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Risks associated with crack cocaine smoking among exotic dancers in Baltimore, MD

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Abstract

Background—There is a dearth of research focusing on sex work in exotic dance clubs. We conducted a cross-sectional study to examine the prevalence and correlates of crack cocaine smoking among a sample of exotic dancers.

Methods—The “block,” a historical red-light district in downtown Baltimore, MD, is comprised of 30 adult-entertainment establishments. Between 01/09-08/09, we conducted a survey with exotic dancers (N=98). The survey explored demographic, and drug and sexual/drug risk behaviors. Bivariate and multivariate analysis was conducted using Poisson regression with robust variance estimates to examine correlates of current crack smoking.

Results—Crack cocaine smokers compared to non-crack cocaine smokers were significantly more likely to report: older age (29 vs. 23 years, respectively, $p<0.0001$); being White (79% vs. 50%, respectively, $p=0.008$); having been arrested (93% vs. 67%, respectively, $p=0.008$); daily alcohol consumption (36% vs. 17%, $p=0.047$); current heroin injection (57% vs. 13%, $p<0.001$); and current sex exchange (79% vs. 30%, $p<0.001$). In the presence of other variables, crack cocaine smokers compared to non-crack cocaine smokers were significantly older, more likely to report current heroin injection, and more likely to report current sex exchange.

Discussion—We found high levels of drug use and sexual risk behaviors as well as a number of risks behaviors associated with crack cocaine smoking among this very under-studied population. Targeted interventions are greatly needed.

1. Introduction

Baltimore City suffers from high rates of STIs, HIV, drug use, and poverty. In the last decade, Baltimore has ranked among the top U.S. cities for heroin and crack-related emergency department visits (Substance Abuse and Mental Health Services Administration, 2004) and has some of the highest STI rates in the country (Centers for Disease Control and Prevention, 2009). These dynamic, interconnected epidemics primarily affect low-income, inner-city residents whose ability to make healthy decisions is often impeded by limited

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economic and social resources. An extensive body of research has focused on HIV risks among injection drug users in Baltimore with less attention to that among crack cocaine smokers (CCSs) in Baltimore (Vlahov et al., 1991). Crack cocaine use has been associated with elevated rates of HIV and STIs (Edlin et al., 1994; Jones et al., 1998) and risk behaviors such as selling sex, having multiple sex partners, and frequent unprotected sex (Elwood et al., 1997; Edlin et al., 1994; Maher and Curtis, 1992).

HIV and STI risks are intensified in the context of drug use, particularly crack cocaine use among women, with elevated rates of sex for money or drugs among female CCSs (Atkinson et al., 2010; Malta et al., 2008; Shannon et al., 2007). Among CCSs, transactional sex is one of the few apparent options for earning money to support expensive drug habits. The HIV/STI risks associated with transactional sex greatly vary depending upon the context in which it occurs (De Graaf et al., 1996; Jackson, et al., 1992). Increasing evidence supports the role of the environment as generating HIV/STI risk, beyond the behaviors of involved individuals (Rhodes 2009; Rhodes et al., 2006). The risk environment has been defined as the physical or social space in which factors interact to increase the occurrence of harm (Rhodes 2009). Extensive research has examined the HIV risks associated with sex work, which is heightened in settings where sex work is illegal (Shannon et al., 2009; Goodyear and Cusick 2007). Very little empirical work has examined the harms and vulnerabilities associated with exotic dancing (Maticka-Tyndale et al., 1999). Through a cross-sectional study, we examined sexual and drug-related risk behaviors among exotic dancers in Baltimore, MD, specifically examining the role of crack cocaine smoking on risk behaviors.

2. Methods

2.1. Participants

The study sample is comprised of female exotic dancers (N=98) who work on “the Block,” a two-block segment of East Baltimore Street in Baltimore, MD that is home to approximately 30 strip clubs, bars, and other adult entertainment venues. In May 2008, the Baltimore City Health Department (BCHD) expanded their needle exchange program (NEP) to provide evening services on the Block. The NEP provides services including needle exchange, condom distribution, HIV testing, and medical and drug treatment referrals one evening a week from 8:00 pm to 12:00am.

