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The impact of violence on sex risk and drug use behaviors among women engaged in sex work in Phnom Penh, Cambodia

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Contributors

Dr. Draughon, Ms. Evans, and Dr. Page had full access to all the data in the study and take responsibility for the integrity of the data and accuracy of the data analysis.

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Conflict of interest

For all authors, none declared.

DISCLOSURES

Disclaimer: The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH, National Institute on Drug Abuse or the National Institute of Nurse Research.

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Abstract

Background—Violence, substance use, and HIV disproportionately impact female entertainment and sex workers (FESW), but causal pathways remain unclear.

Methods—We examined data from an observational cohort of FESW age 15-29 in Phnom Penh, Cambodia for associations between violence exposure and sexual risk and drug use. Validated measures of physical and sexual violence were assessed at baseline. Self-reported outcomes measured quarterly over the next 12-months included past month sexual partners, consistent condom use by partner type, sex while high, and amphetamine type stimulant (ATS) use. Biomarkers measured quarterly included prostate specific antigen (PSA) and urine toxicology. Generalized estimating equations were fit adjusting for age, education, marital status and sex work venue.

Results—Of 220 women, 48% reported physical or sexual violence in the preceding 12-months. Physical violence was associated with increased number of sex partners (adjusted incidence rate ratio [aIRR] 1.33; 95% CI: 1.04-1.71), greater odds of sex while high (adjusted odds ratio [aOR] 2.42; 95% CI: 1.10-5.33), increased days of ATS use (aIRR 2.74; 95% CI: 1.29-5.84) and increased odds of an ATS+ urine screen (aOR 2.80, 95% CI: 1.38-5.66). Sexual violence predicted decreased odds of consistent condom use with non-paying partners (aOR 0.24; 95% CI: 0.10-0.59) and greater odds of a PSA+ vaginal swabs (aOR 1.83; 95% CI: 1.13-2.93).

Conclusions—Physical and sexual violence are prevalent among Cambodian FESW and associated with subsequent sexual risk and drug use behaviors. Clinical research examining interventions targeting structural and interpersonal factors impacting violence is needed to optimize HIV/AIDS prevention among FESW.

Keywords

violence; sexual risk; amphetamine; female sex workers; prostitution; Cambodia

1. INTRODUCTION

Women engaged in sex work are disproportionately impacted by human immunodeficiency virus (HIV; Shannon et al., 2014); they are over 13 times more likely to be living with HIV compared to all reproductive age women in low and middle income countries (Baral et al., 2012). Female entertainment and sex workers (FESW) comprise the group with the highest HIV incidence and prevalence in Cambodia with HIV prevalence of 13.9% to 17.4% in direct or brothel-based female sex workers and 3.6% to 9.8% in indirect or entertainment-based workers (Couture et al., 2011; National Center for HIV/AIDS Dermatology and STDs, 2010; Page et al., 2013). HIV risk in women engaged in sex work is widely recognized as attributable to overlapping individual (e.g., drug use), interpersonal (e.g., relationship factors impacting condom negotiation including violence exposure), and structural level factors (e.g., criminalization of sex work; Shannon et al., 2014). However, few studies examined temporal relationships among these overlapping risks prospectively, and knowledge gaps

remain (Argento et al., 2014; Shannon et al., 2014). One longitudinal study found violence exposure from an intimate partner was associated with inconsistent condom use with non-paying partners, but did not account for violence exposure from others, such as paying clients (Argento et al., 2014).

Previous cross-sectional studies demonstrate that physical and sexual violence are prevalent among women engaged in sex work and also associated with sexual risk and drug use behaviors. Violence exposed women engaged in sex work report more frequent anal sex (Patra et al., 2012), higher numbers of sex partners (Go et al., 2011), less frequent condom use (Beattie et al., 2010; Go et al., 2011) and are at higher risk of sexually transmitted infections than those who have not experienced recent violence (Shannon et al., 2014). Violence is also associated with increased alcohol (Surratt, 2007), illegal drug use (Hong et al., 2013; Surratt, 2007), including marijuana and cocaine (Surratt, 2007) as well as injection drug use (Ulibarri et al., 2011).

