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Jessica L. Zemlak

Rebecca Hamilton White

Danielle Friedman Nestadt

Kamila A. Alexander

Ju Nyeong Park

See next page for additional authors

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Authors

Jessica L. Zemlak, Rebecca Hamilton White, Danielle Friedman Nestadt, Kamila A. Alexander, Ju Nyeong Park, and Susan G. Sherman

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Interpersonal Violence and Contraceptive Method Use by Women Sex Workers

Jessica L. Zemlak
Marquette University College of Nursing, Milwaukee, Wisconsin
Rebecca Hamilton White
Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland
Danielle Friedman Nestadt
Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland
Kamila A. Alexander
Johns Hopkins University School of Nursing, Baltimore, Maryland
Ju Nyeong Park
Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland
Susan G. Sherman
Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

Abstract

Objective

More than one-half of women sex workers (sex workers) in the United States experience interpersonal violence, defined as physical or sexual violence, by sexual partners, including clients or intimate partners. Women experiencing interpersonal violence by intimate partners often choose hidden, woman-controlled contraception (e.g., intrauterine devices, pills, or sterilization) because fear of violence can impede condom negotiation. Yet, little is known about how interpersonal violence relates to contraception among sex workers who may have different sexual partner perpetrators (clients and intimate partners). The purpose of this study was to examine associations between interpersonal violence perpetrated by clients or intimate partners and contraceptive use.

Study Design

Data are from an observational, prospective cohort of sex workers, aged 18 to 49 in Baltimore, Maryland (*N* = 218). Bivariate and multivariable logistic regression were used to assess associations between lifetime interpersonal violence and past 3-month contraceptive use. The outcome was any woman-controlled contraceptive use versus partner-controlled or no contraception.

Results

Nearly all sex workers (96.5%) reported contraceptive use, with most using male condoms (69%), nearly one-half using woman-controlled methods (43%), and 25% using dual methods (e.g., condoms and a woman-controlled method). Lifetime experiences of interpersonal violence by clients (58%) and intimate partners (52%) were prevalent. Sex workers who experienced interpersonal violence by intimate partners had over twice the odds of woman-controlled contraceptive use (adjusted odds ratio, 2.48; 95% confidence interval, 1.36–4.54).

Conclusions

Findings highlight the importance of relationship context in the associations between interpersonal violence and use of woman-controlled contraceptive methods among sex workers, because only violence experiences by intimate partners were associated with increased odds of woman-controlled contraceptive method use.

Women sex workers (sex workers), who exchange sex for money, drugs, or goods, are often marginalized women who experience stigma related to sex work and structural vulnerabilities. (We use the term “women sex workers” to describe people who were assigned female sex at birth and whose current gender identity is woman and who sell or exchange sex for food, drugs, money, or shelter. This population is also often referred to in the literature as “cisgender female sex workers.”) These experiences create risk for health outcomes such as unintended pregnancy (Schwartz & Baral, 2015). Marginalization and vulnerabilities related to poverty, violence, and the illicit status of sex work may increase risk for experiencing unintended pregnancy through reduced access to reproductive health care services needed to obtain most woman-controlled contraceptive methods (i.e., intrauterine devices, implants, injections, hormonal methods) (Duff et al., 2018; Park et al., 2019). Woman-controlled contraception allows women to discreetly and safely manage their fertility without dependence on the male partner's compliance of use with each coital act. Previous studies among sex workers have identified low uptake of highly effective woman-controlled contraception. Instead, sex workers most commonly rely on male condoms for pregnancy prevention (Decker et al., 2013; Dulli, Field, Masaba, & Ndiritu, 2019; Martin et al., 2015; Moore et al., 2012).

Reliance on male partner-controlled condoms introduces significant risk for pregnancy among a predominately reproductive-aged population of sex workers (Duff et al., 2015). Condoms prevent pregnancy 82% of the time with typical use; failure rates increase with inconsistent or incorrect use. Condoms require correct, consistent use by a male partner with each coital act. It might be difficult for sex workers to negotiate the use of these methods safely with each coital act with violent partners, which increases the risk of failure of these methods to prevent pregnancy related to inconsistent use. In contrast, woman-controlled contraceptive methods prevent pregnancy 91.0% to 99.8% of the time with typical use and are coital independent and discreet (Hatcher et al., 2018). These methods allow women to safely control their fertility without reliance on male partner's knowledge or participation. Owing to the nature of sex work, sex workers often engage in sex with different partners at high frequency. Complex interpersonal dynamics and violent experiences with partners such as clients (who pay for sex with money, goods, or drugs) and intimate partners (e.g., boyfriends or husbands who do not pay for sex) compound the risk of contraceptive failure while using partner-controlled methods (Decker et al., 2020; Duff et al., 2015; Stockman, Hayashi, & Campbell, 2015). Interpersonal violence experiences in the form of physical or sexual violence are commonplace among this population and threaten women's ability to use partner-controlled contraception while simultaneously preserving their physical safety (Decker et al., 2020).

