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Explaining the Relationship Between Intimate Partner Violence Victimization and Human Immunodeficiency Virus Status in Transgender and Nonbinary Individuals

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Abstract

Study Questions: Previous research has shown that human immunodeficiency virus (HIV) status and intimate partner violence (IPV) victimization are correlated. Furthermore, it has been consistently reported that transgender individuals are at an increased risk of experiencing IPV victimization and testing positive for HIV compared to cisgender individuals. However, past research examining the potential explanations for the correlation between HIV status and IPV victimization in transgender individuals using a large and inclusive sample is nonexistent. **Subjects:** A total of 12,592 transgender and nonbinary individuals from across the United States were included in the analyses. **Methods:** Through a bivariate probit analysis of data from the 2015 U.S. Transgender Survey, this study examines potential explanations for the

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association between HIV and IPV victimization in a sample of transgender individuals. Findings: The results support previous research, which indicates that a transgender individual's HIV status is significantly correlated with their likelihood to experience IPV victimization. Additionally, a participant's involvement in sex work and other risk-taking behaviors, such as binge drinking, was found to, in part, explain this co-occurring relationship. Other variables, such as coercive control and prescription drug misuse, were found to correlate significantly with IPV victimization but not HIV status. The relationships between participants' demographic variables, such as their race, sexuality, sex assigned at birth, IPV victimization, and HIV status, were examined and discussed as well. Implications: We conclude that it is imperative for LGBTQ + organizations to provide services aimed at protecting transgender individuals suffering from IPV victimization who have also tested positive for HIV through increased accessibility of care and a deeper understanding of the potential relationships in which a person may be involved. This type of outreach would likely be an important first step in allowing transgender individuals to feel safer in their romantic relationships while simultaneously encouraging safe sex practices and a healthy lifestyle, which would increase overall quality of life.

Keywords

HIV, intimate partner violence, domestic violence, LGBTQ+, transgender, queer criminology

Research on the relationship between the human immunodeficiency virus (HIV) and intimate partner violence (IPV) has expanded over the last couple of decades with researchers coming to a general agreement that these two health-related outcomes often co-occur (Akande et al., 2022; Barros et al., 2011; Cavanaugh et al., 2009; Decker et al., 2009; Fox et al., 2007; González-Guarda et al., 2008; Jewkes et al., 2011; Josephs & Abel, 2009; Murphy et al., 2020; Raj et al., 2008; Siemieniuk et al., 2013; Wang, 2021). However, little research has delved into how—and why—they occur together. In fact, only a handful of previous studies have studied this co-occurring relationship within the transgender community (see Akande et al., 2022; Heintz & Melendez, 2006; Murphy et al., 2020; Wang, 2021). Furthermore, to our knowledge, research aimed at identifying the potential explanations for this correlation in transgender individuals is nonexistent. Thus, this study aimed to examine and identify why positive HIV status and IPV victimization are correlated in transgender adults.

Literature Review

Intersection of HIV and IPV Victimization

Scholars have consistently found that IPV victimization correlates significantly with a positive HIV status (Akande et al., 2022; Barros et al., 2011; Cavanaugh et al., 2009; Fox et al., 2007; Jewkes et al., 2011; Josephs & Abel, 2009; Murphy et al., 2020; Raj et al., 2008; Siemieniuk et al., 2013; Wang, 2021). This correlation has been identified in samples of cisgender women (Barros et al., 2011; Cavanaugh et al., 2009; Fox et al., 2007; Josephs & Abel, 2009), cisgender men (Jewkes et al., 2011; Raj et al., 2008; Siemieniuk et al., 2013), and transgender women (Akande et al., 2022; Murphy et al., 2020; Wang, 2021).

Research has indicated that the more severe and repeated the IPV, the closer the association with an HIV infection (Barros et al., 2011). Furthermore, participants who reported being a victim of sexual or psychological IPV were six times more likely to report a history of sexually transmitted infections (STIs) and HIV than those who had never been the victim of sexual or psychological IPV (González-Guarda et al., 2008). Thus, when IPV increases in an intimate relationship, so does sexual coercion and—in turn—HIV risk (Josephs & Abel, 2009). Notably, IPV perpetration is significantly associated with a recent STI or HIV diagnosis, suggesting that IPV may occur after a medical diagnosis or after an assault (Fox et al., 2007; Raj et al., 2008). Specifically, IPV has been associated with an increased rate of HIV-related hospitalizations, which is most common after an HIV diagnosis is confirmed (Siemieniuk et al., 2013). Thus, IPV has been shown to predict worse HIV outcomes and lower engagement in long-term HIV care (Lemons-Lyn et al., 2021; Schafer et al., 2012).