Drug use in female sex workers ranges between 17% in Cambodian entertainment based workers (Couture et al., 2012) to 31%-68% in Canadian street-based workers (Duff et al., 2011) or 37%-49% in a combined sample of Egyptian street and entertainment based workers (Kabbash et al., 2012). Drug use in women engaged in transactional sex has been associated with increased numbers of sex partners (Sherman et al., 2011; Surratt, 2007), inconsistent condom use (Shannon et al., 2014; Surratt, 2007) and sexually transmitted infection incidence (Couture et al., 2012; Shannon et al., 2014; Surratt, 2007). Amphetamine type stimulant (ATS) use is especially prevalent among women in Cambodia, and has been linked to increased risk of HIV (Couture et al., 2012, 2011; Maher et al., 2011b) in this population and others (Colfax et al., 2010). Women may engage in risk behaviors to escape or avoid the enduring psychological effects of violence (Baker et al., 2004; Vanwesenbeeck, 2001). In our previous work, ATS was described as a “power drug” women took to be able to serve more customers, and to “feel happy” (Maher et al., 2011b). It is also possible that women engaging in risky sex and drug use are more likely to be in circumstances with increased violence exposure risk. Prospective studies examining violence exposure and subsequent sexual risk and drug use will illuminate potential causal mechanisms and prevention intervention opportunities.

The Young Women's Health Study 2 (YWHS-2) prospectively followed women in Phnom Penh, Cambodia actively engaged in sex work, and who regardless of work venue are referred to as female entertainment and sex workers (FESW). Data were examined for associations of recent violence exposures with sexual risk and drug use behaviors over time. We hypothesized FESW with recent violence exposure would be more likely to engage in sexual risk taking and ATS use during the prospective follow-up, and furthermore that this relationship would be independent of ATS use (Couture et al., 2012, 2011).

2. METHODS

2.1. Study Settings and Participants

YWHS-2 was a prospective observational cohort of young women engaged in sex work in Phnom Penh, Cambodia. Methods have been previously described in detail (Couture et al.,

2012, 2011; Maher et al., 2011b; Page et al., 2013). Briefly, between August, 2009 and August, 2010, trained field assistants recruited and screened women for eligibility from YWHS information meetings held by the community partner Cambodian Women's Development Association, and from neighborhood based outreach visits, as well as referrals from previous participants. Women were eligible if they (a) were 15 to 29 years old, (b) understood spoken Khmer, (c) had two or more past month sexual partners *or* engaged in transactional sex (sex exchanged for money, goods, services, or drugs) in the past three months, (d) planned to stay in the area for the next 12 months, (e) were biologically female, and (f) able to provide voluntary informed consent. Field assistants invited eligible women to group meetings held at a community location used by various sex-worker organizations where detailed study information was provided and written informed consent was obtained. Over the one-year study, 345 women attended information sessions and 220 (64%) consented to participate. At the 3-month visit 91% attended follow-up, 83% at 6 months, and 78% at both 9-month and 12-month visits. The study team offered participants free transportation to and from baseline and quarterly study visits at the YWHS field site where structured surveys were administered in Khmer and they were tested for HIV. Self-collected vaginal swabs from participants at each study visit were tested for Prostate specific antigen (PSA) using the OneStep ABACard® p30 test (Abacus Diagnostics, West Hills, CA, USA; Evans et al., 2013). Urine samples screened for recent ATS use (Innovacon Multi-Drug Screen Test Panel Dip, Redwood Toxicology Laboratories, Santa Rosa, CA). Participants were given US \$5 and condoms at each study visit. The Cambodian National Ethics Committee and the University of California San Francisco Committee on Human Research reviewed and approved the study protocols.