Interpersonal violence is a public health issue. Thirty percent of women in the United States report experiencing violence perpetrated by an intimate partner in their lifetimes (Smith et al., 2018). For women experiencing interpersonal violence, threats to physical safety may make it dangerous to request partners use condoms (Thaller & Messing, 2014). In the context of sexual violence, such as forced or pressured sex, women are typically unable to ensure use of male partner-controlled contraception (Thaller & Messing, 2014). In response to limited fertility autonomy, women who experience interpersonal violence by an intimate partner will often use covert, woman-controlled contraceptive methods to prevent pregnancy (Heck et al., 2018; McCloskey, Doran, & Gerber, 2017). The relationship between sex worker experiences of interpersonal violence by different partner perpetrators and contraceptive method use is not well-established in the existing literature. An improved understanding of how these associations differ by perpetrator type could assist in improved contraceptive counseling and interpersonal violence interventions by clinicians providing reproductive health care to sex workers.

The public health issue of interpersonal violence is amplified among the 65% of street-based sex workers globally who report lifetime experiences of interpersonal violence by clients or intimate partners (Deering et al., 2014). Sex workers experience high rates of interpersonal violence by clients and intimate partners, yet little is known about how these experiences relate to contraceptive method use among this population. This study aims to examine the relationship between lifetime experiences of interpersonal violence and contraceptive method use among sex workers. We hypothesize that women who experience interpersonal violence by intimate partners or clients are more likely to use woman-controlled contraceptive methods (vs. only partner-controlled methods or no contraception.)

Methods

Study Design and Setting

This study uses baseline data from the SAPPHIRE study. The study took place in Baltimore City, Maryland, and recruited women sex workers between April 2016 and February 2017. Eligible participants were women who (1) were ages 15 years or older; (2) sold or traded oral, vaginal, or anal sex “for money or things like food, drugs or favors”; (3) picked up clients on the street or at public places three or more times in the past 3 months; and (4) were willing to undergo HIV and sexually transmitted infection testing. All women included in our analytic sample had vaginal intercourse with a client and/or intimate partner in the previous 3 months. Targeted sampling was used to recruit participants from 14 geographic zones (Allen et al., 2018). Trained study staff used

a mobile van to recruit women on the street in the zones that were identified as having a high sex work activity. After participants provided written informed consent, they reported responses via a 50-minute interviewer administered computer assisted interviewing survey. All participants received a prepaid $70 VISA gift card after completing the baseline visit and, if requested, were given referrals to the health department and local services. All procedures were approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

Measures

Outcome Measurement

Contraception

As a part of the baseline survey, women were asked to report all methods used to avoid pregnancy within the previous three months. Participants selected all that apply, including condoms (male), condoms (female), the pill, Ortho-Evra Patch (Patch) or NuvaRing (Ring), implant (Norplant, Implanon), injection (Depo-Provera), intrauterine device, tubal ligation or other female sterilization, emergency contraception (Plan B, Preventeza, or morning after pill), none, or other method. The study outcome was use of any woman-controlled contraceptive versus only partner-controlled methods or no contraception (reference group). We defined woman-controlled contraception as methods women could use autonomously or covertly without their partner's knowledge or consent, and this category included pills, Plan B, intrauterine device, patch, ring, implant, injection, sterilization, and female condoms. If a participant reported dual method use (i.e., male condoms and birth control pills), we reported the woman-controlled method as the outcome. We initially explored a three-category outcome for our analysis (none, partner-controlled, woman-controlled) and found the none and partner-controlled outcome groups were similar to each other with regard to age, number of births, having an intimate partner in the previous 3 months, and lifetime experiences of interpersonal violence by clients or intimate partners. Therefore, to optimize the statistical power of this study, we chose to use a dichotomous study outcome.

Independent Variable Measurement

Violence

We measured lifetime experiences of interpersonal violence, defined as experiencing either physical or sexual violence, using an adapted version of the Revised Conflict Tactics Scale (Straus Hambly & Boney-McCoy, 1996) that has been previously used with this population (Decker et al., 2020). Contraceptive decision-making and use is an iterative process that occurs across a woman's life course; therefore, we felt that inclusion of lifetime interpersonal violence measures was important to understanding contraceptive use (Downey, Arteaga, Villaseñor, & Gomez, 2017). Four questions for each partner type inquired about women's lifetime experiences of violence perpetrated by clients or intimate partners, respectively. Physical violence was measured by asking whether they had been hit, punched, slapped, threatened with a weapon, or otherwise physically hurt with or without a weapon by clients or intimate partners. Sexual violence was defined as being pressured or forced to have vaginal or anal sex when they did not want to (Decker et al., 2020). Women who answered yes to any of the four questions related to violence were considered to have experienced interpersonal violence by that partner type. Two binary violence exposure variables were created—one for clients and the other for intimate partners—to indicate whether women had ever experienced interpersonal violence (physical or sexual) by that type of perpetrator (Decker et al., 2014; Peitzmeier et al., 2019).