2.2. Procedures

In collaboration with BCHD, we conducted a cross-sectional survey from July, 2008 to February, 2009 with exotic dancers, to examine the extent of sexual and drug-related risk behaviors. Participants were recruited through targeted outreach by two female study staff who were trained by the lead author. Inclusion criteria were: being at least 18 years of age, reporting exotic dancing in the past three months, and residing in Baltimore City. Potential participants were given a description of the study and read the informed consent. Eighty-five percent of women approached agreed to participate in the study. Interviews occurred in a private setting within the NEP van or in a private room in a club. Upon providing consent, participants were enrolled in the study.

Eligible study participants were administered a 20 minute questionnaire which ascertained socio-demographic characteristics, institutional history (e.g., arrest, incarceration), drug use and sexual practices, and employment history. The questionnaire was piloted with several strippers and revised accordingly. Participants were compensated with a \$10 gift card for study participation. The study was approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

2.3. Measures

Dependent Measures: Past and/or recent (within the past three months) use of alcohol, heroin, cocaine, and pills as well as questions regarding route of drug administration (e.g., smoke, inject), frequency of drug use, overdose, and the role of the club context (e.g., “Did you {*drug type*} before you began dancing?”) were ascertained. Sexual history and recent practices with specific types of partners (primary, casual, and sex exchange) was examined. A sex exchange partner was defined as a sex partner with whom the participant has exchanged sex for money or drugs. Recent condom use during different sexual acts (oral, vaginal, and anal) and sexual activity within and outside of the clubs were as well as recent sexual activity and risk behaviors in the club was also reported.

Independent Measures: The study's outcome measure was current crack smoking, defined as any self-reported crack smoking within the past three months. Dancers reporting current crack smoking are referred to as “CCSs,” with comparisons made to “non-CCSs.”

2.4 Statistical Analysis

Frequencies, proportions for categorical variables, and means for continuous variables were used to describe the sample population and central tendencies. Differences were tested using two-tailed chi-squared tests for binary and categorical variables and t-tests for continuous variables. Bivariate and multivariate analyses were conducted using Poisson regression with robust variance estimates to examine correlates of current crack smoking. We used Poisson regression with robust variance to directly estimate the prevalence ratios of interest, as the odds ratio can overestimate the risk ratio when the outcome of interest is common (Behrens, et al., 2004). Selected variables of theoretical interest were included in the multivariable model. Multiple linear regression was performed to assess the variance inflation factor to check for colinearity among the covariates in the final Poisson regression model, which was below 10. Regression diagnostic tools were used on the final multivariable model, including Pearson's Goodness of Fit test and plots of observed versus predicted counts. All statistical analyses were conducted using STATA 10 (Stata Corporation, College Station, TX, 2006).

3. Results

Table 1 describes participants' baseline characteristics (N=98), stratified by current crack smoking. There were a number of significant differences between the two groups. Compared to non-CCSs, CCSs were significantly more likely to report: older age (29 vs. 23 years, $p<0.0001$); being White (79% vs. 50%, $p=0.008$); having been arrested (93% vs. 67%, $p=0.008$); daily alcohol consumption (36% vs. 17%, $p=0.047$); a higher average daily drug expenditure (\$97 USD vs. \$30 USD, $p<0.001$); ever having injected heroin (68% vs. 29%,

$p < 0.001$); currently injecting heroin (57% vs. 13%, $p < 0.001$); currently sniffing/snorting cocaine (29% vs. 6%, $p = 0.002$); current pill use (43% vs. 14%, $p = 0.002$); and ever having overdosed (47% vs. 16%, $p = 0.001$). CCSs, as compared to non-CCSs were significantly more likely to report: ever having exchanged sex (93% vs. 49%, $p < 0.001$); currently exchange sex (79% vs. 30%, $p < 0.001$); a longer number of average years of dancing (10 vs. 4, $p < 0.001$); selling oral sex in the club (79% vs. 27%, $p < 0.001$); selling vaginal or anal sex in the club (68% vs. 23%, $p < 0.001$); initiating drug use after beginning to dance (68% vs. 20%, $p < 0.001$); and using drugs in the club (89% vs. 44%, $p < 0.001$).

