



## Short Communication

# Lifetime history of heroin use is associated with greater drug severity among prescription opioid abusers



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## HIGHLIGHTS

- Examined intake characteristics in PO abusers with and without lifetime heroin use.
- H<sup>+</sup> participants had more severe opioid use characteristics than H<sup>-</sup> participants.
- H<sup>+</sup> participants reported greater non-opioid drug use than H<sup>-</sup> participants.
- H<sup>+</sup> participants trended toward poorer treatment outcomes than H<sup>-</sup> participants.
- PO abusers with a history of heroin use may possess unique treatment needs.

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## ABSTRACT

**Background:** While research suggests primary prescription opioid (PO) abusers may exhibit less severe demographic and drug use characteristics than primary heroin abusers, less is known about whether a lifetime history of heroin use confers greater severity among PO abusers.

**Objective:** In this secondary analysis, we examined demographic and drug use characteristics as a function of lifetime heroin use among 89 PO-dependent adults screened for a trial evaluating the relative efficacy of buprenorphine taper durations. Exploratory analyses also examined contribution of lifetime heroin use to treatment response among a subset of participants who received a uniform set of study procedures.

**Methods:** Baseline characteristics were compared between participants reporting lifetime heroin use  $\geq 5$  (H<sup>+</sup>; n = 41) vs.  $< 5$  (H<sup>-</sup>; n = 48) times. Treatment response (i.e., illicit opioid abstinence and treatment retention at end of study) was examined in the subset of H<sup>+</sup> and H<sup>-</sup> participants randomized to receive the 4-week taper condition (N = 22).

**Results:** H<sup>+</sup> participants were significantly older and more likely to be male. They reported longer durations of illicit opioid use, greater alcohol-related problems, more past-month cocaine use, greater lifetime IV drug use, and greater lifetime use of cigarettes, amphetamines and hallucinogens. H<sup>+</sup> participants also had lower scores on the Positive Symptom Distress and Depression subscales of the Brief Symptom Inventory. Finally, there was a trend toward poorer treatment outcomes among H<sup>+</sup> participants.

**Conclusion:** A lifetime history of heroin use may be associated with elevated drug severity and unique treatment needs among treatment-seeking PO abusers.

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## 1. Introduction

Prescription opioid (PO) abuse is a serious public health issue in the United States. In 2011, 1.9 million individuals reported first time non-prescribed PO use, 4.5 million reported past year use, and approximately twice the number of patients received treatment for POs vs. heroin (Substance Abuse and Mental Health Services Administration, 2012).

Efforts to better understand the treatment needs of PO abusers are central to developing effective treatments for these patients. Studies suggest that primary PO abusers may possess a unique profile of demographic characteristics and treatment needs (Zacny et al., 2003). When compared to heroin abusers, for example, primary PO abusers may present with less severe baseline characteristics including greater education, greater earned income, lower levels of daily opioid use, and less IV use (Fischer, Patra, Cruz, Gittins, & Rehm, 2008; Moore et al., 2007; Nielsen, Hillhouse, Thomas, Hasson, & Ling, 2013; Rosenblum et al., 2007; Sigmon, 2006; Subramaniam & Stitzer, 2009; Torrington, Domier, Hillhouse, & Ling, 2007).

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Less is known about how PO abusers' opioid use history may influence their clinical severity at treatment intake and perhaps even their response to treatment. For example, while not their primary drug at the time they present for treatment, many PO abusers report a history of using heroin. Of interest is whether a lifetime history of heroin use may confer greater severity in these patients. Among the limited studies on this topic, results have been mixed. Brands, Blake, Sproule, Gourlay, and Busto (2004) found that PO + heroin users reported greater illicit non-opioid drug and IV use compared to PO-only users, though there were no differences in psychosocial stability. Wu, Woody, Yang, and Blazer (2011) reported that PO + heroin users had higher rates of substance use and serious psychiatric disorders compared to both PO-only and heroin-only users. Others have found that the clinical severity of PO + heroin users may fall between PO-only and heroin-only users (Fischer et al., 2008; Moore et al., 2007). These prior studies, however, were generally conducted in populations of general illicit opioid users, rather than primary PO abusers per se. More recently, in an investigation of characteristics associated with buprenorphine treatment outcomes among PO abusers, lifetime heroin use was associated with less successful outcomes (Dreifuss et al., 2013). However, further baseline differences between PO users with and without prior heroin use were not examined. Taken together, an improved understanding of the contribution of lifetime heroin use to clinical severity and treatment outcomes will inform efforts to treat the growing population of PO abusers.

