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Past-Year Nonmedical Use of Prescription Drugs among Women on Probation and Parole: A Cross-Sectional Study

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Abstract

Background: Prescription drug-related overdose deaths have increased dramatically in recent years. Women in the justice system experience high rates of drug use, victimization, trauma symptoms, and other health problems, and would appear to be at high risk for nonmedical use of prescription drugs (NMUPD). This study will be among the first to describe prevalence and correlates of NMUPD among this population.

Methods: This cross-sectional study collected data from 406 victimized women on probation and parole between 2010 and 2012. In a multiple logistic regression model, we differentiated women who reported past-year NMUPD from those who did not using demographic, health, other drug use, substance use treatment, and trauma symptom severity variables.

Results: Past-year NMUPD was reported by 26.8% (n = 109) of the overall sample. Women reporting NMUPD were significantly younger and more likely to be White. Past-year use of alcohol (adjusted odds ratio [AOR]: 3.3; 95% confidence interval [CI]: 1.8 – 6.1), marijuana (AOR: 3.6; CI: 1.8 – 7.0), methamphetamines (AOR: 6.1; CI: 1.7 – 21.3), and heroin (AOR: 8.4; CI: 2.0 – 35.2) were significantly associated with NMUPD. Additionally, each unit increase in the measure assessing bodily pain was associated with a 40% increase (AOR: 1.4; CI: 1.1 – 1.7) in the odds of NMUPD. Finally, meeting diagnostic criteria for post-traumatic stress disorder almost doubled (AOR: 1.9; CI: 1.1 – 3.4) the odds of reporting past-year NMUPD.

Conclusions: Victimized women on probation and parole report high rates of NMUPD, and this behavior intersects with other complex social, behavioral, psychological, and physical needs. We recommend increased access to trauma-informed correctional care among women in the justice system.

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Author contributions

MTH and SG conceptualized the study. MTH and GEH analyzed the data, and MTH, DB, JS, GEH, TKL, and SG wrote the manuscript.

Introduction

The number of deaths in the U.S. involving prescription drugs has increased dramatically in recent years.¹ This includes deaths involving prescription opioids, benzodiazepines, and concurrent use of the two drugs. Additionally, nonmedical use of prescription opioids has been associated with increased odds of transitioning to heroin.²

Approximately 1.25 million women were supervised within the justice system in 2013, 85% of whom were on probation or parole.³ Illicit substance use is a major contributor to women's involvement with the justice system,^{4–9} with one recent study finding that over 80% of female jail detainees had a lifetime substance use disorder (SUD).¹⁰

The relationship between substance use, victimization, and psychological distress among women involved in the justice system is complex.¹¹ Women who use illicit substances have a greater likelihood of experiencing interpersonal victimization,^{12,13} and between 44% and 80% of incarcerated women report lifetime interpersonal victimization experiences.^{14–17} Additionally, women in the justice system are more likely to experience childhood physical abuse, sexual abuse, and neglect,^{18–21} all of which increase risk for juvenile delinquency and adult criminality.^{22, 23} Thus, it is unsurprising that this population disproportionately experiences posttraumatic stress disorder (PTSD).^{9,24,25}

In the general population, substance use,^{26,27} psychological distress,^{28,29} and victimization^{30–32} have been shown to increase risk for nonmedical use of prescription drugs (NMUPD). Women involved in the justice system have higher prevalence of all three risk factors compared to the general population, and would presumably be at increased risk of NMUPD. Additionally, NMUPD is often motivated by self-treatment,^{33–35} so women in the justice system may engage in NMUPD to reduce symptoms resulting from traumatic experiences or physical injuries – especially since a history of incarceration is associated with reduced access to medical and dental care,³⁶ and people on parole report financial, administrative, and structural barriers to community healthcare.³⁷ In spite of the apparent risk factors for NMUPD among women in the justice system, few studies have described this behavior. Therefore, the purpose of this study is to describe the prevalence and correlates of recent NMUPD among a sample of victimized women on probation or parole.

Methods

This cross-sectional study was approved by the Institutional Review Board at the University of Louisville, and a National Institute of Health Certificate of Confidentiality was obtained. For a full description of the Methods, please refer to Golder and colleagues.³⁸

Sample

Between 2010 and 2012, women who met the following criteria were recruited for the study: 1) on probation or parole in Jefferson County, Kentucky 2) at least 18 years of age; 3) experienced some form of physical and/or sexual victimization as a child or adult; and 4) when sexually active, sexual partners included men only or both women and men. Recruitment methods included newspaper and web-based advertisements (e.g., *craigslist*),

flyer distribution in public locations, mailings, and in-person visits to Jefferson County's probation and parole offices. Of the 636 women screened, 517 (81.3%) met eligibility criteria. A total of 406 women were enrolled in the study. Face-to-face interviews were administered by trained female staff using audio computer-assisted interviewing³⁹ and participants received a \$35 cash incentive for participation.