Table 2 displays a multivariable model examining correlates of current crack smoking. In the presence of other variables, CCSs compared to non-CCSs were significantly: older (Prevalence Ratio [PrR]: 2.7; 95% confidence interval [CI]: 1.3, 5.6), more likely to report current heroin injection (PrR: 2.1; 95% CI: 1.1, 4.0); and more likely to report current sex exchange (PrR: 2.7; 95% CI: 1.2, 6.3).

4. Discussion

The study is one of the first to empirically examine sexual and drug risks among a sample of exotic dancers. Although exotic dancing is not always characterized by sex work, we found high rates of sex work among this small sample. Selling sex and using drugs were largely initiated after having begun dancing. The longer women worked in the clubs, the more likely they were to smoke crack cocaine. The findings point to a number of risks associated with dancing in exotic dance clubs, suggesting that appropriate interventions should focus on the structural and social situation in which dancing and risk behaviors occur – that of the club itself. (Rhodes 2009)

Over 40% of women reported currently engaging in transactional sex, with close to three times as many CCSs reporting this behavior compared to non-CCSs. This difference could likely be attributed to CCSs' additional financial need to support their drug habit. Consistent condom use with sex exchange partners was reported by a large percentage of partners. Among this small sample, alcohol and illicit drug use was prevalent, with multiple drug use common, particularly among CCSs compared to non-CCSs. It is likely that drug use served as coping mechanisms to deal with the harsh realities of the clubs as well as a way to lower their inhibitions in conducting transactional sex, as found in a small qualitative study of Canadian exotic dancers (Maticka-Tyndale et al., 1999). Given the cross-sectional nature of the study, it is not possible to delineate the cyclical nature of drug use and sex work that characterizes this population.

These data indicated that there were several features associated with the clubs themselves that rendered them risk environments, in that they enabled and generated risk beyond that of individuals' behaviors (Rhodes 2009; Rhodes 2006). The majority of sex exchange reportedly began after participants began to dance, regardless of crack use status. One-third of the sample reported that they initiated illicit drug use after they had begun to dance, while three times as many CCSs compared to non-CCSs reported initiating drug use after dancing. The primacy of exotic dance clubs as risk environments as well as the nature of risk

generated from these environments merit further exploration in a study designed with this aim in mind.

To date, the majority of interventions targeting female sex workers have focused on individual behavior change. However, as these data suggest, environmental interventions that seek to regulate or intervene upon the occupational hazards of exotic dancing would be much more effective in creating sustainable and effective behavior change. These types of interventions could even be successful in the context of the illegality of sex work if the clubs are willing to acknowledge and intervene upon these realities.

In the presence of other variables, we found that length of dancing, current heroin injection, and engaging in sex exchange are associated with current crack smoking. If age is viewed as a proxy for length of time dancing, women are more likely to use crack the longer that they dance. CCSs were three times more likely to sell sex compared to non-CCSs. The cooccurrence of crack use with heroin injection and transactional sex indicate the clustering of these risk behaviors – potentially creating synergy that exponentially increases women's exposure to HIV/STIs.

The study's results should be viewed in light of several limitations. The sample was non-randomly selected which limits the study's generalizability. The sample was small (n=98) so power to detect associations in the multivariable model was limited. Data were gathered by self-report, which is subject to social desirability bias and can result in a bias that weakens associations between variables. Finally, this was a cross-sectional analysis, so temporal sequences of events cannot be properly identified, limiting the ability to draw causal inferences.

In spite of these limitations, the study provides insights into the degree of drug use and sexual risk behaviors among exotic dancers and the degree to which these risks are associated with the clubs, the very environments in which they occur. The study sheds light on a completely understudied yet high-risk population that merits future observational and intervention research attention. A larger and more rigorous study design is needed to understand the role of exotic dance clubs as an HIV/STI risk environment and to understand the level of risk generated by these clubs relative to other environments in which sex is sold (e.g., street, brothels). A prospective study might provide a deeper understanding of the nature of the relationship between drug use and transactional sex.