Individuals who had experienced IPV within the past year were more likely to participate in behaviors that are associated with an elevated HIV transmission risk (Lemons-Lyn et al., 2021). Specifically, women who had sex with more than one individual within the past year reported a greater likelihood of having experienced physical and sexual IPV (El-Bassel et al., 2007). Scholars have also consistently found that individuals who experience IPV are more likely to have recently engaged in unprotected sex than those who do not experience IPV (Siemieniuk et al., 2013; Wu et al., 2003). However, many women reported being victimized by their partner through forced or coercive unprotected sex, which also directly increases their risk for HIV (Fox et al., 2007). Unfortunately, attempting to negotiate safer sex practices only further prompted violence from their partners, thus continuing to increase their risk of HIV (Fox et al., 2007). Lastly, it is necessary to acknowledge that gender-related factors also affect a person's likelihood of

contracting HIV, as gender-based violence increases the risk of HIV in women (Gilbert et al., 2007). This is unsurprising, as women are more likely to be the victims of coerced or forced sexual behavior than men (Ray et al., 2018; Tjaden & Thoennes, 2000).

However, it is not just the victims of IPV who are at an increased risk of contracting HIV. Men who are abusive and perpetrate IPV have a higher risk of engaging in HIV-risk behaviors and receiving a positive HIV diagnosis (Decker et al., 2009; Jewkes et al., 2011). Also, IPV perpetrators are more likely to engage in riskier sexual practices, including inconsistent condom use, unprotected sex, buying sex, and having multiple sexual partners—all of which increase the risk of HIV (Decker et al., 2009; Kayibanda et al., 2012; Raj et al., 2008).

HIV and IPV Victimization in Transgender Populations. Compared to the existing research on cisgender individuals, little research has examined HIV and IPV victimization in transgender populations. Additionally, the majority of this literature focuses on transgender women and uses small sample sizes. However, the findings of the few existing studies all suggest that transgender individuals are at an increased risk of experiencing HIV and IPV victimization (Akanke et al., 2022; Heintz & Melendez, 2006; Murphy et al., 2020; Wang, 2021).

Heintz and Melendez (2006) found that LGBT victims of IPV experience a significantly high risk of HIV transmission. Many participants in their study reported being forced to have sex with their partners, fearing their partner's response to the suggestion of safe sex practices, and experiencing sexual, physical, and/or verbal abuse as a result of the safe sex suggestion (Heintz & Melendez, 2006). While Heintz and Melendez's (2006) research was one of the first, if not the first, to explore how IPV victimization and HIV status are related in transgender populations, their small sample of transgender participants ($n=5$) is not sufficient to allow generalizations about the transgender population to be made—a limitation they acknowledge.

Research on the prevalence and co-occurrence of HIV status and IPV victimization in transgender women who are not from the United States has also been explored. In a sample of transgender women ($n=389$) from Peru, Murphy et al. (2020) results connected IPV victimization with stable partnerships, alcohol use, and condomless receptive anal intercourse. These findings mimic previous research on cisgender populations, which has found that substance use and condomless sex mediate the relationship between HIV status and IPV victimization (Silva-Santisteban et al., 2012). In a sample of Chinese transgender women ($n=199$), Wang (2021) found that over half of her participants had experienced IPV victimization and

that IPV victimization was correlated with a decreased likelihood of HIV testing.

To combat the prevalence of HIV and IPV victimization in transgender populations, Akande et al. (2022) suggest creating an integrated HIV and IPV prevention model, a concept that this current research advances, as a better understanding of the process that leads to the joint occurrence of HIV and IPV can help make prevention models more effective. To determine the desired services that transgender individuals would require, Akande et al. (2022) interviewed a small sample of transgender women ($n=10$) who had experienced IPV victimization and had condomless sex at least once in their lifetime. Using thematic analyses, Akande et al. (2022) discovered four concepts that the sample suggested to include in an IPV victimization and HIV intervention model. Akande et al. (2022) found that this model must reconsider what an intimate partner is, stop normalizing the expectation of violence, teach relationship safety, and increase the accessibility of trans-affirming and empowering services and care.

Explanations for HIV and IPV Victimization Co-Occurrence

Given this open question as to the mechanisms driving the correlation between HIV status and IPV victimization, we turn to a discussion of coercive control and the routine activities and lifestyle exposure theory, or lifestyle-routine activities theory (L-RAT).