2.2. Measures

The primary independent variable – past 12 month violence exposure – was assessed at baseline using behaviorally specific measures developed by the World Health Organization (WHO) Multi-Country Study of Women's Health and Domestic Violence (Garcia-Moreno et al., 2005). Two questions assessed physical violence: (1) During the last year have you been slapped, pushed, shoved, or had something thrown at you that can hurt you? (moderate violence, less likely to leave physical injury) and (2) During the last year have you been hit, kicked, beaten up, choked, burnt, threatened with a weapon (gun, knife, other)? (severe violence, more likely to leave physical injury). Sexual violence included a yes response to: During the last year have you been physically forced to have sex or had sex when you did not want to? For each type of violence (moderate physical, severe physical, and sexual violence) women indicated if violence was from a: (a) husband, sangsar (boyfriend), (b) regular sex client, (c) non-regular sex client, (d) an owner, boss, or manager or (e) other person. If a participant indicated violence by an “other” (category e), they were asked to specify from whom, which led to the additional category of police violence.

Sexual risk behavior outcomes included: number of past month sexual partners, consistent condom use with paying and non-paying partners, and sex while high on drugs. Self-reported recent consistent condom use included condom use 100% of the time with the last three male sex partners and whether each respective partner was paying (e.g., regular sex client, non-regular sex client) or non-paying (e.g., husband, sangsar). This measure of recent

condom use was chosen for two reasons: to be able to compare to PSA results, and to minimize recall bias. We have previously shown moderate correlation between self-reported condom use and PSA in this population (Evans et al., 2013). A positive PSA (PSA+) swab (greater than 4ng/mL) indicated exposure to semen (condomless sex) within 48 hours (Evans et al., 2013; MacAluso et al., 1999). ATS use assessment included self-reported number of past month days used, and urine screen results. A positive ATS (ATS+) toxicology screen (greater than 1000 ng/mL) indicated ATS use within 48 hours.

2.3. Analysis

We calculated proportions of women reporting past year physical and sexual violence at baseline and proportions of women exposed to violence from a specific group: husband/sangsar; regular sex client; non-regular sex client; owner/boss/manager; police and other. Analyses examining associations of baseline violence exposure with identified risk outcomes over time were conducted using generalized estimating equations in STATA (version 11.0 StataCorp, College Station, TX 2009). We used the negative binomial distribution and log link, and report incidence rate ratios (IRR) for count outcome variables (number of past month sex partners and days of past month ATS use). We used the binomial distribution and logit link, and report odds ratios (OR) for dichotomous outcome variables (consistent condom use with paying partners, consistent condom use with non-paying partners, sex while high, PSA+ or ATS+). Multivariate analyses included all three violence exposures (moderate physical, severe physical, and sexual) and known and hypothesized confounders: age, education, marital status, and past month sex work venue (Argento et al., 2014; Beattie et al., 2010; Couture et al., 2011; Hong et al., 2013; Patra et al., 2012; Surratt et al., 2012). Since our *a priori* hypothesis was that violence exposed women would have increased HIV risk even in the presence of ATS use, we adjusted each sexual risk model for self-reported days of ATS use. We assessed for collinearity using tolerance and variance inflation factor. We also assessed for interactions among the categories of violence exposures as well as between each category of violence exposure and days of ATS use.

3. RESULTS

Almost half (48%) the women experienced some form of physical or sexual violence in the 12 months preceding baseline: 35% moderate physical violence, 21% severe physical violence, and 27% sexual violence (Table 1). Figure 1 depicts the overlap between the three violence exposure categories. The largest proportion reported experiencing moderate physical violence only (11.0%) followed by 10.8% of FESW reporting moderate, severe, and sexual violence in the 12 months preceding baseline. There was no association between violence exposure and loss-to-follow-up.

