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The Relationship Between Non-Medical Use of Prescription Opioids and Sex Work Among Adults in Residential Substance Use Treatment

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ABSTRACT

High rates of substance use (e.g., alcohol, cocaine, heroin) have been documented among individuals who engage in sex work (SW), and adults seeking substance use disorder (SUD) treatment frequently report prior engagement in SW. Non-medical use of prescription opioids (NMUPO) has increased over the last decade, but little is known about the relationship between NMUPO with sex exchange. The purpose of this study was to describe the prevalence of recent SW among patients at a large residential SUD treatment center and examine the association between NMUPO and SW. Approximately 14% of 588 adults reported involvement in SW in the month prior to treatment. NMUPO was more common among those with a history of SW (95% of sex workers vs. 74% of non-sex-workers), and this association remained statistically significant after controlling for demographic factors, other substance use and psychiatric symptom severity (odds ratio = 3.38). SW is relatively common among patients in residential SUD treatment, and is associated with greater psychiatric severity and more extensive substance use, including alarming rates of NMUPO. Addiction treatment for individuals involved in SW may benefit from the addition of content related to NMUPO.

Men and women involved in sex work (SW), transactions in which sexual services are exchanged for money or drugs (UNAIDS, 2011), bear a disproportionate burden of physical, sexual and psychiatric illness (Baker, Case, & Policicchio, 2003; Inciardi, 1995; Patton et al., 2014; Williams et al., 1996). Individuals engaged in SW face profound economic and psychosocial stressors, such as homelessness, poverty and violence victimization (Baseman, Ross, & Williams, 1999; Duff, Deering, Gibson, Tyndall, & Shannon, 2011; Rekart, 2005; Shannon et al., 2009; Surratt, Inciardi, Kurtz, & Kiley, 2004). Substance use is implicated in both the initiation and maintenance of SW (Surratt et al., 2004): one study found that women with a lifetime history of drug use were fifteen times more likely to be involved in SW than women who had never used drugs, whereas men with a history of drug use were twice as likely to engage in SW than men who had never used drugs (Baseman et al., 1999). In community samples, individuals involved in SW report high rates of alcohol misuse, crack, cocaine and heroin use, and non-medical use of prescription drugs (El-Bassel et al., 1997; Jeal & Salisbury, 2004; Nuttbrock, Rosenblum, Magura, Villano, & Wallace, 2004; Patton et al., 2014). Among sex workers, drug use is associated with higher rates of HIV and other sexually transmitted infections, higher numbers of sexual partners (Yao et al., 2012), as well as intravenous drug use and unintentional overdose (Gilchrist, Gruer, & Atkinson, 2005).

Substance users who are involved in SW are twice as likely to enter residential substance use disorder (SUD) treatment programs than those without a history of SW (Burnette et al., 2008). In samples from SUD treatment settings, 50–69% of women and 19–22% of men report a recent history of SW (Burnette, Schneider, Ilgen, & Timko, 2008; Cavanaugh & Latimer, 2010). However, despite the potential public health significance of this issue, there have been few investigations of the sociodemographic and clinical correlates of SW among individuals presenting for SUD treatment. In one such study, Burnette, Lucas et al. (2008), found that, compared to other men and women seeking treatment for SUD, lifetime history of SW was associated with lower level of education, homelessness and childhood sexual abuse. SW was also associated with greater psychiatric symptom severity and showed a particularly strong relationship with crack cocaine use. However, all of these findings relate to lifetime engagement in SW, but little is known about the extent of recent involvement in SW just prior to a treatment episode.

Furthermore, because data used in Burnette, Lucas et al. (2008), work were collected 20 years ago, recent trends in the epidemiology of substance use are not reflected in these findings. One of the most notable shifts in substance use over the past two decades is the

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pervasiveness of non-medical prescription drug misuse, abuse and dependence (Blanco et al., 2007; Compton & Volkow, 2006). In particular, rates of non-medical use of prescription opioids (NMUPO) doubled between 1991 and 2001, while rates of prescription opioid abuse and dependence tripled over this period (Blanco et al., 2007). After alcohol and marijuana, prescription opioids are the most widely used drug among individuals in treatment for substance use in the US (Substance Abuse and Mental Health Services Administration, 2013): a recent study found that 65% of men and 78% of women in residential SUD treatment reported NMUPO in the month prior to treatment (Price, Ilgen, & Bohnert, 2011).

Despite the prevalence of and risks associated with NMUPO, little is known about the relationship between NMUPO and SW. To our knowledge, only three studies have examined the prevalence and patterns of NMUPO in community samples of sex workers. In one sample of female sex workers in Miami, 12% reported NMUPO in the past 90 days, with higher rates among women who were actively using cocaine or heroin (Surratt, Kurtz, Weaver, & Inciardi, 2005). Argento, and colleagues (2015) found that 19% of female sex workers in Vancouver reported NMUPO in the preceding 6 months, and NMUPO was associated with injection and non-injection drug use, exchanging sex while high and exchanging sex for drugs (Argento, Chattier, Nguyen, Montaner, & Shanon, 2015). Finally, in a sample recruited from an urban emergency department, 6% of individuals who engaged in transactional sex reported NMUPO in the last 3 months (Patton et al., 2014), however this study did not distinguish between individuals who *paid for* sex and those who *were paid for* sex. Taken together, findings provide evidence of elevated rates of NMUPO among individuals involved in SW, however, none of these studies have been based in SUD treatment settings. Residential SUD treatment provides a unique opportunity to address the multifaceted psychosocial and psychiatric needs of individuals involved in SW. An understanding of NMUPO within this population may improve efforts toward comprehensive treatment.