Variables of Interest

We considered variables known to have a close relationship with the study outcome including age (≥35 or <35 years), number of live births (continuous), participant's indication she has a usual health care provider

(binary), and having an intimate partner in the previous 3 months (binary). As women age or have more children, they are more likely to use a woman-controlled method (Aztlan-James, McLemore, & Taylor, 2017). Because most woman-controlled methods require access to a health care provider, we included this factor as a potential confounder around contraceptive method use (Aztlan-James et al., 2017; Morse, Ramesh, & Jackson, 2017; Schwartz & Baral, 2015). Sex workers with intimate partners versus those with only clients are more likely to used woman-controlled methods; therefore, we included having one or more intimate partners in the previous three months as another potential confounder in our model (Martin et al., 2015).

Statistical Analysis

The overall study cohort included 250 sex workers; however, owing this study's focus on contraception, the analytic sample consisted of women with a contraceptive need at the time of the baseline survey (*n* = 218). Having a contraceptive need was defined as being of reproductive age (18–49 years) and not currently pregnant. All of the women included in this analysis had vaginal sex with either a client or intimate partner in the previous 3 months. We excluded 23 women who were 50 or older and 4 pregnant women. Five women were excluded because they did not answer the question regarding contraceptive method use. We conducted descriptive analyses using χ^2 tests comparing women who used woman-controlled and partner-controlled (male condoms) or no contraception. We then conducted bivariate logistic regression between each factor of interest and the use of any woman-controlled contraception compared to partner-controlled (male condoms) or no contraception. All variables significant at a *p* value of .05 or less in the bivariate analysis were included in the final multivariable model. We assessed for collinearity in our model with variance inflation factor testing. The results are shown as odds ratios (ORs) with 95% confidence intervals (CIs). All analyses were conducted in Stata/SE 15.1 (College Station, Texas).

Results

The baseline characteristics of the analytic sample (*n* = 218) are included in Table 1, where they are stratified by woman-controlled versus partner-controlled (male condoms) or no contraceptive method use. The mean participant age was 33.8 ± 7.2 years. The majority of the sample was White (68%), had at least one intimate partner in the previous 3 months (65%), and had less than a high school education (53%). Most of the sample had health insurance (80%), nearly one-half had a usual primary care provider (45%), and one-half (49.5%) reported at least one emergency department visit in the previous 3 months. Reproductive health concerns accounted for 8% of emergency department visits. Women experienced multiple structural vulnerabilities that did not vary significantly by contraceptive method type used, including homelessness in the previous 3 months (65%), food insecurity more than once per week (56%), and having people who depend on them financially (37%). Most women reported at least one live birth (85%) and more than one-third report having had at least one abortion (36%). More than one-half of the sample was engaged in street-based sex work for more than 5 years (52%) and had more than 30 clients in the previous 3 months (59%). Daily heroin or cocaine use was highly prevalent in the sample (83%). Sex workers who used woman-controlled contraception were more likely to be 35 years old or older versus younger than 35 (53% vs. 37%), have a usual primary care provider versus no usual primary care provider (55% vs. 37%), and have lifetime experiences of violence by intimate partners versus no lifetime experiences of violence by intimate partners (62% vs. 44%). Contraceptive method use did not vary by relationship status (having an intimate partner or not) in the previous 3 months (47% vs. 42%).

Table 1. Demographic Characteristics of Sex Workers With Contraceptive Need (*N* = 218)

	Total (*n* = 218), No. (Col %)*	**Woman-Controlled Method (*n* = 99), No. (Row %)†**	**Partner-Controlled Method or None (*n* = 119) No. (Row %)†**	***p* Value**
Sociodemographics				

Age ≥35	97 (44.5%)	53 (53%)	44 (37%)	.014‡
Race/ethnicity				.23
Non-Hispanic White	149 (68%)	71 (71%)	78 (65%)	.256
Non-Hispanic Black	43 (19%)	17 (17%)	26 (22%)	
Hispanic/other	18 (13%)	10 (10%)	15 (12.9%)	
Did not graduate high school	116 (53%)	53 (53%)	63 (53%)	.93
Relationship status				
Intimate partner(s) in previous 3 months	145 (65%)	67 (47%)	75 (53%)	.473
Health				
Has usual doctor	98 (45%)	54 (54.5%)	44 (37%)	.019‡
Has health insurance	174 (80%)	84 (85%)	90 (75%)	.189
No. of live births, mean (SD)	2.5 (1.80)	2.96 (1.72)	2.17 (1.79)	.007‡
No. of abortions, mean (SD)	0.61 (1.1)	0.69 (1)	0.54 (1.13)	.258
ED visit in previous 3 months	108 (49.5%)	54 (54%)	69 (53%)	.80
Sex work history				
Age first sold sex, mean (SD)	23.6 (7.6)	25.48 (7.1)	22.88 (7.91)	.079
>5 years in street-based sex work	113 (51.8%)	51 (52%)	57 (48%)	.931
>30 clients, past 3 months	127 (59%)	51 (52%)	76 (64%)	.066
Structural vulnerability				
People depend on you financially	81 (37%)	36 (36%)	45 (37.8%)	.825
Food insecurity more than once per week	122 (55.9%)	55 (55.6%)	67 (56%)	.912
Homeless in past 3 months	141 (64.6%)	61 (61.6%)	80 (67.2%)	.606
Experiences of violence				
Intimate partner, physical or sexual (lifetime)	112 (52%)	61 (62%)	51 (44%)	.008‡
Physical	103 (48%)	58 (59%)	45 (38%)	.003‡
Sexual	35 (16%)	18 (18%)	17 (14.7%)	.464
Condom coercion (refused or removed condom)	64 (30%)	26 (26.8%)	38 (32.8%)	.345
Client, physical or sexual (lifetime)	127 (58%)	55 (55%)	72 (61%)	.416
Physical	105 (48%)	44 (44%)	61 (52%)	.287
Sexual	74 (34%)	30 (30%)	44 (37%)	.3
Condom coercion (refused or removed condom)	143 (65.6%)	67 (67.7%)	76 (63.8%)	.555