Coercive Control. Coercive control can be defined as a pattern of manipulation, isolation, and intimidation in which a person controls their partner's actions, activities, and relationships (Hamberger et al., 2017). In addition to the manipulation, intimidation, and isolation that are characteristic of coercive control, the perpetrator may also engage in acts of violence through sexual assault, physical abuse, verbal threats, or sexual violence (Stark, 2006).

Past researchers have examined the relationship between coercive control and IPV. The majority of this research suggests that individuals who experience coercive control are at an increased risk of, and often report, more IPV victimization (Dichter et al., 2018; Robertson & Murachver, 2011; Tanha et al., 2010). To the victim, IPV behaviors may seem random or unpredictable, which leads to feelings of fear (Cook & Goodman, 2006). Furthermore, individuals experiencing coercive control often lack freedom, are isolated from friends and family, and are fearful of their safety, which can lead to them feeling trapped (Dichter et al., 2018; Robertson & Murachver, 2011; Stark, 2007). If the partners do separate, the harassment, control tactics, and

physically, sexually, and emotionally abusive behaviors characteristic of coercive control and IPV are likely to continue and, in some instances, escalate (Crossman et al., 2016; Myhill 2015). Thus, coercive control is associated with an increased risk of physical, psychological, and sexual victimization (Dichter et al., 2018; Myhill, 2015).

Women who have experienced joint physical and/or sexual violence and coercive control tend to have worse health outcomes than those who have not experienced these forms of victimization (Krantz & Vung, 2009). Specifically, women who have experienced IPV and/or coercive control report higher rates of suicidal thoughts, depression, and post-traumatic stress disorder along with lower levels of perceived social support and safety (Krantz & Vung, 2009; Leone et al., 2007). Few studies have examined coercive control in relation to men, but the available research suggests that men experience coercive control significantly less often than women (Myhill, 2015; Tanha et al., 2010). Additionally, scholars have identified coercive control as a motivating force behind IPV (Bair-Merritt et al., 2010; Felson & Messner, 2000; Jouriles & McDonald, 2015).

Scholars have repeatedly found that sexual coercion, in particular, is one of the largest motivators of IPV and has been associated with HIV transmission risk (Beadnell et al., 2000; Figueredo et al., 2001; Figueredo & McCloskey, 1993; Wingood & DiClemente, 1998). In fact, when a woman's partner is resistant toward the use of preventative or protective measures such as condoms, their risk for HIV increases (Wingood & DiClemente, 1998). Women are also at a greater risk of experiencing IPV or coercive control tactics after having received a positive HIV diagnosis (Mulrenan et al., 2015). Furthermore, women who are HIV-positive are more likely to report having been victimized through coercive sex than women who are not HIV-positive (van der Straten et al., 1995). In addition to sexual coercion, there are consistent and strong associations between an HIV infection in women and physical violence, emotional violence, and male controlling behaviors—suggesting that male controlling behaviors put women at risk of HIV infection (Durevall & Lindskog, 2015). However, the correlation between HIV status and coercive control is not only found in women. Craft and Serovich (2005) showed that in the intimate relationships of gay men who are HIV-positive, psychological aggression is the most prevalent form of abuse experienced. To the researchers' knowledge, no research has specifically examined the relationship between coercive control and HIV status in transgender individuals.

Lifestyles and Routine Activity Theories. L-RAT stems from Cohen and Felson's (1979) routine activity theory and Hindelang, Gottfredson, and Garofalo's

(1978) lifestyle exposure theory. Cohen and Felson's (1979) routine activity theory suggests that both the offender and victim of a crime meet in time and space, along with the absence of capable guardianship. Relatedly, lifestyle exposure theory states that certain behaviors (i.e., lifestyles) increase a person's likelihood of being victimized due to increased exposure to a potentially motivated offender (Hindelang et al., 1978). L-RAT is an "opportunity model" of victimization since it emphasizes how a situation and external factors can affect a person's vulnerability to criminal victimization (Schreck et al., 2002). The risk of victimization is not purely random, as the social context and setting impact one's likelihood to be victimized (Cohen & Felson, 1979; Hindelang et al., 1978). Certain lifestyle choices, such as staying out late and spending time away from one's residence, attract potential victims (Groff, 2008; Mustaine & Tewksbury, 1999). Numerous risky behaviors, including, but not limited to, alcohol consumption, drug use, and sexual acts or habits, are all thought to increase a person's exposure to a motivated offender and, subsequently, increase their risk of being victimized.