References

- Atkinson JS, Williams ML, Timpson SC, Schonnesson LN. Multiple sexual partnerships in a sample of African-American crack smokers. *AIDS Behav.* 2010; 14:48–58. [PubMed: 18161020]
- Behrens T, Taeger D, Wellmann J, Keil U. Different methods to calculate effect estimates in cross-sectional studies. A comparison between prevalence odds ratio and prevalence ratio. *Methods Inf Med.* 2004; 43:505–509. [PubMed: 15702210]
- Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance Report 2008. Centers for Disease Control and Prevention; Atlanta, GA: 2009.
- de Graaf R, van Zessen G, Vanwesenbeeck I, Straver CJ, Visser JH. Segmentation of heterosexual prostitution into various forms: a barrier to the potential transmission of HIV. *AIDS Care.* 84:417–431.

- Edlin BR, Irwin KL, Faruque S, McCoy CB, Word C, Serrano Y, Inciardi JA, Bowser BP, Schilling RF, Holmberg SD. Intersecting epidemics--crack cocaine use and HIV infection among inner-city young adults. Multicenter Crack Cocaine and HIV Infection Study Team. *N Engl J Med*. 1994; 331:1422-1427. [PubMed: 7969281]
- Elwood WN, Williams ML, Bell DC, Richard AJ. Powerlessness and HIV prevention among people who trade sex for drugs ('strawberries'). *AIDS Care*. 1997; 9:273-84. [PubMed: 9290833]
- Goodyear MD, Cusick L. Protection of Sex Workers. *BMJ*. 2007; 334:52-3. [PubMed: 17218668]
- Jackson L, Highcrest A, Coates RA. Varied potential risks of HIV infection among prostitutes. *Soc Sci Med*. 1992; 35:281-286. [PubMed: 1519080]
- Jones DL, Irwin KL, Inciardi J, Bowser B, Schilling R, Word C, Evans P, Faruque S, McCoy HV, Edlin BR. The high-risk sexual practices of crack-smoking sex workers recruited from the streets of three American cities. The Multicenter Crack Cocaine and HIV Infection Study Team. *Sex Transm Dis*. 1998; 25:187-93. [PubMed: 9564720]
- Maher L, Curtis R. Women on the edge of crime: Crack cocaine and the changing contexts of street-level sex work in New York City. *Crime, law and social change*. 1992; 18:221-258.
- Maticka-Tyndale E, Lewis J, Clark JP, Zubick J, Young S. Social and cultural vulnerability to sexually transmitted infection: the work of exotic dancers. *Can J Public Health*. 1999; 90:19-22. [PubMed: 10189733]
- Malta M, Monteiro S, Lima RM, Bauken S, Marco A, Zuim GC, Bastos FI, Singer M, Strathdee SA. HIV/AIDS risk among female sex workers who use crack in Southern Brazil. *Rev Saude Publica*. 2008; 42:830-837. [PubMed: 18833383]
- Mehta SH, Galai N, Astemborski J, Celentano DD, Strathdee SA, Vlahov D, Nelson KE. HIV incidence among injection drug users in Baltimore, Maryland (1988-2004). *J Acquir Immune Defic Syndr*. 2006; 4:368-72. [PubMed: 16980912]
- Nandi A, Glass TA, Cole SR, Chu H, Galea S, Celentano DD, Kirk GD, Vlahov D, Latimar WW, Mehta SH. Neighborhood poverty and injection cessation in a sample of injection drug users. *Am J Epidemiol*. 2010; 171:391-398. [PubMed: 20093307]
- Rhodes T. Risk environments and drug harms: a social science for harm reduction approach. *Int J Drug Policy*. 2009; 20:193-201. [PubMed: 19147339]
- Rhodes T, Kimber J, Small W, Fitzgerald J, Kerr T, Hickman M, Holooway G. Public injecting and the need for 'safer environment interventions' in the reduction of drug-related harm. *Addiction*. 2006; 101:1384-1393. [PubMed: 16968336]
- Shannon K, Strathdee SA, Shoveller J, Rusch M, Kerr T, Tyndall MW. Structural and environmental barriers to condom use negotiation with clients among female sex workers: implications for HIV-prevention strategies and policy. *Am J Public Health*. 2009; 99:659-665. [PubMed: 19197086]
- Shannon K, Bright V, Gibson K, Tyndall MW. Sexual and drug-related vulnerabilities for HIV infection among women engaged in survival sex work in Vancouver, Canada. *Can J Public Health*. 2007; 98:465-469. [PubMed: 19039884]
- Sherman SG, Plitt S, ul Hassan S, Cheng Y, Zafar ST. Drug use, street survival, and risk behaviors among street children in Lahore, Pakistan. *J Urban Health*. 2005; 82:iv113-iv124. [PubMed: 16107434]
- Substance Abuse Mental Health Services Administration. The DAWN Report. Rockville, MD: 2004. National Admissions to Substance Abuse Treatment Services. Treatment Episodes Data Set: 1995-2002..
- Vlahov D, Anthony JC, Munoz A, et al. The ALIVE Study: A longitudinal study of HIV-1 infection in intravenous drug users: a description of methods. *NIDA Res Monogr*. 1991; 109:75-100. [PubMed: 1661376]