We recently completed a double-blind, placebo-controlled randomized trial evaluating the efficacy of three outpatient buprenorphine taper durations and subsequent naltrexone for PO-dependent adults (Sigmon et al., 2013). While the primary focus was on opioid abstinence and treatment retention, this trial also provided a unique opportunity to evaluate the role of lifetime heroin use in this sample of treatment-seeking PO abusers. Thus, in this secondary analysis we compare the demographics and drug use characteristics of PO-dependent patients based on lifetime history of heroin use.

## 2. Methods

Participants were 89 PO-dependent adults screened for the above randomized controlled trial. Participants had to be  $\geq 18$  years old, meet DSM-IV criteria for opioid dependence, provide an opioid-positive urine, accept detoxification, report a PO as their primary drug of abuse and be using it illicitly. The IRB approved the study and participants provided informed consent prior to participating.

Participants completed a comprehensive intake assessment including a drug history, Addiction Severity Index (ASI; McLellan et al., 1985), Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), Brief Symptom Inventory (BSI; Derogatis, 1993) and Michigan Alcoholism Screening Test (MAST; Selzer, 1971).

**Table 1**  
Opioid use characteristics.

	All subjects (n = 89)	H <sup>+</sup> (n = 41)	H <sup>-</sup> (n = 48)	p-Value
<b>Initiation of illicit opioid use</b>				
Age at first illicit opioid use	18.7 (5.6)	18.5 (6.5)	18.9 (4.8)	0.73
Primary route of first use of illicit opioid (%)				
Oral	33	37	29	0.46
Intranasal	63	56	69	0.22
Intravenous	4	7	2	0.24
Age at which regular <sup>a</sup> illicit opioid use began	21.4 (5.8)	21.5 (6.7)	21.2 (4.9)	0.84
Duration of regular illicit opioid use (years)	4.9 (3.9)	6.1 (4.1)	3.9 (3.5)	<b>0.009</b>
Primary route of regular illicit opioid use (%)				
Oral	8	5	11	0.32
Intranasal	76	71	81	0.27
Intravenous	15	24	6	<b>0.02</b>
<b>Lifetime illicit opioid use</b>				
Ever used heroin (%)	58	100	23	< <b>0.001</b>
Age of first heroin use	21.6 (5.4)	21.5 (5.9)	21.8 (3.5)	0.86
Duration of heroin use among those reporting any use (years)	1.3 (2.3)	1.6 (2.5)	0.01 (0.03)	<b>0.05</b>
Bags per day at peak use	10.2 (15.2)	11.9 (16.1)	1.4 (1.4)	0.07
Primary route of heroin administration (%)				
Oral	0	0	0	
Intranasal	54	46	82	<b>0.04</b>
Intravenous	46	54	18	<b>0.04</b>
Ever used an illicit opioid by IV route (%)	43	76	15	< <b>0.001</b>
Ever received treatment for opioids (%)	35	49	23	<b>0.01</b>
<b>Current illicit opioid use</b>				
Primary PO at study intake				
Oxycodone (%)	54	46	60	0.18
Dose, mg	108.1 (73.6)	148.4 (90.5)	81.7 (44.6)	<b>0.006</b>
Buprenorphine (%)	40	49	33	0.14
Dose, mg	8.9 (5.5)	9.1 (6.1)	8.7 (4.9)	0.83
Hydrocodone (%)	3	2	4	0.65
Dose, mg	55.8 (17.7)	40	63.8 (15.9)	0.44
Hydromorphone (%)	1	0	2	0.28
Dose, mg	4		4	
Morphine (%)	1	2	0	0.35
Dose, mg	200	200		
% reporting occasional heroin use at intake	4	10	0	<b>0.03</b>
Primary route of PO administration at study intake (%)				
Oral	15	12	17	0.55
Intranasal	69	61	75	0.16
Intravenous	17	27	8	<b>0.02</b>

Note: Values represent mean (SD) unless otherwise indicated. The italic values represent  $p < 0.10$ . The bold values represent  $p < 0.05$ .

<sup>a</sup>  $\geq 3 \times$  per week.

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