Past researchers have found that alcohol and drug abuse are related to IPV victimization (El-Bassel et al., 2005; Kaukinen, 2014; Stuart et al., 2006; Testa et al., 2003). Specifically, abused women have been found to consume a greater mean number of drinks per drinking occasion and use alcohol more frequently than non-abused women (Beadnell et al., 2000). This is important because women tend to use alcohol as a way to cope with emotional distress (Lindgren et al., 2012; Najdowski & Ullman, 2009). Thus, an abused individual may drink alcohol frequently and in large quantities to try and cope with their emotions, but this consumption use of alcohol only further increases their likelihood of experiencing subsequent victimization. On a related note, women who regularly consume alcohol or engage in heavy episodic drinking are at an elevated risk of being sexually victimized (Abbey et al., 2004). This increase in victimization risk based on alcohol consumption or drug use is unsurprising from an L-RAT perspective since most of these activities occur outside the home. The more time spent engaging in leisure activities outside the home has been found to increase a person's risk of victimization (Groff, 2008; Mustaine & Tewksbury, 1999).

It has been reported that the more sexually active a person is, the greater their likelihood of experiencing sexual coercion or assault (El-Bassel et al., 2007; Mynatt & Allgeier, 1990). Consistent with L-RAT, this is because sexually active individuals are interacting and being intimate with more people, which increases their likelihood of meeting a motivated offender. Furthermore, if a person consumes a large quantity of alcohol and becomes intoxicated, their ability to make responsible decisions decreases, which subsequently

increases their risk of HIV (Berry & Johnson, 2018). Relatedly, HIV-positive women were found to have a significantly lower ability to consider future consequences when making decisions than women who are not HIV-positive (Schwartz et al., 2014). This could lead to a cycle of poor decision making that negatively impacts their mental and physical health and increases their likelihood of being victimized. Additionally, these individuals may have target vulnerability, which includes traits that increase their risk of victimization due to their inability to deter crime. Examples of these traits include both physical weakness and psychological distress (Finkelhor & Asdigian, 1996). This is important, as researchers have found that motivated offenders are more likely to choose victims whom they perceive as being vulnerable (Bones, 2013).

Of course, it is necessary to acknowledge that victims are not to be blamed for their victimization in any circumstance. It is perfectly acceptable to drink alcohol or have multiple sexual partners, and the majority of people who do these things are never victimized. Therefore, engaging in these types of behaviors does increase the risk of victimization, but that does not mean that the individuals deserve to be victimized or blamed for their victimization. Instead, we are simply noting that these behaviors increase the risk of potentially being victimized. In order for interventions to mitigate risks, we must first examine what those risks are empirically.

Current Study

In this study, we examine potential explanations for the correlation between HIV status and IPV victimization in gender nonconforming adults. Previous studies on HIV status and IPV victimization in transgender populations are sparse and typically include small sample sizes collected through qualitative methods. However, the past literature presents a strong consensus that these two health-related outcomes often occur, but why they co-occur remains unanswered. Thus, through an L-RAT perspective, we test multiple explanations, such as employment, substance abuse, and coercive control in order to determine if any of these experiences explain the co-occurrence of HIV and IPV victimization in transgender adults. We hypothesize that, as suggested by previous studies, HIV and IPV victimization will be correlated with each other in this sample. Additionally, we theorize that the relationship between HIV and IPV victimization will be explained by coercive control, risk-taking behaviors, and low economic status. To the authors' knowledge, this is the only study that investigates the potential explanations as to why a positive HIV status and IPV victimization in transgender individuals co-occur.

Methodology

Data

This research uses data from the 2015 U.S. Transgender Survey (USTS) collected by The National Center for Transgender Equality (James et al., 2016). Approximately 700,000 transgender individuals were eligible to participate in the USTS. Participants were recruited from all 50 states, Washington D.C., U.S. territories, and a handful of overseas military bases through snowball and convenience sampling between August and September 2015. The USTS could be accessed online in English or Spanish and was completely anonymous. Completion of the survey, which comprised primarily close-ended questions in 32 different sections, was expected to take between 30 and 60 minutes. All participation was voluntary. A more descriptive and detailed summary of the participant selection, methodology, and procedures can be found elsewhere (James et al., 2016). Due to how well-distributed the USTS was and how diverse the USTS sample is, it can be considered nationally representative of transgender individuals in the United States (James et al., 2016; Messinger et al., 2021). Thus, it is appropriate for the current research, as information on the participant's gender identity, HIV status, economic status, relationship status, and relationship dynamics were collected. Because we are interested in individuals who knew their HIV status, we excluded those who responded "I don't know" to the question about HIV status ($n=13,667$). We also excluded those who had never been in a romantic relationship since they were not at risk of IPV ($n=2,979$). This resulted in an eligible sample of 13,426 individuals who knew their HIV status and had been in a romantic relationship. However, due to small amounts of missing data (ranging from 0% to 5.6% across variables), we conducted a listwise deletion of the missing data for each analysis performed. This resulted in an analysis sample size of 12,592.