Women's median age was 26 years (Interquartile range [IQR]: 22, 28). Fifty-seven percent completed between 1 and 6 years of primary education. Only 21% reported never being married. All women reported transactional sex: 68% conducted sex work in an entertainment venue or brothel in the past month, the remaining 32% reported working freelance; 45% reported having 5 sex partners in the past month and 23% reported having 16 past month sex partners. A high proportion (84%) of women reported consistent condom use with

paying sex partners, yet only 12% reported consistent condom use with non-paying partners. ATS use in the past month was reported by 27%, as was having sex while high on drugs.

As shown in Figure 2, the majority of violence experienced by FESW in this sample was from a non-paying sex partner (husband, *sangsar*) or a non-regular sex client. A greater proportion (16%) of women experienced moderate physical violence from a non-paying partner, followed by moderate physical violence from non-regular sex clients (10%) and police (10%). The largest proportion of sexual violence was from non-regular sex clients (18%), over four times greater than sexual violence from regular sex clients (4%).

Table 2 shows multivariate longitudinal analyses examining baseline violence (including violence from all perpetrators) and subsequent sexual risk and ATS use behavior outcomes. Moderate physical violence was independently associated with a higher number of sex partners (adjusted incidence rate ratio [aIRR] 1.33; 95% CI: 1.04-1.71), controlling for other violence exposure categories, past month ATS use, age, education, marital status, and sex work venue. Violence exposure was not associated with consistent condom use with paying partners. After adjusting for other violence exposure categories, past month ATS use, age, education, marital status, and sex work venue women who experienced sexual violence had 76% lower odds of reporting consistent condom use with non-paying partners (adjusted odds ratio [aOR] 0.24; 95% CI: 0.10-0.59) and 83% greater odds of providing a PSA+ vaginal swab (aOR 1.83; 95% CI: 1.13-2.98) indicating recent condomless sex. Women reporting moderate physical violence at baseline had more than 2-fold greater odds of reporting sex while high (aOR 2.42; 95% CI: 1.10-5.33) during the prospective study period. Moderate physical violence at baseline was also associated with a higher number of days of ATS use (aIRR 2.74; 95% CI: 1.29-5.84) and with more than 2-fold greater odds of an ATS+ urine toxicology result (aOR 2.80; 95% CI: 1.38-5.66). No interactions among violence exposure categories or between violence and ATS use remained significant in multivariate analysis.

4. DISCUSSION

In this study, violence exposure among FESW in Phnom Penh was highly prevalent and independently associated with increased sexual risk, including numbers of sex partners and unprotected sex with non-paying sex partners. This study is among the first to examine violence and sexual risk prospectively. Consistent with other studies assessing prevalent violence exposure among FESW, over 25% of the women reported sexual violence (Argento et al., 2014; Beattie et al., 2010; Go et al., 2011), and 35% moderate physical violence (Surratt et al., 2012). Women reporting moderate physical violence exposure, compared to those who did not, were more likely to subsequently report higher numbers of sexual partners and having sex while high. In addition to inconsistent condom use with non-paying partners, women exposed to sexual violence, compared to those who were not, were also more likely to test positive for PSA. The PSA test, which indicates recent semen exposure, cannot be linked to a type of sex partner, however, together these findings regarding condomless sex exposures reveal critical prevention needs for these women.

Over 21% of the FESW reported physical or sexual violence from non-paying partners, and sexual violence exposure was independently associated with lower likelihood of consistent

