

Characterizing the Emerging Population of Prescription Opioid Abusers

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Despite an alarming recent increase in prescription opioid abuse, the characteristics of prescription opioid abusers remain largely unknown. In this study, the demographic and drug use characteristics of 75 methadone patients (36 prescription opioid and 39 heroin users) were compared using a retrospective chart review. Prescription opioid abusers exhibited a profile of characteristics that may predict favorable treatment response, including less severe opioid use and IV drug use, and greater social stability compared to primary heroin abusers. Despite the limitations inherent in this retrospective chart review, this study provides initial evidence that prescription opioid abusers may have a number of characteristics that predict favorable treatment response. This new information may inform and assist current efforts to develop efficacious treatments for prescription opioid abuse. (Am J Addict 2006;15:208–212)

The abuse of prescription drugs in general has increased significantly in the past several years, and the rise has been particularly striking among prescription opioids such as oxycodone (eg, OxyContin[®], Percodan[®]), hydrocodone (eg, Vicodin[®]), and hydromorphone (Dilaudid[®]).¹ The incidence of prescription opioid abuse increased by more than 400% between 1990 and 2000, from 628,000 initiates in 1990 to 2.7 million in 2000.¹ These increases have been seen across all age groups, including adults (18–25 yrs and 26+ yrs) and adolescents (12–17 yrs).^{2,3} Additional evidence from the Monitoring the Future project shows recent increases in prescription opioid abuse among adolescents, with past thirty-day non-medical use of prescription opioids increasing by 173% among twelfth graders since 1991.⁴ This escalation in prescription opioid abuse is also seen in drug-related emergency department (ED) visits, with ED mentions of prescription opioids increasing by 408% between 1994 and 2002.^{5–7} In addition to these data showing

increased prevalence of prescription opioid abuse, the number of individuals seeking treatment is also on the rise, as evidenced by a 350% increase in the number of yearly admissions for primary prescription opioid abuse in the United States between 1992 and 2002.⁸

Despite these statistics, the characteristics and potential treatment needs of prescription opioid abusers remain largely unknown. A recent position paper from the College of Problems on Drug Dependence highlighted the urgent need for both an improved understanding of prescription opioid abusers as well as the development of effective treatments for this form of drug abuse.⁹ A particularly important question is whether this emerging population may differ from the perhaps more familiar profile of primary heroin users. Some preliminary evidence suggests that prescription opioid abusers may have a less severe dependence than heroin abusers, suggesting that these patients may be neither appropriate for nor receptive to the usual forms of long-term agonist treatment.⁹ Indeed, in the only published study thus far on this topic, prescription opioid users were compared to heroin users in a Canadian sample of methadone-maintained patients.¹⁰ In that report, prescription opioid users possessed several favorable characteristics, including less use of illicit non-opioid drugs and less injection drug use than primary heroin users.

In the present study, the investigation is further extended into the demographic and drug use characteristics of prescription opioid abusers using a clinical sample of methadone-maintained patients. This study represents the first such description of the emerging population of prescription opioid abusers in the United States and, unlike the Brands et al. study, it also employs a widely accepted standardized instrument (Addiction Severity Index) to assess problem severity in drug use and other areas of psychosocial functioning.

METHOD

A retrospective review of intake data was conducted for 75 patients consecutively admitted to an outpatient

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methadone maintenance treatment program in Burlington, Vermont, between October 2002 and November 2004. To be eligible for treatment, patients had to be at least eighteen years of age, be physically dependent on opioids, and meet federal and state regulations for opioid substitution therapy. Because the data should accurately reflect psychosocial functioning and drug use status prior to becoming stabilized on opioid agonist treatment, data from patients who transferred into our clinic directly from another methadone treatment program were excluded.