Abbreviation: SD, standard deviation.

∗Column percent.

†χ^2.

‡$p \leq .05$.

Experiencing relationship violence was highly prevalent in the sample. More than one-half experienced lifetime violence by clients (58%) or lifetime violence by intimate partners (52%). Many women also experienced violence in the past 3 months by clients (36.7%) or intimate partners (17%).

Contraceptive use was common among women in the sample (96.5%). Most women used male condoms (69%), with 25% using a dual method (e.g., condoms and a woman-controlled method). When dichotomized to the most effective method used, fewer than one-half of women used a woman-controlled contraceptive method (45%) (Table 2). Tubal ligation was the most common woman-controlled method (26% of the total sample), and hormonal methods and IUDs less common (2%–7%).

Table 2. Contraceptive Method(s) Used in the Previous 3 Months

Contraceptive Method(s) Used in the Previous 3 Months	**No. of Women Using Method (*n* = 218) (% of Total Sample)**
Male condom	151 (68%)
Female condom	3 (1%)
Birth control pill	5 (2%)
Patch or ring	0
Implant	8 (4%)
Injection (Depo Provera)	10 (5%)
Intrauterine device	16 (7%)
Tubal ligation or other female sterilization	56 (25%)
Emergency contraception (i.e., Plan B)	2 (0.9%)
None	10 (5%)
Study dichotomized outcome	
Woman-controlled contraception	99 (45%)
Partner-controlled/none	119 (55%)

Bivariate and multivariable models are presented in Table 3. In the adjusted model, woman-controlled contraceptive method use compared to partner-controlled or no contraceptive method use was significantly associated with number of live births (adjusted OR [aOR], 1.24; 95% CI, 1.05–1.48) and interpersonal violence perpetrated by an intimate partner (aOR, 2.48; 95% CI, 1.36–4.54). Client-perpetrated violence was not significantly associated with the use of woman-controlled contraception among women in the sample (aOR, 0.64; 95% CI, 0.35–1.19).

Table 3. Logistic Regression Odds Ratio of Woman-Controlled Contraception Method Use

	Bivariate Logistic Regression	**Multivariable Model**
	Odds Ratio (95% CI)	**Adjusted Odds Ratio (95% CI)**
Intimate partner: physical or sexual violence ever	2.1 (1.21–3.63)*	2.48 (1.36–4.54)*
Client: physical or sexual violence ever	0.79 (0.46–1.37)	0.64 (0.35–1.19)
Age ≥35	1.96 (1.14–3.38)*	1.38 (0.75–2.53)
Has usual doctor	1.09 (0.78–1.54)	1.06 (0.75–1.51)
No. of live births (cont.)	1.29 (1.11–1.52)*	1.24 (1.05–1.48)*
Intimate partner(s) in previous 3 months	1.23 (0.70–2.15)	1.26 (0.69–2.31)

$*p < .05$.

Discussion

We examined the relationship between interpersonal violence and contraceptive method use among a sample of street-based women sex workers in the United States. Although most participants reported the use of a contraceptive method, the use of woman-controlled contraception was less common among participants. We found that more than 50% of participants experienced interpersonal violence (physical or sexual violence) in their lifetimes. Lifetime experiences of interpersonal violence were common by both partner perpetrator types; however, only intimate partner–perpetrated violence was associated with an increased odds of the use of woman-controlled contraceptive methods.