condom use with non-paying partners compared to FESW not reporting sexual violence. In the Cambodian context, FESW may have various non-paying partners, such as husbands or boyfriends. The sangsar or “sweetheart” may be considered a boyfriend or romantic intimate relationship. As well, women may be dependent on non-paying sex partners for food, shelter, money or other goods (Richter et al., 2002). Condom use is often seen as inappropriate in these non-paying partnerships (Maher et al., 2013; Richter et al., 2002). In entertainment and sex work contexts, condom use, or the suggestion of condom use has been associated with increased violence from clients (Stockman et al., 2012), in addition to intimate partners (Argento et al., 2014). The proportion of women in this study who experienced violence from non-paying partners is within the range reported in previous studies (Decker et al., 2014; Hong et al., 2013). The link between sexual violence and subsequent decreased condom use with non-paying partners is concerning. This finding, together with the association between sexual violence and a positive PSA suggest there is a need for dyadic interventions, engaging both FESW and their non-paying partners. Although dyadic interventions for intimate partner violence exist, they have not been adapted for the more heterogeneous population of FESW (Jones et al., 2013; Weaver et al., 2015).

FESW experience violence from a variety of people: paying clients, non-paying partners, owners/bosses/managers, police, family and/or friends, as well as strangers. Our proportions are comparable to those reported by others for clients (Decker et al., 2014), and owner/boss/manager(s) (Decker et al., 2012). Interestingly, women reported lower rates of violence from regular sex clients compared to non-regular sex clients. These differences may be due to FESW selecting non-violent clients as “regulars,” whereas violent sex clients are not solicited for repeat exchanges – highlighting an important delineation between regular and non-regular sex clients for future research. These relationships present complex challenges for interventions, especially for vulnerable women dependent on paying partners for financial security for themselves and their families.

Police abuse of sex workers negatively impacts HIV prevention and sex risk behaviors (Decker et al., 2014; Shannon et al., 2014). While only a small proportion (10%) of women in our study reported violence from police, any police violence demonstrates the need for structural interventions and reform, including criminal prosecutions against police and other men who victimize FESW (Decker et al., 2014; Maher et al., 2015). Since identifying police violence was not an original aim of the parent study, nor was it a pre-specified perpetrator option, we may not have captured the full breadth of police violence exposure among women in our sample. Police violence has been reported widely by FESW in Cambodia following the enactment of the ‘Law on Suppression of Human Trafficking and Sexual Exploitation’ in February 2008 (Maher et al., 2015, 2011a; Page et al., 2013). This ban on brothel-based sex work resulted in large shifts in sex work typology and settings (Vun et al., 2014), reducing FESW access to preventive services and care (Page et al., 2013). National agencies and advocacy groups in Cambodia are actively trying to reduce abuse and human rights violations in FESW (Decker et al., 2014; Kiss et al., 2015; Lilja and Baaz, 2015), and to coordinate these approaches with HIV/AIDS prevention efforts in this population (Beyrer et al., 2014; United Nations Development Program, 2014). In most parts of the world, some or all aspects of sex work are criminalized, leaving women who engage in these behaviors vulnerable to abuse with few legal protections. In Cambodia, there is a need to address the

conflicting outcomes of the anti-trafficking policies in order to better meet HIV prevention goals (Maher et al., 2015).

Concomitantly, interventions to decrease ATS use, both individually and in the venues where sex is sold should be explored. Women who reported moderate physical violence, compared to those who did not, were significantly more likely to report a greater number of days of past month ATS use, to screen positive for ATS and to engage in sex while high. In previous work with this cohort, Cambodian FESW used ATS to increase the number of hours they could work, and reported reduced concern for HIV prevention when having sex while feeling the effects of ATS (Maher et al., 2011b).

Our study has several limitations, including self-reported risk exposure data, which may have been under-reported for social desirability motives. Even so, biomarker data (PSA and ATS toxicology) substantiate both self-reported data and the associations between recent violence exposure and subsequent sexual risk taking and ATS use. As this was a secondary analysis, insufficient power may account for interactions among violence exposures not retaining significance in the multivariate models, and may also partially explain “moderate” physical violence being significantly associated with the outcomes of interest, more so than “severe” physical violence. More research is needed to better understand the distinctions (if any) between physical violence less likely to result in injury (moderate), and physical violence more likely to result in injury (severe) or whether specific acts (e.g., hitting, kicking) are associated with specific sexual risk and drug use behaviors.