Intake assessments were 2–3 hours in duration, conducted by trained bachelor's-level clinic staff members usually in a single session. The Addiction Severity Index (ASI)¹¹ was administered by trained staff and provided composite subscale scores for a wide range of areas of psychosocial functioning (ie, medical, psychiatric, family/social, legal, employment, alcohol, drug, cocaine, and opiate). An extensive sociodemographic and drug-history questionnaire developed by our clinic was also administered that assessed several demographic variables (eg, gender, race, age) and numerous measures of opioid and other drug use (eg, history of IV drug use, amount and duration of opioid use, use of other drugs). Before analyzing the data, the author received IRB approval from the University of Vermont to conduct the study.

The sociodemographic and drug history questionnaire was used to categorize patients into two groups: primary prescription opioid abusers ($n = 36$) or primary heroin abusers ($n = 39$). This was done using each patient's response to a question of which drug they endorsed as their primary drug of choice. It merits mention that subjects could have a history of using both prescription opioids and heroin, but were categorized based upon their self-reported primary drug of choice at treatment intake.

DATA ANALYSES

Comparisons between prescription opioid and heroin abusers on intake characteristics were performed using two-sample *t*-tests or Wilcoxon rank sum tests for continuous measures (eg, ASI subscale scores, durations and amount of drug use) and chi-square tests for categorical variables (eg, gender, race, history of IV use). Statistical analyses were performed using SAS statistical software, with a statistical significance based on $p = .05$.

RESULTS

Forty-nine percent of patients endorsed that their primary drug of abuse was a prescription opioid; 51% of patients were primary heroin abusers (see Table 1). Of the demographic variables assessed, only one significantly differed between the two groups: fewer prescription opioid abusers received income from illegal sources during the month prior to treatment intake ($p = .03$).

With respect to opioid use, results suggested that prescription opioid abusers may have a lower severity of opioid use. Prescription opioid abusers reported using smaller amounts of opioids per day compared to primary heroin abusers (3.0 versus 5.5 bag equivalents, respectively; $p = .0005$). A smaller percentage of prescription opioid abusers reported any lifetime history of IV administration compared to primary heroin abusers (60% versus 92%, respectively; $p = .01$). Significantly fewer prescription opioid abusers than heroin abusers reported IV as being their primary route of opioid administration (41% versus 92%, $p < .0001$). There was a trend toward prescription opioid abusers spending less money on opioids during the month prior to treatment intake than heroin abusers (\$800 versus \$1200, respectively), though this did not reach statistical significance ($p = .07$). Other measures of opioid use (ie, years of occasional and regular opioid use, number of overdoses on opioids, number of previous opioid treatment episodes) also were in the direction suggesting lower severity among prescription opioid abusers, though these did not reach statistical significance. The two groups did not differ in their use of drugs other than opioids, including alcohol, sedatives, and cocaine.

Composite scores on the ASI subscales indicated less severe problems among prescription opioid abusers in several areas. The ASI Opiate composite score was significantly lower for prescription opioid abusers than primary heroin abusers (0.60 ± 0.03 versus 0.69 ± 0.02 , respectively; $p = .007$). Composite scores on the ASI Family/Social subscale were also significantly lower for prescription opioid than heroin abusers (0.16 ± 0.03 versus 0.27 ± 0.04 , respectively; $p = .04$). There was a trend toward lower scores on the ASI Drug subscale among prescription opioid abusers (0.33 ± 0.02 versus 0.36 ± 0.01 , respectively), but this did not reach statistical significance ($p = .09$).

DISCUSSION

While treatment development for prescription opioid abuse should be informed by the extant treatment outcome literature on illicit opiate abusers, one cannot assume that such information necessarily generalizes to this new population. Efforts to characterize primary prescription opioid abusers and examine how they compare to primary heroin abusers will be key to informing future efforts to develop appropriate and efficacious treatments for prescription opioid abuse.