Prior experiences of interpersonal violence by any partner perpetrator might make negotiating for partner-controlled contraceptive use feel dangerous for women. This point is particularly important to consider among street-based sex workers, because of the prevalence of violence among this population when compared to sex workers working in other environments (Deering et al., 2014). Women working outdoors doing street-based sex work, such as our participants, are up to six times more likely to experience violence than those in indoor settings such as brothels or homes (Church, Henderson, Barnard, & Hart, 2001). Thus, the low prevalence of woman-controlled contraceptive method use among our participants engaged in street-based sex work in conjunction with the high prevalence of interpersonal violence may increase risk for contraceptive failure related to nonuse or inconsistent use of partner-controlled contraceptive methods. Inconsistent use of partner-controlled contraceptive methods with each coital act increases the risk of experiencing unintended pregnancy. Experiences of interpersonal violence may limit agency and negotiation around fertility decision-making among this population.

As in previous research among other marginalized populations, such as Latina women, sex workers who experienced some types of interpersonal violence were more likely to use a woman-controlled contraceptive method (Grace et al., 2020; Salazar, Valladares, & Hogberg, 2012). The use of woman-controlled contraception might be an attempt to prevent pregnancy in relationships with power imbalances that make overt use of contraception (such as with male condoms) unsafe (Alexander, Coleman, Deatrick, & Jemmott, 2012; Fanslow, Whitehead, Silva, & Robinson, 2008). For these women, the use of woman-controlled contraception might be an example of an empowering, harm reduction strategy to avoid unintended pregnancy when violence-related power imbalances with clients or intimate partners subvert partner-controlled contraception (Alexander et al., 2012; Grace et al., 2020; Thaller & Cimino, 2017). A surprising finding in this study is that the relationship with contraceptive use by women differed by the type of perpetrator of interpersonal violence. Although violence was highly prevalent in the sample by both clients and intimate partners, only interpersonal violence by an intimate partner had a relationship with woman-controlled contraceptive method use. It is possible that the relationship context with intimate partners is more long term than client encounters, which are transient in nature (Farel et al., 2013). Intimate partner–perpetrated violence might be a more consistent presence in women's lives and result in women's decisions to use woman-controlled contraceptive methods with violence perpetrated by this sexual partner type. Although client violence still has the potential to complicate partner-controlled contraceptive use for women, these violent acts perpetrated by clients may be viewed as temporary, and, thus, women may feel less need to commit to woman-controlled contraceptives related to client perpetrated violence.

Prior research has identified relationship context to be related to women's use of woman-controlled contraception. Women in longer, committed relationships versus more casual partnerships were more likely to use a woman-controlled contraceptive method (Upadhyay, Raifman, & Raine-Bennett, 2016). In a study among Russian women engaged in sex work wishing to avoid pregnancy, woman-controlled contraceptive method use was positively associated with having an intimate partner and negatively associated with having a pimp (Martin et al., 2015). These studies suggest that different sex partner types play a key role in contraceptive decision-

making practices for women. We found, although not to the level of reaching statistical significance, that women with intimate partners were more likely to use woman-controlled contraceptive methods (OR, 1.23; 95% CI, 0.70–2.15). However, relationship status did not explain the association between intimate partner violence and contraceptive use in our sample. Future research exploring how contraceptive decision-making and condom use behaviors is differentiated in terms of interpersonal dynamics with different sexual partners is needed.

Interpersonal violence creates vulnerabilities to an array of health problems, including unintended pregnancy and HIV infection (Dulli et al., 2019). In the current study, only one-half of woman-controlled contraceptive method users report dual method use with condoms. There is an increased risk of exposure to HIV and sexually transmitted infections by clients and intimate partners among the remaining half of woman-controlled contraceptive users who are not also using condoms. Although the use of woman-controlled contraception allows women to discreetly and effectively manage their fertility, additional harm reduction strategies are necessary for HIV risk reduction among this population as a component of comprehensive reproductive care (Committee Opinion No. 554, 2013). Novel injectable long-acting HIV pre-exposure prophylaxis drugs are currently being developed that may offer discreet HIV prevention, an important component of holistic reproductive health care for sex workers experiencing violence (Clement, Kofron, & Landovitz, 2020). Public health initiatives and policies geared towards harm reduction among sex workers should include holistic approaches to harm reduction, including reduction of HIV and unintended pregnancy risk factors (Moore et al., 2012).

Improving access to primary and reproductive health care services is vital to the health of this population, as these providers are an important link to both woman-controlled contraception and HIV pre-exposure prophylaxis medications. The majority of women in the sample (80%) had health insurance, yet fewer than one-half (45%) had a primary care provider. Caring for sex workers in clinical settings necessitates that clinicians adopt a trauma-informed approach to care. Trauma-informed approaches involve universal screening for violence and, among those women experiencing trauma or violence, linking them to support and connection to care (Decker et al., 2017). For many women, the experience of being asked about violence by their provider in a sensitive, nonjudgmental manner might build a therapeutic dialogue (Decker et al., 2017). Future policy and public health initiatives linking marginalized women to trauma-informed primary care services is important in the improvement of reproductive health among this population (Browne et al., 2012).