Violence, or the threat of violence, is a significant contributor to HIV risk in FESW and undermines women's ability to practice safe sex and safer drug use. The intersection of exposure to violence, sexual risk taking, and ATS use has important implications for HIV prevention in FESW in Cambodia and potentially elsewhere. In this sample, FESW with recent exposure to violence were more likely to engage in sexual risk and drug use behaviors over the prospective follow-up. While women are not the only population to experience violence and the associated increased HIV risk, FESW are particularly vulnerable to violence due to the stigmatized, often illegal nature of their work, and – in most societies – consequent low social status.

HIV prevention efforts for FESW often focus on modifying individual risk behavior; risk behaviors which women often have little control over, such as consistent condom use (Vun et al., 2014) illustrating the critical importance of finding effective female-controlled HIV prevention strategies such as pre-exposure prophylaxis. Violence exposure is not an individually modifiable risk factor. Focusing prevention efforts on victims without including partners and other potential perpetrators will not create lasting change and may perpetuate victim-blaming (Venema, 2014; World Health Organization and London School of Hygiene and Tropical Medicine, 2010).

However, despite increased recognition of the importance, need for, and value of, synergistic investment in gender responsive HIV programming (United Nations Development Program, 2014), large gaps remain in prevention of violence against women involved in sex work. Gender responsive HIV programming will need to consider the

personal safety and confidentiality of FESW and would benefit from staff trained in addressing the traumatic effects of violence. Such action will need to involve attention from many sectors to address interpersonal and structural roots of gender inequality and the protection of human rights for vulnerable women.

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Highlights

- Almost half the women engaged in sex work reported violence in the past 12 months.
- Prior physical violence exposure associated with subsequent sexual risk taking.
- Physical violence was associated with amphetamine type stimulant (ATS) use.
- Sexual violence was associated lower levels of condom use with non-paying partners.