Measures

Past 12-Month Nonmedical Use of Prescription Drugs (NMUPD).—Recent NMUPD was classified as any nonmedical use (“...we are NOT asking you about your use of medications that may have been prescribed to you by a health care provider and that you use according to your health care providers instructions”) of prescription opioids, sedatives, benzodiazepines or barbiturates in past 12 months. These items were adapted from the Diagnostic Interview Schedule for DSM-IV.⁴⁰

Sociodemographics.—Sociodemographic variables included: age, race/ethnicity (African American; White; Asian/Pacific Islander, Latino, Native American, and multi-racial were combined into *other races* because there were few occurrences of each); marital status (single, married or living with someone, or separated, divorced, or widowed); education (less than high school, high school or GED, some education beyond high school); current employment (unemployed; working, part- or full-time; disabled; and other); homelessness (“Do you consider yourself to be homeless?”; *yes* = 1; *no* = 0); and whether the women had children (*yes* = 1; *no* = 0).

Pain.—The bodily pain item was drawn from the Medical Outcomes Study: 36-Item Short Form Survey Instrument.⁴¹ Pain was assessed by asking, “How much bodily pain have you had during the past 4 weeks?” (*none* = 0; *very severe* = 5).

Past 12-month substance use.—Use of the following 6 psychoactive substances during the past 12-months was assessed (*yes* = 1; *no* = 0): alcohol; marijuana; cocaine; crack; heroin; and methamphetamine. These items were adapted from the Diagnostic Interview Schedule for DSM-IV.⁴⁰

Substance use treatment in past 12 months.—Participants were asked whether they had received any treatment for drug or alcohol use (*yes* = 1; *no* = 0), had taken medication to help with detoxification or to prevent substance use (*yes* = 1; *no* = 0), the number of individual and group treatment sessions attended, and number of Twelve Step meetings attended.

Psychological distress.—The global severity index (GSI) of the Brief Symptom Inventory (BSI)⁴² was used to assess overall psychological distress. The BSI assesses nine symptom domains (i.e., anxiety; phobic anxiety; depression; hostility; interpersonal sensitivity; obsessive compulsive; paranoid ideation; psychoticism; somatization) and items range from zero (*not at all bothered*) to four (*extremely bothered*).

Interpersonal violence.—Interpersonal violence was based on self-report items drawn from the National Crime Victimization Survey, the Revised Conflict Tactics Scale, and

Tolman's Psychological Maltreatment of Women Inventory.^{43–47} The following three categories of lifetime interpersonal violence were dichotomized (*yes* = 1; *no* = 0) to indicate whether respondents had ever experienced each form: psychological intimate partner violence (8 items; $\alpha = .82$); physical intimate partner violence (5 items; $\alpha = .73$); and non-intimate partner physical violence (5 items; $\alpha = .76$).

Posttraumatic Stress Disorder.—PTSD was measured by the Posttraumatic Stress Diagnostic Scale.^{48,49} In the current analyses, two items from the PDS were used: the sum of lifetime traumatic events the participant was exposed to (range: 0 to 11); and, whether the respondent met criteria for PTSD (*yes* = 1; *no* = 0).

Analysis

Women who reported recent NMUPD were compared with nonusers using chi-square tests for categorical variables and *t* tests for continuous variables. Results of these tests, along with results of prior studies, and the primary research question, informed the selection of variables for the multiple logistic regression model identifying correlates of recent NMUPD. Tolerance was used to assess multicollinearity.

Results

The current sample was 41.7% African American, 50.6% White, and 7.6% other races, and the mean age was 37.2 years (*SD* = 10.2). Most participants (*n* = 307; 75.6%) were on probation, 92 (22.7%) were on parole, and 7 (1.7%) were on probation and parole concurrently. Past-year NMUPD was reported by 26.8% (*n* = 109) of the overall sample. Table 1 presents sample demographics and results of bivariate contrasts of women who reported past-year NMUPD and women who reported no past-year NMUPD. Women who reported past-year NMUPD were significantly younger, more likely to be White, and less likely to have children, however there were no differences with regard to marital status, education, employment status, or homelessness.