Measures

HIV Status. HIV status was coded as a dichotomous variable, with 0 indicating the respondent reported having tested negative for HIV and 1 indicating that they had tested positive for HIV during their most recent test. Note that this study did not collect physical specimens of the participants to determine HIV status; instead, it relied on the participants' self-reporting of their diagnosis. Individuals who did not report having taken an HIV test were not included, as they failed to meet the selection criteria.

IPV Victimization. We measured severe forms of IPV victimization based on four questions from the USTS. These four items were combined into a dichotomous variable (1 if any IPV, 0 if none). Those four items asked: "Have any of your romantic or sexual partners ever tried to hurt you by choking or suffocating you," "Have any of your romantic or sexual partners ever beaten you," "Have any of your romantic or sexual partners ever burned you on purpose," and "Have any of your romantic or sexual partners ever used a knife or gun on you."

Coercive Control. Twelve questions were used to create a continuous coercive control variable. This variable was created from statements such as: "Have any of your romantic or sexual partners ever kept you from leaving the house when you wanted to go," "Have any of your romantic or sexual partners ever threatened to call the police on you," and "Have any of your romantic or sexual partners ever kept you from having money for your own use." To create this scale, a response of "Yes" was coded as 1, and a response of "No" was coded as 0. Responses to all 12 questions were then summed with their possible score ranging between 0 to 12.

Substance Use. Three measures were created to determine a participant's history of recreational and illicit drug use. First, if a participant had never taken any illegal drugs in their lifetime (i.e., cocaine, crack, heroin, LSD, meth, inhalants, etc.), they were coded as 0, while those who had taken said drugs at least once in their life were coded as 1. Note that marijuana was not included due to its varying legality in the United States. A second variable measured if a participant had consumed prescription drugs (i.e., Oxycontin, Xanax, Adderall, Ambien, etc.) that were not prescribed to them at least once in their life (coded as 1 if ever), and those who had never taken prescription drugs not prescribed to themselves were coded as 0. The measurement of illegal drug use and prescription drug misuse through lifetime usage is appropriate since researchers have found that respondents are more truthful when responding to questions asking about lifetime usage compared to usage in the past 12 months (Willis et al., 1994). Lastly, binge drinking was measured by asking participants to select how many days they had five or more drinks on the same occasion within the past 30 days (ranging from 0 to 30 days).

Employment. A participant's employment status was coded as 0 if they were not currently working full-time for an employer and 1 if they were working full-time for an employer. A second variable measuring a participant's past

experiences in sex work was used. Sex work was coded as 0 if they had never engaged in sexual activities for money or worked in the sex industry (i.e., erotic dancing, webcam work, and porn films) and 1 if they had ever worked in one of these settings.

Demographics. We also controlled for race, biological sex (assigned at birth), gender identity, sexuality, and age. Participants could report their race as White, Black, Hispanic, Asian, or Biracial. The participants could select either male or female for their sex assigned at birth. Nonbinary was included as a response option for gender identity along with transgender males and transgender females. For multivariate analyses, we created a series of dummy variables with White, assigned male at birth, and transgender serving as the omitted reference category. In regard to sexuality, participants were categorized as heterosexual/straight, gay/lesbian/same-gender loving, bisexual, asexual, or pansexual. Lastly, the participant's age (in years) was collected by allowing participants to select their age from a drop-down list.

Data Analysis

Since we are specifically interested in explaining the co-occurrence of HIV status and IPV victimization, simple regression analyses would not be appropriate, as a series of binary logistic regressions would ignore the correlation between the dichotomous outcomes (Greene, 1997). Thus, a bivariate probit model was conducted in STATA (2017) version 15.1. This analysis includes an additional parameter (ρ), which estimates the covariation between the two outcome variables. If ρ is statistically significantly different from zero, it indicates that the two outcomes overlap or are correlated. The magnitude of ρ indicates how much overlap or covariation exists between the two outcomes. We estimate multiple bivariate probit models to estimate the impact on ρ of including the variables our theorizing predicts would explain the co-occurrence of HIV and IPV.