As this study highlights, interpersonal violence is strongly associated with contraceptive use for sex workers, but only in certain relationship contexts. Thus, the provision of comprehensive reproductive care must include screenings for interpersonal violence, with consideration of the relationship context of partner–perpetrators, particularly among sex workers. Even among women with a primary care provider, it is possible that interpersonal violence screening is not being incorporated into their visits. Although screening for interpersonal violence is recommended to be included in reproductive health visits, fewer than one-quarter of women report being screened (Swailes, Lehman, & McCall-Hosenfeld, 2017).

Reproductive coercion, which is defined as partner behaviors interfering with the contraceptive and pregnancy choices of women, is another form of interpersonal violence that is not often measured and may have important implications for sexually transmitted infections, HIV, and unintended pregnancy prevention among this population (Grace & Anderson, 2018). Among sex workers in our study, only interpersonal violence by intimate partners was significantly associated with woman-controlled contraception. There is potentially a greater likelihood for sex workers to discuss pregnancy planning and prevention with intimate partners versus clients, introducing vulnerability to coercion from these partners. Efforts to improve screening for violence and linking women experiencing violence to trauma-informed, harm reduction strategies to improve reproductive health is vital among sex workers (Curry et al., 2018; Schwartz & Baral, 2015).

More than 50% of the sex workers in this study used the emergency department at least once in the previous 3 months, with 8% citing reproductive health concerns as the reason for the visit. Practice policies reinforcing routine violence screenings in the emergency room will empower providers to identify sex workers experiencing violence. Interpersonal violence screening and the provision of contraception prescriptions, emergency contraception, and referrals for ongoing reproductive health care by emergency departments may help reduce experiences of unintended pregnancy among this population (Liles, Haddad, Lathrop, & Hankin, 2016).

Limitations

Owing to the cross-sectional nature of this study, causality between the independent and dependent study variables of interest cannot be ensured. We explored the relationship between lifetime experiences of violence and contraceptive method use in the previous 3 months. It is possible that other confounding variables not considered in the multivariable models contributed to this relationship. One key limitation of this study is the inability to control for pregnancy intention among sampled women. It is possible that women who desired pregnancy in the sample used a partner-controlled contraceptive method with partners with whom they did not wish to conceive. We assumed that all women in our study had an intimate partner in their lifetime, thus placing all women at risk of experiencing violence by that partner. It is possible that the group that never experienced violence by intimate partners included women who never had an intimate partner in their lifetime.

Implications for Policy And/or Practice

This study reinforces the critical need for integration of universal, trauma-informed interpersonal violence assessments by providers caring for women in family planning settings, emergency rooms, and primary care clinics. Clinicians screening for interpersonal violence should consider adding detailed questions regarding relationship context given that this study found perpetrator type is associated with women's contraceptive use. Policies supporting access to integrated, holistic reproductive care including woman-controlled contraception and HIV/sexually transmitted infection prevention services are recommended.

Conclusions

Sex workers are vulnerable to experiences of unintended pregnancy owing to underuse of woman-controlled contraceptive methods and experiences of interpersonal violence from different types of sexual partners. Similar to previous research, our study found a relationship between interpersonal violence and increased odds of woman-controlled contraceptive use with intimate partner perpetrators. However, sex workers experience violence by multiple sexual partner perpetrators. Results from our study add to existing literature by highlighting that among women with different sexual partner types, the perpetrator of violence is associated with contraceptive method use. These findings point to the need for clinicians to consider relationship context in interpersonal violence screenings. This study identified a need for additional research regarding the interpersonal dynamics of women with different sexual partnerships and the contraceptive decision-making processes. A deeper understanding of interpersonal relationships, different sexual partner perpetrators of violence, and contraception is needed to understand contraceptive decision-making among sex workers. This information will guide future tailored screening and interventions for this population.

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References

Alexander et al., 2012. K.A. Alexander, C.L. Coleman, J.A. Deatrick, L.S. Jemmott. **Moving beyond safe sex to women-controlled safe sex: A concept analysis.** Journal of Advanced Nursing, 68 (8) (2012), pp. 1858-1869

Allen et al., 2018. S.T. Allen, K.H.A. Footer, N. Galai, J.N. Park, B. Silberzahn, S.G. Sherman. **Implementing targeted sampling: Lessons learned from recruiting female sex workers in Baltimore, MD.** Journal of Urban Health, 96 (3) (2018), pp. 442-451

Aztlan-James et al., 2017. E.A. Aztlan-James, M. McLemore, D. Taylor. **Multiple unintended pregnancies in U.S. women: A systematic review.** Womens Health Issues, 27 (4) (2017), pp. 407-413

Browne et al., 2012. A.J. Browne, C.M. Varcoe, S.T. Wong, V.L. Smye, J. Lavoie, D. Littlejohn, S. Lennox. **Closing the health equity gap: Evidence-based strategies for primary health care organizations.** International Journal for Equity in Health, 11 (2012), p. 59

Church et al., 2001. S. Church, M. Henderson, M. Barnard, G. Hart. **Violence by clients towards female prostitutes in different work settings: Questionnaire survey.** BMJ, 322 (2001), p. 524

