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Prevalence of Sexual Violence and its Association with Depression among Male and Female Patients with Risky Drug Use in Urban Federally Qualified Health Centers

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Abstract Sexual violence (SV) is common; however, the prevalence of SV and its long term sequela vary geographically and among subpopulations within the USA. As such, the aims of this study are the following: (1) to determine the prevalence of SV, (2) to identify correlates of SV, and (3) to determine if SV is associated with depression among male and female risky drug users in urban Federally Qualified Health Centers (FQHCs) in Los Angeles. This study includes adult patients of five urban FQHCs who self-reported risky drug use. We identified survivors of SV and those experiencing depression through survey questions that queried, before or after age 18, "Were you ever sexually assaulted, molested or raped?" and with the RAND Mental Health Index (MHI-5). We utilized Pearson's chi-square tests to assess predictors of SV and logistic regression to assess for an association between SV and depression. Data collection took place from February 2011 to November 2012. Of the 334 study patients, 49% of females and 25% of males reported surviving SV. Exposure to SV, (both before 18 years of age and after 18 years of age) was the strongest predictor of depression among men and women in this study (OR 4.7, $p < 0.05$). These data demonstrate that sexual violence is prevalent in this urban FQHC population and is strongly associated with depression. Providers should consider screening both men and women with risky drug use for SV while health systems should continue to align mental health and primary care services to appropriately care for these extremely vulnerable patients. Trial Registration Clinical Trials. gov ID NCT01942876, Protocol ID DESPR DA022445, http://www.clinicaltrials.gov

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Introduction

Sexual violence (SV) is common, affecting millions of people around the world each year. However, estimates by the World Health Organization (WHO) demonstrate that risk of SV varies internationally and even among subpopulations in the US [1, 2]. For example, an estimated 47.6% of Caribbean women and 7.0% of New Zealand women experienced SV during their first sexual encounter, while 19.3% of women and 1.7% of men living in the USA experience SV at some point in their lifetimes [3, 4]. Variability may also exist in development of long-term sequela, such as depression, after experiencing SV [5, 6]. Previous studies suggest risk of SV and depression may be lower in urban areas
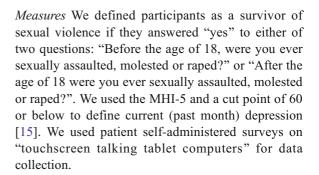
compared to rural areas [7, 8]. However, individuals with a history of substance use have elevated risks of both SV and depression, so may represent a high risk urban subpopulation [9, 10]. Previous studies have demonstrated an association between SV and depression; still, little is known regarding prevalence of SV and potential sequela among women in urban Federally Qualified Health Centers (FQHCs) with history of risky drug use [11, 12]. Furthermore, the U.S. Preventive Services Task Force has recognized that information is particularly lacking regarding violence against men [13]. Enhanced understanding of this population is important since conditions such as SV and depression are underreported and FQHCs are designed to serve particularly vulnerable individuals. As such, the aims of this study are to as follows: (1) to determine the prevalence of SV among female and male risky drug users in urban FQHCs, (2) to identify correlates of SV among risky drug users in urban FQHCs, and (3) to determine if gender is an effect modifier of the relationship between SV and depression among female and male risky drug users in urban FQHCs.

Methods

Study Sample Population This study was part of a randomized controlled trial, the NIH-funded and UCLA IRB-approved, UCLA Quit Using Drugs Intervention Trial (QUIT study) (see Gelberg et al. 2016 for a detailed description of the study methods) [14]. The five urban FQHC organizations included in the study were located in Los Angeles County (LAC). Patients were eligible for the QUIT study if they were present for a primary care visit; classified as a risky drug user (World Health Organization's Alcohol, Smoking and Substance Involvement Screening Test (WHO ASSIST) score 4–26 for a drug and used that drug in the past 3 months); were 18 years or older; spoke English or Spanish; had an active phone number; and were not pregnant. Eligible patients completed an anonymous self-administered questionnaire that included questions on demographics, and the WHO ASSIST to assess their level of illicit drug use. Talking touchscreen tablet computers were used as the primary source of data collection. Data collection took place from February 2011 to November 2012.

Measures We defined participants as a survivor of sexual violence if they answered "yes" to either of two questions: "Before the age of 18, were you ever sexually assaulted, molested or raped?" or "After the age of 18 were you ever sexually assaulted, molested or raped?". We used the MHI-5 and a cut point of 60 or below to define current (past month) depression [15]. We used patient self-administered surveys on "touchscreen talking tablet computers" for data collection.