Results

Sample Description

As shown in Table 1, the majority of the sample's respondents are White (79%), were assigned female at birth (53%), and over half (57%) list their sexual orientation as other than heterosexual. The mean age was 35 years old. Most transgender individuals in the sample are not HIV positive (only 1% are) and do not report being the victims of serious IPV (16% do).

Table 1. Sample Description ($N = 12,592$).

Variable	Mean	SD	Min.	Max
Dependent variables				
HIV status	0.01		0	1
IPV victimization	0.16		0	1
Independent variables				
Coercive control	1.76	2.30	0	12
Illegal drug use	0.42		0	1
Prescription drug use	0.42		0	1
Alcohol bingeing	1.35	3.62	0	30
Sex work	0.16		0	1
Control variables				
Assigned female at birth	0.53		0	1
Nonbinary	0.28		0	1
Black	0.04		0	1
Hispanic	0.05		0	1
Asian	0.02		0	1
Biracial	0.05		0	1
Other race	0.05		0	1
Gay/lesbian/same-sex loving	0.18		0	1
Pansexual	0.18		0	1
Queer	0.28		0	1
Asexual	0.05		0	1
Bisexual	0.16		0	1
Employment status	0.44		0	1
Age	35.07	13.09	18	82

Note. IPV = intimate partner violence.

Bivariate Associations

Consistent with previous research, our findings indicate that a person's positive HIV status and their reported IPV victimization are significantly associated, $\chi^2(1) = 43.83, p < .001$. Additionally, individuals with a positive HIV status ($M = 2.35, SD = 2.61$) experience higher levels of coercive control than those who have a negative HIV status ($M = 1.76, SD = 2.29$), $t(12,590) = -3.22, p < .001$. Furthermore, individuals who are the victims of IPV ($M = 4.39, SD = 2.82$) are also more likely to experience higher levels of coercive control than those who are not the victims of IPV ($M = 1.28, SD = 1.81$), $t(12,590) = -63.21, p < .001$. These results suggest that transgender individuals who have tested positive for HIV are more likely to

experience both IPV victimization and coercive control tactics than those who test negative for HIV.

Multivariate Associations (Bivariate Probit)

The bivariate probit model is presented in Table 2. Several of the control variables, including assigned female at birth, gay/lesbian/same gender loving, queer, bisexual, and Black, are related to both HIV status and IPV victimization. Individuals who were assigned female at birth were less likely to be HIV positive than those assigned male at birth, yet were more likely to be the victims of IPV, holding all else in the model constant. Additionally, those who identified as gay/lesbian/same-gender loving, queer, or bisexual were less likely to be HIV positive and less likely to experience IPV victimization than straight individuals, controlling for the other variables in the multivariate model. Furthermore, Black transgender individuals were more likely to be HIV positive and experience IPV victimization than White transgender individuals. However, additional control variables such as Hispanic, pansexual, and asexual were found only to be significantly related to HIV status. Those who identified as pansexual or asexual were found to be less likely to be HIV positive than their straight counterparts, while Hispanic individuals were at an increased risk of being HIV positive than White transgender individuals. Other variables, such as biracial, other races, and employment status, were associated only with IPV victimization. Biracial and transgender individuals of other races were more likely to be the victims of IPV than White individuals, while those who were employed full-time were less likely to be the victims of IPV than those who only had part-time or no employment.

Coercive control and prescription drug use were significantly associated with IPV victimization, not HIV status. Thus, those who experienced coercive control tactics from a partner or who used prescription drugs were more likely to be the victims of IPV than those who did not experience coercive control or use prescription drugs. Despite those variables not predicting the co-occurrence of HIV status and IPV victimization, two variables, alcohol bingeing, and sex work, were found to be positively and significantly related to both. If an individual binged alcohol or engaged in sex work, they were significantly more likely to be HIV positive and be the victim of IPV than those who did not binge alcohol or engage in sex work. Finally, illegal drug use did not significantly correlate with HIV status or IPV victimization.

In order to test the impact of the addition of our covariates on the correlation between HIV status and IPV victimization, we estimated a null model (excluding independent variables). Rho from the null model was .24. Next, we included a full model (including all independent variables), and

Table 2. Bivariate Probit Models Predicting the Joint Occurrence of HIV Status and IPV Victimization ($N = 12,592$).