This study represents a first step toward characterizing the emerging population of prescription opioid abusers, as well as how they compare to primary heroin abusers, among a sample of methadone-maintained patients. First, it is worthwhile to note the proportion of patients who endorsed prescription opioids as their primary drug of abuse. Compared to recent years when prescription opioid abusers represented a minority of opioid-dependent

TABLE 1. Drug use characteristics among methadone patients (*n* = 75)*

	Prescription opioid users <i>n</i> = 36 (49%)	Heroin users <i>n</i> = 39 (51%)	<i>p</i> value
Demographics			
Male	47%	54%	.57
Caucasian	97%	85%	.11
Age, yrs	30.4 ± 1.4	32.3 ± 1.7	.43
Reporting income from employment/past thirty days	47%	39%	.50
Reporting income from unemployment/past thirty days	6%	3%	.51
Reporting income from illegal sources/past thirty days	20%	45%	.03
Opioid use			
Reporting ever used IV	69%	92%	.01
Reporting IV as primary route of administration	41%	92%	<.0001
Amount of opioids used/day, bags ^{†‡}	3.0 (1.5–3.4)	5.5 (3.0–9.0)	.0005
Years of regular opioid use	8.3 ± 1.2	10.2 ± 1.5	.32
Years of occasional opioid use	1.4 ± 0.5	2.1 ± 0.6	.46
Money spent on opioids/past thirty days [†]	\$800 (200–2000)	\$1200 (700–3000)	.07
Mean number of times overdosed on opioids/person	0.7 ± 0.3	1.2 ± 0.4	.38
Mean number of previous treatment episodes/person	3.9 ± 0.7	5.8 ± 1.2	.20
Other drug use			
Days of alcohol use/past thirty days	1.9 ± 0.5	1.9 ± 0.6	.98
Days of sedative use/past thirty days	3.1 ± 1.4	2.2 ± 1.1	.58
Days of cocaine use/past thirty days	1.9 ± 0.7	1.3 ± 0.5	.47
Addiction Severity Index composite subscales			
Opiate	0.60 ± 0.03	0.69 ± 0.02	.007
Cocaine	0.10 ± 0.03	0.10 ± 0.03	.96
Drug	0.33 ± 0.02	0.36 ± 0.01	.09
Alcohol	0.07 ± 0.02	0.05 ± 0.02	.61
Employment	0.67 ± 0.05	0.70 ± 0.05	.67
Legal	0.23 ± 0.04	0.35 ± 0.06	.11
Family/Social	0.16 ± 0.03	0.27 ± 0.04	.04
Psychiatric	0.39 ± 0.04	0.34 ± 0.04	.44
Medical	0.35 ± 0.06	0.26 ± 0.05	.31

*Data are presented as mean ± SD unless otherwise specified.

[†]Median (interquartile range).

[‡]To enable comparison of amounts of opioids used/day between the two groups, a heroin bag equivalent was calculated for each prescription opioid user by dividing each subject's self-reported daily milligrams by 80 to equal approximately one bag of heroin.

individuals seeking treatment, the data show that approximately half (49%) of our current patients are primary prescription opioid users. This is consistent with the data cited earlier showing a recent 3.5-fold increase in the number of treatment admissions for prescription opioid abuse nationally.⁸

While the prescription opioid users in this study were similar to heroin users in many ways, several differences suggest that they may have a lower severity of opioid use. First, prescription opioid abusers reported using smaller daily amounts of opioids and had a lower score on the ASI opioid subscale. This is consistent with the results of a national survey of treatment admissions, in which daily opioid use was reported by 68% of

prescription opioid users compared to 80% of primary heroin abusers.⁸ In general, a lower severity of baseline drug use at treatment intake has been shown to predict more favorable treatment outcome.^{12–14} Second, prescription opioid abusers reported less current and lifetime IV drug use. A similar pattern was seen in the national survey of treatment admissions, which indicated that 13% of primary prescription opioid admissions reported IV as their primary route compared to 62% of heroin admissions.⁸ Further, in perhaps the only published study comparing the demographic and drug use characteristics of prescription opioid and heroin abusers, prescription opioid users reported significantly less lifetime and past-year intravenous injection drug use than heroin users.¹⁰