Statistical Analysis We conducted stratified analyses for ease of comparison between genders. We assessed the prevalence of SV with tabulations using Pearson's chi-square to determine correlates of SV and logistic regression to assess for an association between SV and depression. We conducted a literature review to select variables for the multivariable models which controlled for age, socioeconomic status, education, ethnicity, and homelessness [16–18]. We conducted a stratified analysis by gender to assess for effect modification and assessed final models for multicollinearity. We used Stata, version 13.1, from StataCorp which is located in College Station, Texas, for all analyses.

Results

Overall Patients

Among the 413 individuals who were eligible for the study, 334 agreed to participate and completed a baseline questionnaire. Overall, the mean age of the sample was 41, 54% were female, 38% were White, 23% Black, and 34% Latino (Table 1). Their highest scoring drug on the baseline ASSIST was as follows: 52% marijuana, 32% stimulants, 7% opioids, and 9% sedative hypnotics. Overall, 34% of patients ($N = 113$) reported surviving SV in their lifetime: 49% of females and 25% of males (Table 2). Among SV survivors, 48% experienced SV before age 18 only; 14% after age 18 only; and 38% both before and after age 18. In chi-square analyses (Table 1), lifetime SV survivors were more likely to report having a family history of substance use disorder ($p = 0.006$) and current depression ($p = 0.001$). Multivariable logistic regression analysis (Table 3) showed patients with a

Table 1 Patient characteristics and association with sexual violence

Characteristic	Overall $N = 334$		Females $N = 124$		Males $N = 210$	
	History: no SV $N = 221$ (X^2, p)	History: SV $N = 113$ $(X^2 p)$	History: no SV $N = 63$ (X^2, p)	History: SV $N = 61$ (X^2, p)	History: no SV $N = 158$ (X^2, p)	History: SV $N = 52$ (X^2, p)
Age, mean (SD)	41 (12.7)	42.7 (11.4)	41 (14)	43.4 (12.0)	41 (12.3)	42.0 (10.7)
Age (by category), p		0.1		0.2		0.04
18–29	57 (26%)	19 (17%)	20 (32%)	12 (20%)	37 (23%)	7 (13%)
30–39	34 (15%)	24 (21%)	9 (14%)	8(13%)	25(16%)	16 (31%)
40.49	53 (23%)	36 (32%)	10 (16%)	19 (16%)	43 (27%)	17 (33%)
50+	77(35%)	34 (30%)	24 (38%)	22(38%)	53 (34%)	12 (23%)
Race/ethnicity (p)		0.1		0.4		0.06
White, N (%)	83 (38%)	43 (38%)	22 (35%)	21 (34%)	61 (39%)	22 (42%)
Black, N (%)	52 (24%)	24 (21%)	12 (20%)	17 (28%)	40 (25%)	7 (13%)
Latino, N (%)	78 (35%)	35 (31%)	25 (40%)	17 (28%)	53 (34%)	18 (34%)
Other, N (%)	8 (4%)	11 (10%)	4 (6%)	6 (10%)	4 (3%)	5 (10%)
Education		0.2		0.6		0.1
Did not complete high school, N (%)	32 (14%)	17 (15%)	12 (19%)	6 (10%)	20 (13%)	11 (21%)
Completed high school, N (%)	69 (31%)	24 (21%)	14 (22%)	14 (23%)	55 (35%)	10 (19%)
< 4 years college N (%)	68 (31%)	40 (35%)	24 (38%)	21 (34%)	44 (28%)	19 (37%)
4 + years college N (%)	31 (14%)	21 (19%)	12 (19%)	13 (21%)	19 (12%)	8 (15%)
Income (p)		0.1		0.2		0.047
< Federal poverty level, N (%)	134 (61%)	59 (52%)	25 (40%)	31 (51%)	109 (69%)	28 (54%)
Homeless (p)		0.001		< 0.0001		0.079
Homeless (ever) N (%)	120 (54%)	83 (73%)	20 (32%)	43 (70%)	100 (63%)	40 (77%)
Highest scoring substance (p)		0.5		0.4		0.1
Marijuana	112 (51%)	61 (54%)	33 (52%)	32 (52%)	79 (50%)	29 (56%)
Cocaine	51 (23%)	16 (14%)	4 (6%)	10 (16%)	47 (30%)	6 (12%)
Amphetamine	26 (12%)	15 (13%)	6 (10%)	5 (8%)	20 (13%)	10 (19%)
Inhalants	1 (0%)	1 (1%)	(0%)	(0%)	1 (1%)	1 (2%)
Benzodiazepines	18 (8%)	11 (10%)	13 (21%)	8 (13%)	5 (3%)	3 (6%)
Hallucinogens	0 (0%)	0 (0%)	0 (0%)	0(0%)	0 (0%)	0 (0%)
Opioids	13 (6%)	9 (8%)	7 (11%)	6 (10%)	6 (4%)	3 (6%)
Relationships (p)		0.006		0.006		0.1
Close relationship with family SUD	115 (52%)	77 (68%)	28 (44%)	42 (69%)	87 (55%)	35 (67%)
Depression		0.001		0.01		0.04
MHI-5 < 60	90 (41%)	68 (60%)	25 (40%)	38 (62%)	65 (41%)	30 (58%)

history of SV prior to 18 years of age and after 18 years of age had 4.8 increased odds of experiencing current depression when compared to individuals without a history of SV.