Variable	HIV Status Coef. (SD)	IPV Victimization Coef. (SD)
Independent variables		
Coercive control	.02 (.01)	.28 (.01)*
Illegal drug use	-.00 (.01)	.00 (.00)
Prescription drug use	.07 (.08)	.22 (.03)*
Alcohol bingeing	.00 (.00)*	.00 (.00)*
Sex work	.71 (.08)*	.35 (.04)*
Control variables		
Assigned female at birth	-.60 (.10)*	.19 (.04)*
Nonbinary	.09 (.11)	-.04 (.04)
Black	1.05 (.11)*	.23 (.08)*
Hispanic	.52 (.12)*	.13 (.07)
Asian	.05 (.29)	.11 (.11)
Biracial	.07 (.20)	.25 (.07)*
Other race	.23 (.15)	.20 (.07)*
Gay/lesbian/same-sex loving	-.22 (.10)*	-.17 (.05)*
Pansexual	-.69 (.14)*	-.03 (.06)
Queer	-.49 (.13)*	-.19 (.05)*
Asexual	-.63 (.22)*	-.08 (.08)
Bisexual	-.57 (.12)*	-.15 (.06)*
Employment status	-.14 (.08)	-.13 (.03)*
Constant	-2.62 (.18)	-1.88 (.08)
Rho (ρ)		.18 (.05)*
Log-likelihood		-4,628.29

Note. HIV = human immunodeficiency virus; IPV = intimate partner violence.

*Indicates statistical significance ($p < .05$).

rho was .18. This indicates a 25% reduction in rho from the null model to the full model. Thus, the variables we included in this study explain 25% of the association between HIV status and IPV victimization, a point to which we return in the discussion section below.

Discussion

Consistent with the prior literature, we found that a participant's HIV status was significantly correlated with their likelihood to experience IPV victimization. This result replicates previous research, which has found that a

positive HIV status and IPV victimization are correlated in both cisgender and transgender individuals (Akande et al., 2022; Barros et al., 2011; Cavanaugh et al., 2009; Fox et al., 2007; Jewkes et al., 2011; Josephs & Abel, 2009; Murphy et al., 2020; Raj et al., 2008; Siemieniuk et al., 2013; Wang, 2021). Second, involvement in sex work and risk-taking behaviors, such as binge drinking, were found to, at least in part, explain the relationship between HIV status and IPV victimization.

In addition to sex work and binge drinking, several of our control variables were found to explain the co-occurrence of a positive HIV status and IPV victimization. Being assigned male at birth, queer, bisexual, and gay/lesbian/same gender loving were all found to explain this joint occurrence. This may be because sexual minorities tend to have a higher number of sexual partners than those who are straight, which subsequently increases their risk of contracting HIV or being victimized (Levin et al., 2009; Rogowska et al., 2020). Additionally, transgender individuals who were assigned male at birth have historically been labeled as “men who have sex with men” because of their birth sex by HIV studies (Poteat et al., 2016). However, despite this, research has indicated that transgender individuals who were assigned male at birth have an increased risk of contracting HIV compared to transgender individuals assigned female at birth (Clark et al., 2016; Phillips et al., 2019). Lastly, researchers have found that HIV disproportionately impacts Black individuals in the U.S. due to a myriad of factors, including systemic inequities, social and economic marginalization, medical mistrust, and residential segregation (Friedman et al., 2009; Randolph et al., 2020). Furthermore, IPV is common in the Black community, as Black Americans are significantly more likely to report IPV victimization than other racial groups (Al’Uqdah et al., 2016). The prevalence of IPV in the Black community has been attributed to various types of institutionalized and internalized oppression (i.e., racism, stereotyping, legal system failures, crisis center failures, etc.) (Rice et al., 2022). This relates to our study, which found that being Black explained the joint occurrence of HIV status and IPV victimization. Identifying as Biracial or another race, as opposed to White, significantly increased the risk of IPV, but not HIV. Conversely, identifying as Hispanic, pansexual, or asexual and one’s age significantly increased the risk of a positive HIV status, but not IPV victimization. Status characteristics such as race or sexuality are not modifiable and, therefore, not sites of intervention; however, it is important for those who work in prevention to identify at-risk groups as targets of prevention programming.