In summary, existing evidence indicates that a substantial proportion of adults, and women in particular, who seek treatment for substance use report some history of involvement in SW. Little is known about recent SW among adults in residential treatment setting, or how SW relates to NMUPO. The goal of this study is to describe the prevalence of recent SW among adults in a large residential SUD treatment program and to examine the association between SW and NMUPO, controlling for demographic, clinical and substance use risk factors.

1. Materials and methods

1.1. Procedures

All study procedures were approved by the University of Michigan Medical School Institutional Review Board. Participants were recruited from a large residential SUD treatment center located in Waterford, MI, which serves the majority of the state, including the nearby cities of Flint and Detroit. Treatment consists of group and individual cognitive behavior therapy and psychoeducation, and the average duration of treatment is 60 days. Approximately 90% of clients report that their decision to seek treatment was prompted or recommended by the criminal justice system (e.g., a judge, attorney or probation officer).

Recruitment for this study occurred during the screening portion of a larger randomized controlled trial. Patients were provided with information about study enrollment during didactic groups at the treatment center and interested individuals provided written informed consent. Participants completed paper-and-pencil questionnaires that assessed demographic characteristics, substance use, psychiatric symptoms and other health risk behaviors, and received $10 as compensation for their time. Participants were excluded if they were under the age of 18, unable to speak or understand English, unable to provide written informed consent or experiencing acute psychotic symptoms.

The present analyses are based on data from 588 participants who completed the screening portion of the study between 2012 and 2014. Of those who completed the self-report battery, 33% were female and the mean age was 35.3 ($SD = 10.6$). Participants were included in the present analyses if they had complete data for the primary variables of interest (i.e., NMUPO and past-month sex work). Participants with missing data on a covariate ($n = 50$; 8.5%) were included in all analyses for which data were available.

1.2. Measures

1.2.1. Sex work

Sex work was assessed using the participant's response to the following question from the HIV Risk Behavior Scale (HRBS; (Darke, Hall, Heather, Ward, & Wodak, 1991): "How often have you used condoms when you have been paid for sex in the last month before treatment?" Response options included: no paid sex/no penetrative sex, never, rarely, sometimes, often or every time. Participants who indicated that they had not been paid for sex or had not had sex in the month before treatment were assigned to the non-SW group. Participants who indicated any frequency of condom use with a commercial partner were assigned to the SW group (cf. Patton et al., 2014). The phrasing of this question did not distinguish between exchange of sex for money and exchange of sex for drugs.

1.2.2. Non-medical prescription opioid use

NMUPO was measured using six items the Current Opioid Misuse Measure (COMM; Butler et al., 2007). Originally developed to detect medication misuse among individuals prescribed opioid medication for pain, the COMM has been modified to assess recent NMUPO in SUD treatment patients (Bohnert et al., 2013; Price et al., 2011). Six behaviors were selected to characterize NMUPO in the 30 days before treatment: seeking pain medication from sources other than your healthcare provider; taking pain medication differently than prescribed; taking more pain medication prescribed; taking someone else's pain medication; borrowing pain medication from someone else; and using one's pain medication for symptoms other than pain (e.g., to help with sleep, improve mood or relieve stress). The internal consistency of these items was high, $\alpha = .94$. Participants rated the frequency of these behaviors using a five-point scale (0 = "never" to 4 = "very often"). For the primary analyses, NMUPO was dichotomized: participants who acknowledged any of the six behaviors (with any frequency) were designated as having a past-month history of NMUPO, and participants who responded "never" to all items were categorized as not having misused prescription opioids. As a supplement to our primary analyses, we also examined the proportion of sex workers and non-sex workers who acknowledged engaging in each form of NMUPO "often" or "very often."

1.2.3. Other substance use

Alcohol and drug use was measured using a self-report version of the Addiction Severity Index (ASI; McLellan, Luborsky, Woody, & O'Brien, 1980; Rosen, Henson, Finney, & Moos, 2000). Participants indicated whether they used alcohol, cocaine, heroin or marijuana in the 12 months prior to treatment. Prescription opioid use was measured using the COMM instead of the ASI, as our previous work suggests that the COMM has greater sensitivity to detect NMUPO (Bohnert et al., 2013).

1.2.4. Psychiatric Symptoms

The Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) was used to assess psychiatric symptom severity. Participants indicated the extent to which they were bothered by a range of symptoms over the preceding week, using a scale from 0 ("not at all") to 4 ("extremely") to indicate their level of symptom distress. Global psychiatric severity was scored as the mean of all symptom ratings. In the present sample, the internal consistency of the BSI was excellent, $\alpha = .98$.