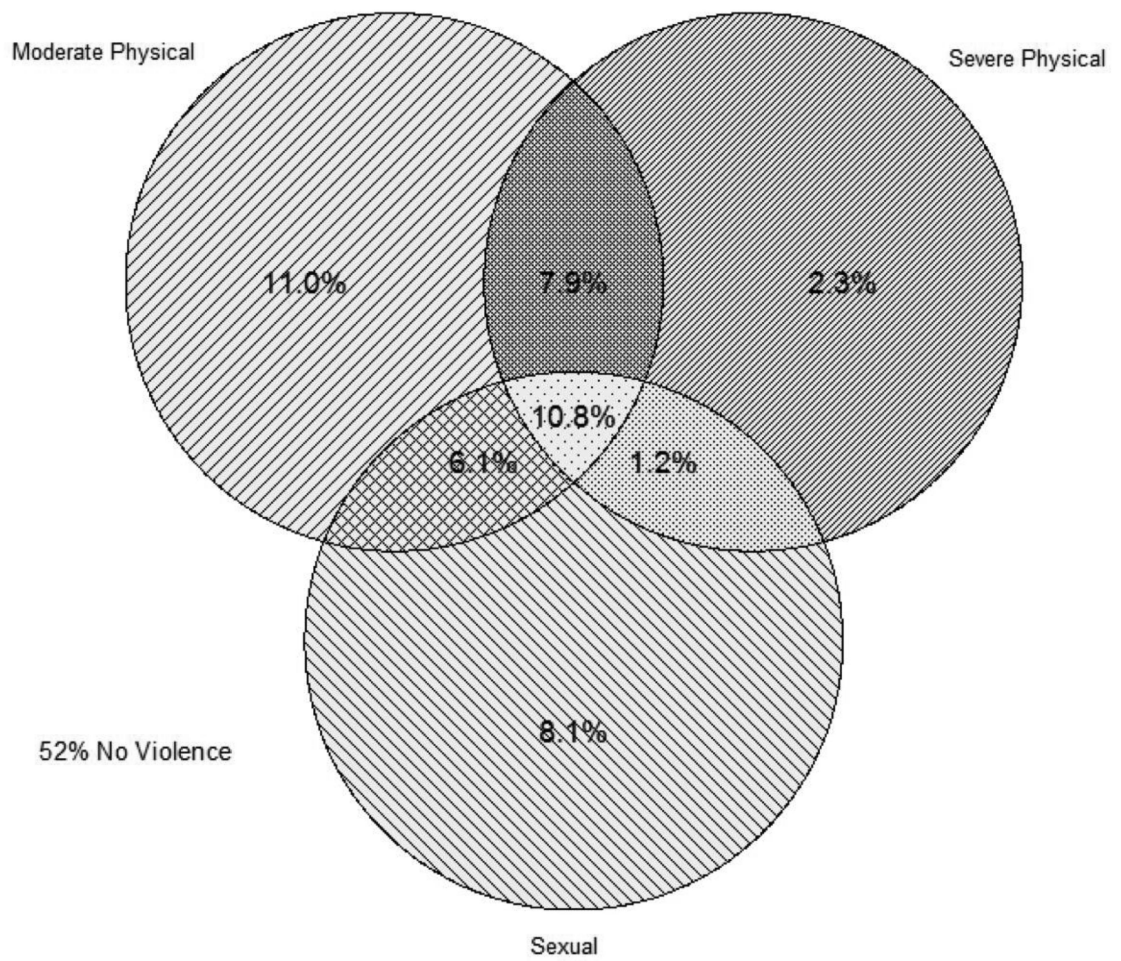


Figure 1.
Proportions of baseline physical and sexual violence

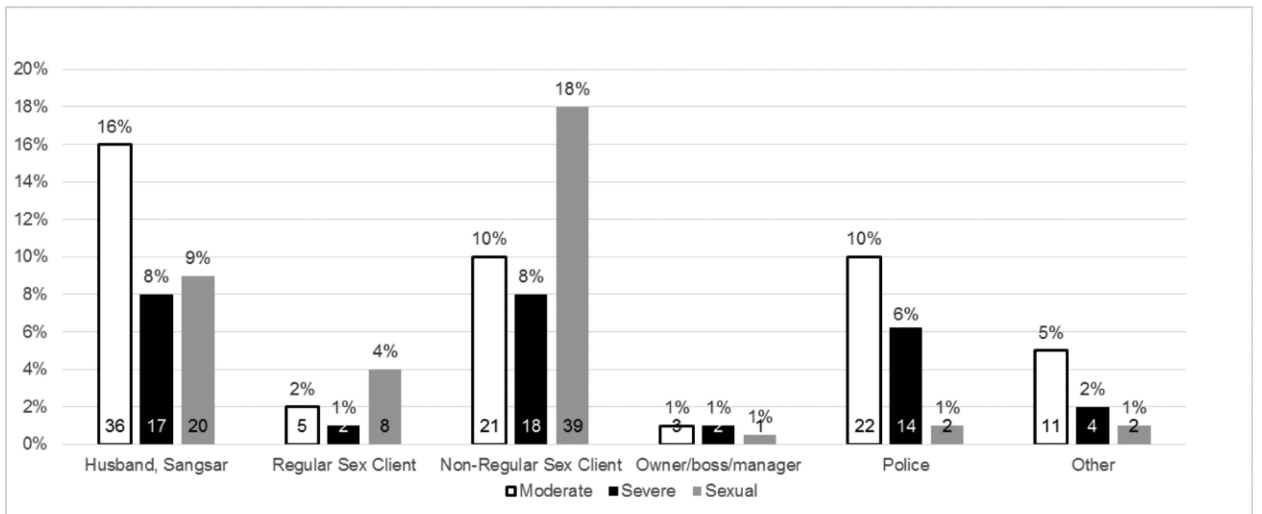


Figure 2.
Physical and sexual violence exposure at baseline by perpetrator category