Our research supports Akande et al.’s (2022) previous research on HIV and IPV victimization in transgender populations. Akande et al. (2022) suggested that an integrated HIV and IPV prevention model must rethink what

an intimate partner is, stop normalizing the expectation of violence, teach relationship safety, and increase the accessibility of trans-affirming and empowering services and care. Since sex work partially explained the co-occurrence of HIV status and IPV victimization, it is essential for prevention models to acknowledge that an individual's intimate partners may not be someone with whom they are in a committed, monogamous relationship. Thus, LGBTQ+ organizations and healthcare providers need to be aware of the various types of relationships in which transgender individuals may be involved since their awareness may affect their ability to adequately provide services to HIV-positive transgender individuals suffering from IPV victimization. This increased awareness and sensitivity from LGBTQ+ organizations and healthcare providers may help alleviate the burdens of HIV and IPV victimization for transgender individuals. This is important, as even just small changes in a healthcare setting (e.g., listing one's pronouns, using gender-neutral terminology, updating intake forms, etc.) can lead to improvements in a transgender person's experience, physical and mental health, and quality of life (Bhatt et al., 2022). Thus, medical professionals must place a greater emphasis on providing trans-affirming and empowering services and care to their patients, as this change would positively affect the lives of all gender nonconforming individuals.

Despite the important findings and implications, this research has three main limitations. The first limitation of this research is that, while some of our hypothesized variables explained the co-occurrence of HIV status and IPV victimization, rho remained significant in the full model. This indicates that some variables that could explain their co-occurrence were not included in our analyses. Second, the USTS did not survey participants on the recency or frequency of their IPV victimization; instead, it only measured lifetime victimization rates. This is notable because it prevents researchers from being able to assess the severity and duration of the participants' potential IPV victimization experiences. Lastly, since the data is cross-sectional, it is difficult to draw conclusions on the causal or temporal relationships between variables. For example, sex work might have reciprocal relationships with HIV status and severe IPV victimization, such that sex work may place individuals at risk for these joint outcomes, but also IPV and HIV-positive status may increase the need to engage in sex work for disadvantaged individuals.

The co-occurrence of HIV and IPV victimization has been consistently documented in past research (see Akande et al., 2022; Barros et al., 2011; Cavanaugh et al., 2009; Decker et al., 2009; Fox et al., 2007; González-Guarda et al., 2008; Jewkes et al., 2011; Josephs & Abel, 2009; Murphy et al., 2020; Raj et al., 2008; Siemieniuk et al., 2013; Wang, 2021). In addition to validating those previous findings, we also found that sex work and

binge drinking are two variables that, at least partially, explain this co-occurrence. However, further research on the relationship between HIV and IPV is necessary, as the co-occurrence of these two health-related outcomes can lead to severe consequences for transgender individuals. This is an area ripe for future research, and future researchers should incorporate additional risk-taking behaviors (i.e., inconsistent condom usage, sexual activity with multiple partners, reckless driving, etc.). In addition to risk-taking behaviors, future researchers should examine how cultural biases and institutional discrimination negatively affect transgender individuals and the effect it may have on the co-occurrence of HIV status and IPV victimization. The existence of cultural biases could take the form of external transphobia from family and peers, or future researchers could examine if internalized transphobia affects a person's likelihood to engage in risk-taking behaviors, which may, in turn, affect their likelihood of contracting HIV and experiencing IPV victimization. Future researchers should also prioritize examining how the severity and duration of a transgender person's IPV victimization affects their experience with HIV. Note that this research only examined responses from gender nonconforming individuals at one point in time due to the data collection procedures of the USTS. However, it may be beneficial for scholars to conduct a longitudinal study of transgender individuals in regard to their experiences with HIV and IPV. The longitudinal study would potentially allow researchers to capture data on transgender individuals' patterns of behavior. Additionally, including and analyzing data from these individuals' intimate partner(s) may be an important direction for future researchers. Specifically, gathering information regarding their partner's condom use, cheating behaviors, perpetrator motivation, risk factors for IPV perpetration, experiences with discrimination, etc., may lead to unique insights since IPV and HIV transmission most often involve another person. Furthermore, researchers should examine how IPV victimization may relate to other sexually transmitted infections in transgender populations. Thus, it is imperative for researchers to continue exploring why a positive HIV status and IPV victimization are correlated so that the mental and physical health and safety of transgender individuals can be improved.

Even with the discussed limitations, this research included a large and broadly representative sample of transgender individuals in the United States, which is unique. Many other studies in this area have focused solely on cisgender individuals or have been limited to small samples of transgender people using qualitative methods. Our sample allowed us to be the first to explore why the co-occurrence between a positive HIV status and IPV victimization exists in transgender individuals. While we have a partial answer, we hope

this research will stimulate additional conversations about why this co-occurrence exists.

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