Clement et al., 2020. M.E. Clement, R. Kofron, R.J. Landovitz. **Long-acting injectable cabotegravir for the prevention of HIV infection.** Current Opinion in HIV and AIDS, 15 (1) (2020), pp. 19-26

Committee Opinion No. 554, 2013. Committee Opinion No. 554. **Reproductive and sexual coercion.** Obstetrics and Gynecology, 121 (2 Pt 1) (2013), pp. 411-415

Curry et al., 2018. S.J. Curry, A.H. Krist, D.K. Owens, M.J. Barry, A.B. Caughey, K.W. Davidson, J.B. Wong. **Screening for intimate partner violence, elder abuse, and abuse of vulnerable adults: US Preventive Services Task Force Final Recommendation Statement.** JAMA, 320 (16) (2018), pp. 1678-1687

Decker et al., 2020. M.R. Decker, J.N. Park, S.T. Allen, B. Silberzahn, K. Footer, S. Huettner, S.G. Sherman. **Inconsistent condom use among female sex workers: Partner-specific influences of substance use, violence, and condom coercion.** AIDS and Behavior, 24 (3) (2020), pp. 762-774

Decker et al., 2014. M.R. Decker, A.L. Wirtz, V. Moguilnyi, A. Peryshkina, M. Ostrovskaya, M. Nikita, C. Beyrer. **Female sex workers in three cities in Russia: HIV prevalence, risk factors and experience with targeted HIV prevention.** AIDS and Behavior, 18 (3) (2014), pp. 562-572

Decker et al., 2013. M.R. Decker, E.A. Yam, A.L. Wirtz, S.D. Baral, A. Peryshkina, V. Mogilnyi, C. Beyrer. **Induced abortion, contraceptive use, and dual protection among female sex workers in Moscow, Russia.** International Journal of Gynecology & Obstetrics, 120 (1) (2013), pp. 27-31

Decker et al., 2017. M.R. Decker, S.F. Flessa, R.V. Pillai, R.N. Dick, J. Quam, D. Cheng, E. Miller. **Implementing trauma-informed partner violence assessment in family planning clinics.** Journal of Women's Health, 26 (9) (2017), pp. 957-965

Deering et al., 2014. K.N. Deering, A. Amin, J. Shoveller, A. Nesbitt, C. Garcia-Moreno, P. Duff, K. Shannon. **A systematic review of the correlates of violence against sex workers.** American Journal of Public Health, 104 (5) (2014), pp. e42-54

Downey et al., 2017. M.M. Downey, S. Arteaga, E. Villaseñor, A.M. Gomez. **More than a destination: Contraceptive decision making as a journey.** Women's Health Issues, 27 (5) (2017), pp. 539-545

Duff et al., 2018. P. Duff, J. Birungi, S. Dobrer, M. Akello, G. Muzaaya, K. Shannon. **Social and structural factors increase inconsistent condom use by sex workers' one-time and regular clients in Northern Uganda.** AIDS Care, 30 (6) (2018), pp. 751-759

Duff et al., 2015. P. Duff, J. Shoveller, S. Dobrer, G. Ogilvie, J. Montaner, J. Chettiar, K. Shannon. **The relationship between social, policy and physical venue features and social cohesion on condom use for pregnancy**

prevention among sex workers: A safer indoor work environment scale. Journal of Epidemiology Community Health, 69 (7) (2015), pp. 666-672

Dulli et al., 2019. L. Dulli, S. Field, R. Masaba, J. Ndiritu. **Addressing broader reproductive health needs of female sex workers through integrated family planning/HIV prevention services: A non-randomized trial of a health-services intervention designed to improve uptake of family planning services in Kenya.** PLoS One, 14 (7) (2019), p. e0219813

Fanslow et al., 2008. J. Fanslow, A. Whitehead, M. Silva, E. Robinson. **Contraceptive use and associations with intimate partner violence among a population-based sample of New Zealand women.** Australian & New Zealand Journal of Obstetrics & Gynaecology, 48 (1) (2008), pp. 83-89

Farel et al., 2013. C.E. Farel, S.D. Parker, K.E. Muessig, C.A. Grodensky, C. Jones, C.E. Golin, D.A. Wohl. **Sexuality, sexual practices, and HIV risk among incarcerated African-American women in North Carolina.** Women's Health Issues, 23 (6) (2013), p. 357

Grace and Anderson, 2018. K.T. Grace, J.C. Anderson. **Reproductive coercion: A systematic review.** Trauma, Violence & Abuse, 19 (4) (2018), pp. 371-390

Grace et al., 2020. K.T. Grace, M. Decker, K.A. Alexander, J. Campbell, E. Miller, N. Perrin, N. Glass. **Reproductive coercion, intimate partner violence, and unintended pregnancy among Latina women.** Journal of Interpersonal Violence (2020). 886260520922363