Women who endorsed past-year NMUPD were more likely to report experiencing bodily pain, use of other drugs, taking medications to assist with detoxification or prevent substance use, and having been in some type of substance use treatment. There were, however, no differences between groups with regard to the number of treatment sessions or Twelve Step meetings attended. Past-year NMUPD was also associated with higher rates of psychological distress. Women who endorsed past-year NMUPD were more likely to report experiencing psychological intimate partner violence, however the two groups did not differ with regard to physical intimate partner violence or non-intimate partner violence. Finally, while women who reported past-year NMUPD and those who did not were exposed to a similar number of lifetime traumatic events, participants who endorsed NMUPD were much more likely to meet diagnostic criteria for PTSD.

The multiple logistic regression model included the following variables: race; age; past-year alcohol, marijuana, cocaine, crack, heroin, and methamphetamine use; bodily pain; and whether the participant met diagnostic criteria for PTSD. Results of the model are presented in Table 2. The tolerance for independent variables was above 0.4, indicating no evidence of

multicollinearity. Eight variables were significant at the $p < .05$ level. White race and younger age were associated with increased odds of NMUPD. The highest ORs in the model were observed for past-year alcohol, marijuana, heroin, and methamphetamine use. Finally, each unit increase in bodily pain was associated with a 40% increase in the odds of past-year NMUPD, and meeting criteria for PTSD increased the odds of past-year NMUPD by 90%.

Discussion

The rate of past-year NMUPD among women on probation and parole in this study was 26.8%, nearly five times higher than a previous study of women in a national sample.³⁰ In the multiple logistic regression model, women who met criteria for PTSD were almost twice as likely to report past-year NMUPD, despite similar exposure to physical violence in the groups. It is possible women who reported past-year NMUPD experienced more severe trauma (perhaps explaining the significance of bodily pain), experienced trauma for a longer duration, or that specific types of trauma increase risk of NMUPD (in bivariate contrasts, psychological trauma was associated with past-year NMUPD whereas physical violence was not). Variation in trauma response may also be based on underlying genetic risk.⁵⁰ Future studies are needed to better understand the relationship of trauma and NMUPD, though regardless of the specific mechanisms at work, women in the justice system with PTSD and untreated pain are at high risk of NMUPD, and addressing PTSD and pain symptoms may reduce risk of NMUPD.

These findings also underscore the population's need for access to evidence-based substance use treatment. In addition to increased risk of overdose and SUD, substance use is a common probation and parole violation among women.^{51–54} Unfortunately, it has been estimated that less than 10% of individuals involved in community corrections have regular access to treatment services.⁵⁵

These findings also highlight the need for the justice system to be more responsive to trauma. Victimized women in the justice system are sometimes revictimized by the system itself – by police officers⁵⁶ or correctional staff,⁵⁷ for example. Common probation and parole practices, such as searches and *pat downs*, may trigger a variety of trauma responses,^{58,59} and place women at higher risk of NMUPD and other substance use. These points support the need for *Trauma-Informed Correctional Care* (TICC),⁶⁰ which include education and training for corrections staff on trauma symptoms and behaviors, demonstrations of how to talk about pat downs and searches, and evidence-based trauma interventions. Overall, our results demonstrate the complex intersection between the physical and behavioral health needs of women in the justice system and support a holistic and integrated approach to their care and treatment.

Limitations

This study has five primary limitations. First, the time-order sequence of some relationships cannot be specified due to the cross-sectional nature of the study (e.g., the relationship between pain and NMUPD). Second, these data are self-report. Third, the study was unable to assess past-month NMUPD, which would have been preferable to past-year NMUPD. Fourth, the sample included women who reported sex with men only or both women and

men. As such, it is unknown whether these findings apply to women who only have sex with other women. Finally, the sample was not randomly selected, though it did constitute approximately one-fifth of all women on probation and parole in the county at the time of recruitment.

Conclusions

This study is among the first to describe NMUPD among women on probation and parole. Over one quarter of the study sample reported recent NMUPD, a rate considerably higher than in the general population. Other substance use, bodily pain, and trauma symptoms were strongly associated with past-year NMUPD. We recommend interventions that improve access to physical and behavioral health services among women on probation and parole, as well as the adoption of trauma-informed correctional care.

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Table 1

Bivariate comparisons of women on probation and parole reporting past-year nonmedical use of prescription drugs ($n = 109$) and no past-year nonmedical use of prescription drugs ($n = 297$) across demographic, physical health, and psychological variables.

