associated variables to depression among IPV-exposed women were entered in the second step, and the final step included the primary variables of interest relating to problematic substance use. Prior to completing analyses, recommendations regarding data screening procedures were followed according to Tabachnick and Fidell (2013).

Descriptive statistics for study variables are provided in Table 1 in Appendix A. Participants experienced frequent IPV ($M = 180.02$, $SD = 138.91$), with women reporting nearly 8 instances of psychological, physical, and/or sexual violence each week over the past six months. Furthermore, participants endorsed high but varying experiences of stressful life events ($M = 5.32$, $SD = 2.81$), with 43.9% endorsing ≥4 events across their lifetime. Women in the current sample also endorsed high depressive symptoms, with 78.9% of participants exceeding the clinical cutoff score for depressive symptomatology ($M = 25.69$, $SD = 12.14$). Regarding substance use prevalence rates in the past six months, 80.2% of participants reported using substances in the past six months; specifically, 48.7% reported tobacco use, 66.0% reported alcohol use, and 34.8% reported illicit substance use.

Hierarchical linear regression model findings are presented in Table 2 in Appendix B. Participant age, income, race, and self-reported physical health were entered in Model 1, and the model was significant ($F(4, 112) = 3.78$; $p < .01$), accounting for 9% of the variance in depressive symptoms. In this model, worse physical health ($\beta = -.28$; $p < .01$) was the only variable significantly associated with increased depressive symptoms. Model 2 added stressful life events and IPV frequency, and the model was significant ($F(6, 112) = 4.13$; $p < .001$), accounting for 14.5% of the variance in depressive symptoms. In this model, worse physical health ($\beta = -.26$; $p < .01$) and more frequent IPV ($\beta = .27$; $p < .01$) were associated with higher depressive symptoms. The final model (Model 3) added substance-related variables including problematic tobacco use, problematic alcohol use, and problematic illicit substance use. This model was significant ($F(9, 112) = 3.58$; $p < .001$), with 17.3% of the variance in depressive symptoms explained by this set of variables. In this model, worse physical health ($\beta = -.25$; $p <$

.01), more frequent IPV ($\beta = .28$; $p < .01$), and increased behaviors associated with problematic tobacco use ($\beta = .19$; $p < .05$) were significantly associated with higher depressive symptoms.

Contrary to our first hypothesis, age, income, nor African American or Black racial identity status significantly accounted for variance in depressive symptoms among this sample of violence-exposed women; however, consistent with our first hypothesis, worse physical health significantly contributed to increased depressive symptoms. Our second hypothesis was partially supported in that IPV frequency significantly contributed to increased depressive symptoms, though stressful life events did not. Our third hypothesis was partially supported as well, with more problematic tobacco use contributing to increased depressive symptoms; however, neither problematic alcohol use nor problematic illicit substance use significantly contributed to the variance in depressive symptoms. In sum, after accounting for age, income, racial minority status, physical health, and total stressful life events; worse physical health, increased IPV frequency, and more problematic tobacco use were significantly associated with greater depressive symptomatology.

Discussion

Findings from this study contribute to a small but growing body of literature examining the associations between problematic substance use and depressive symptoms among women recently exposed to adversity. The current study expands upon past work by accounting for age, income, race, physical health, IPV frequency, and the presence of stressful life events within a relational framework in order to better understand the associations among problematic substance use and depressive symptoms. Such an approach allows for the evaluation of the unique role of substance use on depressive symptoms after accounting for known risk factors identified in previous literature for this form of psychopathology. As hypothesized, worse physical health,

more frequent IPV, and more problematic tobacco use were each associated with worse depressive symptoms. Unexpectedly, other demographic factors, stressful life events, problematic alcohol use, and problematic illicit substance use were not significantly associated with variance in depressive symptoms.

Based on previous literature and the relational theory of depression, we hypothesized that a variety of demographic factors would be associated with increased depressive symptoms. Results indicated that only worse physical health significantly contributed to the variance in depressive symptoms; further, this finding was robust, given that worse physical health was a significant variable in each of the models. This finding is in line with previous literature which has linked experiencing IPV to back pain, headaches, digestive problems, abdominal pain, and chronic stress-related health problems (Campbell et al., 2002). Further, a variety of physical health complications are associated with increased depressive symptoms (Karling, Wikgren, Adolsson, & Norrback, 2016; Miller & Raison, 2016).

Beyond this significant finding, we must consider additional explanations concerning the null findings for age, income, and race. Previous research has indicated that stressors associated with transitioning into young adulthood (Rieger, Göllner, Trautwein, & Roberts, 2016) as well as stressors associated with older age (Wang & Blazer, 2015) are significantly linked to depression. Given that the majority of women in the current study were between the ages of 26 and 38 years, it may be the case that the association between depression and middle adulthood is not as substantial. Null findings concerning income and race may be understood through a protective lens. The current study did not assess protective factors of social support, resilience, or spirituality, which are common buffers against the negative effects of poverty and racial discrimination (Odom & Vernon-Feagans, 2010; Settles, Navarrete, Pagano, Abdou, & Sidanius,

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2010). These protective factors could in turn buffer against depressive symptoms to an extent, thereby resulting in null findings.