Hatcher et al., 2018. R.A. Hatcher, J. Trussell, C. Cwiak, P. Cason, M.S. Policar, A. Edelman, D. Kowal. **Contraceptive technology.** (21st ed.), Ayer Company Publishers, Inc, North Stratford, NH (2018)

Heck et al., 2018. C.J. Heck, S.A. Grilo, X. Song, T. Lutalo, N. Nakyanjo, J.S. Santelli. **"It is my business": A mixed-methods analysis of covert contraceptive use among women in Rakai, Uganda.** Contraception, 98 (1) (2018), pp. 41-46

Liles et al., 2016. I. Liles, L.B. Haddad, E. Lathrop, A. Hankin. **Contraception initiation in the emergency department: A pilot study on providers' knowledge, attitudes, and practices.** Southern Medical Journal, 109 (5) (2016), pp. 300-304

Martin et al., 2015. C.E. Martin, A.L. Wirtz, V. Mogilniy, A. Peryshkina, C. Beyrer, M.R. Decker. **Contraceptive use among female sex workers in three Russian cities.** International Journal of Gynecology & Obstetrics, 131 (2) (2015), pp. 156-160

McCloskey et al., 2017. L.A. McCloskey, K.A. Doran, M.R. Gerber. **Intimate partner violence is associated with voluntary sterilization in women.** Journal of Women's Health (2002), 26 (1) (2017), pp. 64-70

Moore et al., 2012. E.M. Moore, J. Han, C.E. Serio-Chapman, C. Mobley, C. Watson, M. Terplan. **Contraception and clean needles: Feasibility of combining mobile reproductive health and needle exchange services prioritizing female exotic dancers.** Journal of Adolescent Health, 50 (2) (2012), p. S23

Morse et al., 2017. J.E. Morse, S. Ramesh, A. Jackson. **Reassessing unintended pregnancy: Toward a patient-centered approach to family planning.** Obstetrics and Gynecology Clinics of North America, 44 (1) (2017), pp. 27-40

Park et al., 2019. J.N. Park, K.H.A. Footer, M.R. Decker, C. Tomko, S.T. Allen, N. Galai, S.G. Sherman. **Interpersonal and structural factors associated with receptive syringe-sharing among a prospective cohort of female sex workers who inject drugs.** Addiction (Abingdon, England), 114 (7) (2019), pp. 1204-1213

Peitzmeier et al., 2019. S.M. Peitzmeier, A.L. Wirtz, A. Peryshkina, S. Sherman, E. Colantuoni, C. Beyrer, M.R. Decker. **Associations between violence and HIV risk behaviors differ by perpetrator among Russian sex workers.** AIDS and Behavior, 23 (9) (2019), pp. 2588-2599

Salazar et al., 2012. M. Salazar, E. Valladares, U. Hogberg. **Questions about intimate partner violence should be part of contraceptive counselling: Findings from a community-based longitudinal study in Nicaragua.** Journal of Family Planning and Reproductive Health Care, 38 (4) (2012), pp. 221-228

Schwartz and Baral, 2015. S.R. Schwartz, S. Baral. **Fertility-related research needs among women at the margins.** Reproductive Health Matters, 23 (45) (2015), pp. 30-46

Smith et al., 2018. S.G. Smith, X. Zhang, K. Basile, M. Merrick, J. Wang, M. Kresnow, J.S. Chen. **The National Intimate Partner and Sexual Violence Survey: 2015 data brief-updated release.** Available: https://www.cdc.gov/violenceprevention/datasources/nisvs/2015NISVSdatabrief.html (2018), Accessed 21st Jul 2021

Stockman et al., 2015. J.K. Stockman, H. Hayashi, J.C. Campbell. **Intimate partner violence and its health impact on ethnic minority women.** Journal of Women's Health (2002), 24 (1) (2015), pp. 62-79

Straus Hambly and Boney-McCoy, 1996. S.L. Straus Hambly, S.M.A. Boney-McCoy. **The Revised Conflicts Tactics Scales (CTS2): Development and preliminary psychometric data.** Journal of Family Issues, 17 (1996), pp. 283-316

Swailes et al., 2017. A.L. Swailes, E.B. Lehman, J.S. McCall-Hosenfeld. **Intimate partner violence discussions in the healthcare setting: A cross-sectional study.** Preventive Medicine Reports, 8 (2017), pp. 215-220

Thaller and Cimino, 2017. J. Thaller, A.N. Cimino. **The girl is mine: Reframing intimate partner violence and sex work as intersectional spaces of gender-based violence.** Violence Against Women, 2 (2) (2017), pp. 202-221

Thaller and Messing, 2014. J. Thaller, J.T. Messing. **Reproductive coercion by an intimate partner: Occurrence, associations, and interference with sexual health decision making.** Health and Social Work, 39 (3) (2014), pp. 181-191

Upadhyay et al., 2016. U.D. Upadhyay, S. Raifman, T. Raine-Bennett. **Effects of relationship context on contraceptive use among young women.** Contraception, 94 (1) (2016), pp. 68-73