Variables	Past-Year NMUPD	No Past-Year NMUPD	Results
Age M (SD)	33.0 (9.7)	38.8 (10.0)	$t(404) = 5.3, p < .001$
Race n (%)			
African American	21 (19.3)	148 (49.8)	$\chi^2(2) = 31.0, p < .001$
White	77 (70.6)	128 (43.1)	
Other races	11 (10.1)	20 (6.7)	
Marital status			$\chi^2(2) = 4.1, p = .13$
Single	51 (47.2)	127 (43.5)	
Married or living with someone	23 (21.3)	44 (15.1)	
Separated, divorced, or widowed	34 (31.5)	121 (41.4)	
Education			
Did not complete H.S.	33 (30.3)	77 (25.9)	
H.S. or GED completed	33 (30.3)	113 (38.0)	
Some education beyond H.S.	43 (39.4)	107 (36.0)	
Employment			$\chi^2(3) = .85, p = .84$
Unemployed	44 (40.4)	109 (36.7)	
Working (part- or full-time)	32 (29.4)	87 (29.3)	
Disabled	19 (17.4)	63 (21.2)	
Other (e.g., in school; homemaker)	14 (12.8)	38 (12.8)	
Homeless	34 (31.2)	104 (35.0)	$\chi^2(1) = .55, p = .46$
Have children	87 (79.8)	261 (88.2)	$\chi^2(1) = 4.6, p < .05$
Bodily pain			
None	15 (13.8)	53 (17.8)	$U = 13,991, p < .05$
Very mild	18 (16.5)	54 (18.2)	
Mild	10 (9.2)	53 (17.8)	
Moderate	32 (29.4)	70 (23.6)	
Severe	21 (19.2)	42 (14.1)	
Very severe	13 (11.9)	25 (8.4)	
Past-Year Drug Use			
Alcohol	73 (67.0)	91 (30.6)	$\chi^2(1) = 43.7, p < .001$
Marijuana	61 (56.0)	52 (17.5)	$\chi^2(1) = 58.7, p < .001$
Cocaine	36 (33.0)	37 (12.5)	$\chi^2(1) = 22.9, p < .001$
Crack	26 (23.9)	34 (11.4)	$\chi^2(1) = 9.7, p < .01$
Heroin	22 (20.2)	3 (1.0)	$\chi^2(1) = 50.7, p < .001$
Methamphetamine	24 (22.0)	6 (2.0)	$\chi^2(1) = 46.6, p < .001$
Past-Year Drug Addiction Treatment			
Taken medications for detox or to prevent substance use	28 (25.7)	6 (2.0)	$\chi^2(3) = 63.8, p < .001$

Variables	Past-Year NMUPD	No Past-Year NMUPD	Results
Received any drug addiction treatment	54 (49.5)	55 (18.5)	$\chi^2 (1) = 5.5, p < .05$
Number of individual/group treatment sessions	19.9 (57.6)	20.0 (65.9)	$t(396) = .01, p = .99$
Number of Twelve Step meetings attended	39.7 (86.1)	34.3 (89.5)	$t(398) = -.55, p = .59$
BSI: Global Severity Index	1.4 (.89)	1.1 (.83)	$t(391) = -3.4, p < .001$
Interpersonal Violence			
Ever experienced any psychological IPV	109 (100.0)	278 (93.6)	$\chi^2 (1) = 7.3, p < .01$
Ever experienced any physical IPV	102 (93.5)	262 (88.2)	$\chi^2 (1) = 2.5, p = .11$
Ever experienced any non-intimate partner physical viol.	69 (63.3)	161 (54.2)	$\chi^2 (1) = 2.7, p = .10$
PTSD			
Lifetime number of traumatic events exposed to	4.0 (2.2)	3.5 (2.6)	$t(404) = -1.6, p = .11$
Meets criteria for PTSD diagnosis	69 (63.3)	40 (13.5)	$\chi^2 (1) = 12.9, p < .001$

Table 2

Multiple logistic regression analysis (with simultaneous entry of variables) identifying correlates of past-year nonmedical use of prescription drugs ($N = 406$).

Variable	OR	[95% CI]
White vs. African Americans	4.1	[2.0, 8.2]
Other races vs. African Americans	2.4	[0.78, 7.5]
Age	0.96	[0.93, 0.99]
Alcohol use, past-year	3.3	[1.8, 6.1]
Marijuana use, past-year	3.6	[1.8, 7.0]
Cocaine use, past-year	1.5	[0.50, 4.2]
Crack use, past-year	0.86	[0.26, 2.8]
Heroin use, past-year	8.4	[2.0, 35.2]
Methamphetamine use, past-year	6.1	[1.7, 21.3]
Past-year drug addiction treatment	0.84	[0.46, 1.3]
Bodily pain	1.4	[1.1, 1.7]
Meets criteria for PTSD diagnosis	1.9	[1.1, 3.4]

Note. **Bold** indicates p value $< .05$.