Table 1

Selected baseline demographic characteristics, sexual behaviors, drug use and violence exposures among young women engaged in sex work in Phnom Penh, Cambodia (n=220).

| Characteristic | N/Median | %/IQR |
|---|-----------------|--------------|
| Age | 26 (22 – 28) | |
| 16-20 | 41 | 19 |
| 21-25 | 68 | 31 |
| 26-29 | 111 | 50 |
| Education | | |
| None | 50 | 23 |
| Primary (1-6 years) | 125 | 57 |
| Secondary (7+ years) | 45 | 20 |
| Marital Status | | |
| Never married | 45 | 21 |
| Married-living together | 84 | 38 |
| Widowed/Divorced/Separated | 91 | 41 |
| Type of sex work venue (last month) | | |
| Entertainment-based | 149 | 68 |
| Freelance | 71 | 32 |
| Number of sex partners (last month) | 6 (4 – 15) | |
| 5 | 99 | 45 |
| 6-15 | 71 | 32 |
| 16 | 50 | 23 |
| Condom use with paying partners | n=218 | |
| Consistent | 184 | 84 |
| Inconsistent | 34 | 16 |
| Condom use with non-paying partners | n=167 | |
| Consistent | 20 | 12 |
| Inconsistent | 147 | 88 |
| Sex while high | 60 | 27 |
| Days of ATS use (last month) | 0 (0 – 2) | |
| None | 160 | 73 |
| < 5 days | 17 | 8 |
| 5-10 days | 15 | 7 |
| > 10 days | 28 | 13 |
| Violence Exposure (past 12 months)^a | | |
| None | 114 | 52 |
| Moderate Physical Violence | 78 | 35 |
| Severe Physical Violence | 46 | 21 |
| Sexual Violence | 59 | 27 |

ATS indicates amphetamine type stimulants

^aViolence exposure categories are not mutually exclusive

Table 2

Multivariate longitudinal analysis for effect of baseline violence exposure on sexual and drug use risks among young women engaged in sex work in Phnom Penh, Cambodia

| | Number of sex partners | Condom use with paying partners | Condom use with non-paying partners | Positive PSA | Sex while high | Days ATS use | Positive ATS Tox Screen |
|-------------------|----------------------------|---------------------------------|-------------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|
| Violence Exposure | aIRR (95% CI) ^a | aOR (95% CI) ^a | aOR (95% CI) ^a | aOR (95% CI) ^a | aOR (95% CI) ^b | aIRR (95% CI) ^b | aOR (95% CI) ^b |
| Moderate Physical | 1.33 (1.04-1.71) | 0.60 (.30-1.19) | 1.32 (.60-2.87) | 0.95 (0.53-1.72) | 2.42 (1.10-5.33) | 2.74 (1.29-5.84) | 2.80 (1.38-5.66) |
| Severe Physical | 0.97 (.75-1.25) | 1.77 (.81-3.83) | 1.71 (.73-4.01) | 1.17 (0.56-2.44) | .051 (.44-2.52) | 0.80 (.36-1.78) | 0.72 (.29-1.78) |
| Sexual | 1.18 (.96-1.44) | 0.61 (.32-1.17) | 0.24 (.10-.59) | 1.83 (1.13-2.98) | 0.95 (.47-1.94) | 0.90 (.50-1.65) | 0.55 (.23-1.28) |

Bold text indicates significance $p < 0.05$; PSA: prostate specific antigen; ATS: amphetamine type stimulants; aIRR: adjusted incident rate ratio; aOR: adjusted odds ratio; CI: confidence interval

^aAdjusted models controlled for days of ATS use in the last month, age, education, marital status, and sex work venue

^bAdjusted models controlled for age, education, marital status, and sex work venue