Table 1

Demographic, drug use, sexual behaviors, and exotic dance characteristics of strippers (N=98), stratified by current crack cocaine smoking

Risk Factor	Total Sample, n (%) N=98	Non-CCS, N=70	Current CCS, N=28	P-value
Age (mean, SD)	24.9 (5.5)	23.2 (4.3)	29.1 (5.9)	<0.0001
Race				
White	57 (58.1)	35 (50.0)	22 (78.6)	0.008
Black	29 (29.6)	27 (38.6)	2 (7.1)	
Other	12 (12.3)	8 (11.4)	4 (14.3)	
Primary partner	72 (73.5)	53 (75.7)	19 (67.9)	0.43
Length at current residence				
6 months or longer	52 (53.1)	41 (58.6)	11 (39.3)	0.084
< 6 months	46 (46.9)	29 (41.4)	17 (60.7)	
Ever arrested	73 (74.5)	47 (67.1)	26 (92.9)	0.008
<i>Drug use</i>				
Daily alcohol consumption	22 (22.5)	12 (17.1)	10 (35.7)	0.047
Daily drug expenditure (mean, SD)	\$49.4 (74.0)	\$30.3 (59.4)	\$97.1 (85.6)	<0.001
Ever injected	39 (39.8)	20 (28.6)	19 (67.9)	<0.001
Current heroin injector	25 (25.5)	9 (12.9)	16 (57.1)	<0.001
Currently sniff/snort cocaine	12 (12.2)	4 (5.71)	8 (28.6)	0.002
Current pill use (e.g., uppers, downers, sleeping pills, xanax)	22 (22.5)	10 (14.3)	12 (42.9)	0.002
Ever overdosed	24 (24.5)	11 (15.7)	13 (46.4)	0.001
<i>Sexual Behaviors</i>				
Ever exchanged sex	60 (61.2)	34 (48.6)	26 (92.9)	<0.001
Currently exchange sex	43 (43.9)	21 (30.0)	22 (78.6)	<0.001
Always ⁺ use condoms with primary partner during vaginal sex (n=82)	22 (26.8)	19 (32.2)	3 (13.0)	0.079
Always ⁺ used condoms with sex exchange partners during vaginal sex (n=37)	31 (83.8)	14 (87.5)	17 (81.0)	0.447
<i>Dancer and Exotic Club Characteristics</i>				
Years dancing (mean, SD)	5.5 (6.0)	3.7 (4.4)	10.0 (7.1)	<0.001

Risk Factor	Total Sample, n (%) N=98	Non-CCS, N=70	Current CCS, N=28	P-value
Initiated sex exchange after beginning to dance (n=60)	40 (66.7)	22 (64.7)	18 (69.2)	0.713
Sold vaginal or anal sex in the club ⁺	35 (35.7)	16 (22.9)	19 (67.9)	p<0.001
Initiated drug use after beginning to dance	33 (33.7)	14 (20.0)	19 (67.9)	p<0.001
Use drugs in the club	56 (57.1)	31 (44.3)	25 (89.3)	p<0.001

⁺ In the past 3 months

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Table 2

Factors Associated with Current Crack Smoking among strippers (N=98)

Risk Factor	Univariate PrR (95% CI)	Multivariate PrR (95% CI)
Age		
<25	1.0	1.0
25	4 (1.9, 8.6) *	2.7 (1.3, 5.6) *
Inject heroin	3.90 (2.14 7.1) *	2.1 (1.1, 4.0) *
Currently exchange sex	4.7 (2.1, 10.6) *	2.7 (1.2, 6.3) *

*
p<0.05

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