Female Patients

Among the 124 female patients in this study, 35% were White, 34% Latina, 23% Black, and 8% another race

Table 2 Prevalence of sexual violence among risky drug users in FQHCs stratified by gender

Exposure to sexual violence	Overall N = 334	Females N = 124	Males N = 210
History of SV at some point:	113 (34%)	61 (49%)	52 (25%)
SV < 18 yo (only)	54 (48%)	18 29%	36 (69%)
SV > 18 yo (only)	16 (14%)	10 (16%)	6 (12%)
SV < 18 yo and > 18 yo	43 (38%)	33 (54%)	10 (20%)

(Table 1). Of those surveyed, 56% reported having a close relationship with a family member who had a history of a substance use disorder (SUD) and 64% met criteria for depression. Twenty nine percent of female SV survivors experienced SV before age 18 only, 16% after age 18 only, and 54% both before and after age 18 (Table 2). In chi square analyses, female lifetime SV survivors were significantly more likely to report having a family member with a history of substance use disorder ($p = 0.006$) and to have depression ($p = 0.01$) (Table 1). Multivariable logistic regression analysis showed women with a history of SV prior to 18 years of age and after 18 years of age had 4.5 increased odds of experiencing current depression than individuals without a history of SV (Table 3).

Male Patients

Among the 210 male participants, 40% identified as White, 34% as Latino, 22% as Black, and 4% as another race (Table 1). Of those surveyed, 58% reported having a close relationship with a family member who had a history of substance use disorder (SUD) and 53% met criteria for depression. Evaluating male SV survivors, 69% experienced SV before age 18 only, 12% after age 18 only, and 20% both before and after age 18 (Table 2).

In chi-square analyses, lifetime SV survivors were more likely to report low income and depression ($p < 0.05$) (Table 1). Multivariable logistic regression showed that men and women with a history of SV prior to 18 years of age and after 18 years of age had 4.8 increased odds of experiencing depression when compared to individuals without a history of SV ($p = 0.06$) (Table 3).

Discussion

This study presents two key findings: First, lifetime rates of SV are much higher among both female and male urban FQHC patients with current risky drug use than among the general household population [4] (women 49 vs 18%; men 25 vs 2%, respectively) [4]. Second, in this FQHC patient population with risky drug use, patients who experienced sexual violence both before *and* after 18 years of age had much greater odds of experiencing current depression: 4.5 greater odds for women and 4.8 greater odds for men. The estimate for men is not statistically significant; however, the sample may be underpowered for this measure. The risk of depression after experiencing SV was similar for men and women. There was no evidence of effect modification by gender in this patient sample. Limitations include self-report bias of measures and generalizability to other cities and clinical settings.

Conclusions

The U.S. Preventive Services Task Force currently recommends that clinicians screen women of childbearing age for intimate partner violence and refer women who screen positive to intervention services [13]. It is

Table 3 Association between sexual violence and depression among risky drug users in FQHCs stratified by gender

Exposure to sexual violence	Overall N = 334 OR (p)		Females N = 124 OR (p)		Males N = 210 OR (p)	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
No history of sexual violence	Ref	Ref	Ref	Ref	Ref	Ref
SV < 18 yo (only)	1.2 (0.5)	1.2 (0.7)	0.58 (0.4)	0.6 (0.4)	1.7 (0.1)	1.5 (0.3)
SV > 18 yo (only)	1.9 (0.2)	1.2 (0.8)	3.5 (0.08)	2.0 (0.4)	0.7 (0.7)	0.27 (0.2)
SV < 18 yo and > 18 yo	5.5 (< 0.001)	4.8 (< 0.001)	5.6 (0.001)	4.5 (0.01)	5.6 (0.03)	4.8 (0.06)
History of sexual violence at some point	2.2 (0.001)	1.8 (0.02)	2.5 (0.01)	1.9 (0.1)	1.9 (0.04)	1.5 (0.2)

important for providers working in urban FQHCs to consider screening *both* male and female primary care patients who report drug use for sexual violence, due to its high prevalence in this population, to mitigate and prevent long term sequela such as depression. Health system administrators should continue to move towards tightly integrated primary care, mental health, and social work services to ensure that appropriate resources are available to care for this extremely vulnerable patient population.

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