The second study hypothesis centered on the role of stressful life events and IPV frequency in relation to depressive symptoms. This hypothesis was partially supported in that more frequent IPV significantly accounted for variance in depressive symptoms. This finding is consistent with previous literature that has consistently shown the debilitating effects of frequent IPV on women's mental and physical well-being (Dutton et al., 2006). Further, this finding is in line with the relational theory of depression in that increased conflict in the intimate relationship leads to greater depressive symptoms. Surprisingly, stressful life events were not associated with depressive symptomatology in this sample, despite previous literature indicating a link between life stressors and psychopathology (Nordfjærn & Rundmo, 2011). Of note, in this study, life stressors were measured as having occurred versus having not occurred, with no information gathered on the timing, frequency, or severity of these stressful events. Thus, findings from the current study suggest that this method for assessing stressful life events may not be the most optimal way to capture their impact on depressive symptoms. Accordingly, future studies should investigate more nuanced aspects of the stressful life events rather than only accounting for occurrence.

The final hypothesis focused on the effects of problematic tobacco, alcohol, and illicit substance use on depressive symptoms. The only substance significantly related to depression was tobacco, with more problematic tobacco use associated with increased depressive symptomatology. This result expands upon previous, extensive research which has identified a causal link between tobacco consumption and subsequent depressive symptoms (Flensborg-Madsen, et al.., 2011). This link may be explained through the notion that tobacco use can be

understood as a maladaptive coping mechanism employed in the context of IPV (Scott-Storey, Wuest, & Ford-Gilboe, 2009). Further, the neurobiological effects of nicotine may temporarily relieve feelings of depression, but ultimately result in exacerbation of symptoms due to effects related to behavioral reinforcement and lasting biological changes (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004). Such findings add meaningful clarity to the available literature given the dearth of research regarding problematic tobacco use within the context of IPV.

Contrary to previous literature, problematic alcohol use was not significantly linked to depressive symptoms in the context of IPV. This divergent finding may be explained by our decision to assess problematic alcohol use behaviors rather than frequency of alcohol use, which is the way in which alcohol is typically assessed in other studies (e.g., Boden & Fergusson, 2011; Davis, Rotheram-Borus, Weichle, Rezai, & Tomlinson, 2017). Evaluating problematic use is advantageous over simply assessing frequency because it allows examination of patterns of concerning and/or dangerous behaviors, as well as a variety of potential domains of additional stress (e.g., health, social, legal, and financial problems associated with use; additional conflict within interpersonal relationships due to substance use). Beyond the way alcohol use was assessed in this study, it is also important to consider that problematic alcohol use has more commonly been examined regarding violence perpetration and bidirectional violence, rather than violence victimization alone (Caetano, Schafer, & Cunradi, 2017). Further, women often report less problematic alcohol use compared to men (Gilchrist, Hegarty, Chonros, Herrman, & Gunn, 2010). Thus, our evaluation of problematic alcohol use in the context of women experiencing violence is a novel approach and these findings may indicate that alcohol use among women enduring IPV relies on a number of factors not explored in the current study, such as patterns of violence and timing of alcohol consumption.

Finally, the current study found no significant associations between problematic illicit substance use and depressive symptomatology. Similar explanations may apply to illicit substance use as applied to alcohol use, including our assessment of problematic use behaviors rather than frequency of use and our focus on individuals experiencing violence rather than perpetrating violence. An additional explanation for the illicit substance use finding is underreporting. Specifically, given that participants were being asked about illegal substance use by an interviewer that they had minimal connection to, it is possible that they felt discomfort responding openly about problems related to use. While every effort was made to create a safe and comfortable interview experience, participants may not have felt comfortable discussing their use of illegal substances.

Strengths and Limitations

This study has many strengths, including assessing a variety of substances, focusing on problematic use patterns, and expanding knowledge regarding experiences of depressive symptoms among women with diverse racial identities, income levels, and histories of adversity. Despite these strengths, limitations are present and should be considered when interpreting findings. First, the study utilized a cross-sectional design that prevents causal claims regarding associations among study variables. Next, all data was collected via self-report measures, which is problematic given the sensitive nature of study questions, particularly those related to IPV exposure and illicit substance use. Further, the sample characteristics limit generalizability of findings (i.e., 100% female, 67% Black, 100% service-seeking). Though the use of a single item for physical health has proven effectiveness (Cunny & Perri, 1991), it also presents psychometric challenges regarding content validity, sensitivity, and reliability. Finally, stressful life events were assessed through the LEC, which dichotomized women's experiences of adversity into

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"yes/no" categories. This measure does not provide information regarding timing, severity, and frequency of each type of stressful life event.