These differences in preferred route of administration could be important, in that a preference for non-injection routes of opioid administration is associated with more favorable treatment outcome.¹⁵ Finally, prescription opioid users appeared to be more stable than heroin users in this study, reporting fewer family and social problems and less income from illegal sources. It has been suggested that more socially stable subpopulations of opioid abusers may be candidates for antagonist treatments, such as naltrexone, rather than the long-term agonist treatment typical for opioid dependence.¹⁶⁻¹⁸ These initial results indicate that the emerging population of prescription opioid abusers may be less severely dependent than primary heroin abusers and have unique needs that must be considered when developing effective treatments for prescription opioid abuse.

Prescription opioid abusers in the present study did not differ from heroin users on other non-opioid drug use. The self-reported frequency of cocaine, sedatives, and alcohol did not significantly differ between the two groups. Similarly, ASI cocaine, drug, and alcohol subscale scores did not differ between prescription opioid and heroin users. These preliminary results suggest that differences in drug use severity between these two groups may be specific to opioids. However, another possible explanation is that the relatively low level of cocaine and other drug use among this sample of opioid-dependent patients entering methadone treatment may be unique to Vermont and could have limited the ability to detect differences. Future efforts to more thoroughly characterize the extent of other drug use among prescription opioid and heroin abusers are warranted.

It will also be important for future research to investigate issues of pain among prescription opioid abusers. For example, prescription abusers who also have current or past chronic medical conditions requiring narcotic treatment may differ from those who have no such problems. Whether these two groups will respond similarly to treatment is unknown. A review of the patients included in this preliminary report shows that 45% of this sample did report a history of at least one pain episode requiring narcotic treatment. However, of the 36 prescription opioid abusers examined in the present study, only four patients (11%) had an opioid prescription in the past thirty days prior to intake. These data would seem to suggest that while pain issues may be overrepresented among prescription opioid abusers, many of these individuals do not currently have a prescription and are likely obtaining and using prescription opioid medications illicitly. Future studies should more directly examine the issue of pain and pain management among prescription opioid abusers.

Several limitations should be noted. First, the primary limitation of this study is that it was a retrospective review of intake data with a limited sample size and assessment battery. However, the information gained from this initial study may aid efforts currently underway to develop

treatment interventions for prescription opioid abuse. Second, the potential for detecting differences between the two groups might have been limited by not excluding subjects who reported having ever used both forms of opioids. While this approach may not have produced the most pure categories of prescription opioid and heroin users, it is the most realistic given that polydrug use is the norm, rather than the exception, among opioid abusers. That is, excluding individuals who report a history of use of both drugs would likely limit the generality of our results. Third, the calculation of the prescription opioid-to-heroin equivalent was based on an informal survey conducted with local physicians familiar with opioid abuse in Vermont. However, extensive regional differences have been noted in factors such as price per milligram of prescription opioid and number of milligrams per heroin bag.¹⁹ Thus, efforts should be made to ensure that the prescription-to-heroin conversion is accurate for the local area under study. A final limitation may be the potential generality of research done with prescription opioid abusers in Vermont (ie, primarily Caucasian opioid users in a rural setting) to more ethnically diverse samples or those residing in urban settings. However, data from the Treatment Episode Data Set indicate that 88% of prescription opioid treatment admissions were white compared with 47% of heroin admissions.⁸ Prescription opioid abuse also initially emerged in rural areas like Vermont and is a significant and increasing concern among rural and urban areas alike. Thus, the present findings in this study are likely to have reasonable generality to prescription opioid abusers throughout the United States.

In summary, results from this initial examination suggest that prescription opioid abusers may have a number of characteristics that predict better treatment response compared to primary heroin abusers. While there is no doubt that the majority of prescription opioid abusers are physically dependent on opioids, this new information may inform current efforts to develop efficacious treatments that address the unique needs of this emerging clinical population.

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