Future Research Directions

Given study limitations, future researchers are encouraged to employ a longitudinal design in order to assess temporal and causal associations between the various risk factors found to be associated with depressive symptoms among women exposed to IPV in this study. Future studies should also account for frequency and timing when assessing substance use. For example, the number of cigarettes smoked in a day (if daily use is reported) or the number of alcoholic beverages consumed in one sitting. A more detailed assessment of exposure to stressful life events is also warranted in future research, including the frequency, severity, and timing of life stressors. The current study offers a unique perspective on women's experiences of risk factors and depressive symptoms, but a larger sample would certainly strengthen our understanding of these relations.

Clinical Implications

Study findings support recent calls for action regarding the incorporation of tobacco screening and cessation strategies among health and human service organizations serving individuals exposed to adversity (Reif, Hogan, Garnick, & McLellan, 2011). Results also offer unique clinical insight given the investigation of different types of substance use in the context of IPV and mental health. Specifically, interventions for women experiencing IPV should include tailored strategies regarding tobacco use psychoeducation, tobacco cessation tools, and alternative strategies to replace tobacco use as a potential coping mechanism following adversity. History of mental health and tobacco use should also be consistently assessed when working with women who have endured IPV and who show signs of depression. Further, findings

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highlight the importance of accounting for violence frequency and current physical health in targeting depressive symptoms among women exposed to IPV in order to provide effective, comprehensive care. Given our results, it is essential to administer a detailed health screening to understand the physical health difficulties women may be experiencing, as these health difficulties may be related to temporary illness, chronic disease, or injury as a result of IPV. Finally, clinicians should incorporate assessing frequency of violence and carefully consider the harmful effects continuous IPV exposure can have on depressive symptomatology.

Conclusions

The current study investigated a set of theoretically-driven risk factors associated with depressive symptoms among women recently exposed to IPV. Results highlight the central importance of physical health, violence severity, and problematic tobacco use when exploring psychopathology in this population. Given the lack of empirical research that has examined the role of multiple risk factors on depressive symptoms among IPV-exposed women, this study advances the field by offering a novel assessment approach to substance use, a nuanced understanding of the role of different types of substances, and the relevance of physical health in understanding women's mental health in the aftermath of IPV.

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Table 1

Means, Standard Deviations, and Correlations among Continuous Study Variables

	1	2	3	4	5	6	7	8	9
1. Depressive Symptoms	-								
2. Age	-0.08	-							
3. Income	-0.07	0.12	-						
4. Physical Health	-0.82**	-0.17	0.12	-					
5. Stressful Life Events	0.09	0.09	0.17	0.28**	-				
6. IPV Frequency	0.31**	-0.08	-0.13	-0.15	0.29**	-			
7. Problematic Tobacco Use	0.29**	-0.05	-0.20*	-0.14	0.02	0.15	-		
8. Problematic Alcohol Use	-0.07	-0.06	-0.05	0.01	0.04	-0.07	0.13	-	
9. Problematic Illicit Use	0.07	-0.11	0.27**	0.03	0.6	-0.03	0.27**	0.25**	-
M	25.69	32.26	3.39	3.00	5.32	180.02	0.97	0.15	0.09
SD	12.14	5.84	2.07	1.03	2.81	138.91	1.38	0.33	0.22

$N = 112$. *$p < .05$. **$p < .01$. ***$p < .001$

Table 2

Summary of Hierarchical Regression Analysis Predicting Depressive Symptoms

Variable	Depressive Symptoms				
	ß	t	Adj. R^2	ΔR^2	F
Model 1			.091	-	3.78**
Age	-0.15	-1.59			
Income	-0.04	-0.38			
Race	-0.18	-1.91			
Physical Health	-0.28	-3.19**			
Model 2			.145	.054	4.13***
Age	-0.12	-1.36			
Income	0.02	0.16			
Race	-0.16	-1.8			
Physical Health	-0.26	-2.78**			
Stressful Life Events	-0.07	-0.69			
IPV Frequency	0.28	2.94**			
Model 3			.173	.028	3.58***
Age	-0.11	-1.16			
Income	0.07	0.98			
Race	-0.14	-1.46			
Physical Health	-0.25	-2.65**			
Stressful Life Events	-0.07	-0.73			
IPV Frequency	0.26	2.71**			
Problematic Tobacco Use	0.19	2.11*			
Problematic Alcohol Use	-0.08	-0.87			
Problematic Illicit Substance Use	0.08	0.83			

Note: $N = 112$; Race variable created by dichotomizing race into African American/Black versus all other racial and ethnic groups; *$p < .05$. **$p < .01$. ***$p < .001$