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Understanding the demand side of the prescription opioid epidemic: Does the initial source of opioids matter?

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ABSTRACT

Background: These studies were carried out to examine whether the onset and progression of an opioid substance use disorder (SUD) differed in those who first used opioids to get "high" compared to those who received a prescription from a doctor to relieve pain (Non-Rx vs. Rx groups, respectively).
Methods: A subset of patients (N = 214) from an ongoing larger study of patients entering one of 125 drug treatment programs for opioid use disorder across the country agreed to give up their anonymity and participate in structured and open-ended online interviews examining drug abuse patterns.
Results: With the exception that the Non-Rx group began their opioid abuse at a younger age than the Rx group and more quickly evolved from initial exposure to regular opioid abuse, there were relatively few differences in the characteristics, patterns and trajectories of opioid abuse. The vast majority of patients in both groups, most of whom had serious, antecedent psychiatric disorders, indicated that they used opioids to self-medicate psychological problems (67–73%) and/or stated that opioids provided a means to "escape" from the stresses of everyday life (79–85%). As the SUD progressed, for many individuals any "positive" attributes of opioids waned and avoidance of withdrawal became the overriding concern, often serving as the impetus for treatment.
Conclusions: Our results suggest that self-treatment of co-morbid psychiatric disturbances is a powerful motivating force to initiate and sustain abuse of opioids and that the initial source of drugs—a prescription or experimentation—is largely irrelevant in the progression to a SUD.

1. Introduction

The non-therapeutic use of opioid analgesics has increased markedly over the past fifteen years to the point where it is now regarded as a major public health concern (Boyles, 2009; Cai et al., 2010; McCabe et al., 2008; Manchikanti et al., 2010; Rogers and Copley, 2009; Schulden et al., 2009; Skurtveit et al., 2010). Most efforts today to stem this increase have focused on the supply side of the issue, such as the introduction of abuse-deterrent formulations of opioid analgesics (Food and Drug Administration, 2013), enhanced regulatory oversight of "pill mills" and eliminating "script doctors" or "doctor shopping" through prescription monitoring systems (PMPs; Reifler et al., 2012). However, history teaches us that if there is a demand for a drug – alcohol, heroin, cocaine, methamphetamines, etc.,—dealers will ensure an ample supply despite the best efforts of law enforcement and other regulatory agencies (Boettke et al., 2013). Thus, it seems clear that, while reducing access is certainly important, there needs to be a focus on why these drugs have such great appeal to users, which ultimately drives the demand.

While several studies have examined why opioids are first used and, in some cases, how the motivations for use change over time (e.g., avoidance of unpleasant life circumstances, prevent withdrawal sickness, etc.; Bohnert et al., 2013; McCabe and Cranford, 2012; Silva et al., 2013), relatively few studies have looked at the progression of use from very first exposure to an opioid to a formal DSM-5 diagnosis of substance use disorder (SUD), and most important, whether there were differences in those whose first exposure to an opioid was a prescription for pain as contrasted to those who simply experimented with opioids for their mood-altering effects. Given the extensive co-morbidities often seen in pain patients (Kato et al., 2006; Turk et al., 2010), along with the need for pain management itself, it seems reasonable to postulate that there may be distinct differences in the transition of opioid use to abuse between those who initiated opioid use under a physician's care for pain and those who engaged in experimentation to "get high."

To assess this hypothesis that the origins of initial exposure may influence the progression to an SUD, we asked patients entering a

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drug treatment program with a formal diagnosis of an opioid SUD, to explain why they first used opioids, the individualized needs opioids proved to satisfy for them over the long-term, what led them to abusive patterns of use, and what led to treatment for a SUD diagnosis. Since most standardized instruments utilized to capture abuse rates or severity of abuse typically contain very broad terminology such as non-medical or non-therapeutic use, the non-specific nature of these instruments make it incredibly difficult to follow the progression of opioid use, particularly, if the reasons for use/abuse change over time (McLellan et al., 1992; SAMHSA, 2013; Zacny and Lichtor, 2008). To overcome these limitations and gain a more detailed insight into the "natural history" of substance (opioid) use disorder, we used a mixed methods approach—structured questions and, most importantly, open interviews—to fully explore the complex factors leading to the onset and progression of an opioid SUD.

2. Material and methods

This report utilized data from a subset of participants from the ongoing nationwide Survey of Key Informants' Patients (SKIP) Program, a key element of the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System, a comprehensive series of programs that collect and analyze post-marketing data on the misuse and diversion of prescription opioid analgesics and heroin (Cicero et al., 2007; Dart et al., 2015). The SKIP Program consisted of Key Informants from over 125 public and privately funded treatment centers in 49 states, who were asked to recruit clients over the age of eighteen entering substance abuse treatment programs with a primary diagnosis of opioid abuse (DSM-IV or V criteria). Clients were asked to complete an anonymous, paper survey centered on opioid abuse patterns and related behaviors. A sub-set of these respondents indicated by a mail-in postcard provided with the SKIP survey that they were willing to give up their anonymity and, following completion of a registration that included written consent, participate in an interview-based study, dubbed Researchers and Participants Interacting Directly (RAPID). The purpose of the RAPID program was to: first, supplement and add context to the structured SKIP survey by establishing a two-way exchange of information with participants where questions were developed, administered and answered within a short time period. Since the structured SKIP survey only peripherally addressed what factors contribute to the demand for opioids, the studies reported here used only the RAPID subset to focus on more specific motivations for the onset and progression of opioid use over time.

RAPID participants completed quarterly online surveys with direct, structured questions about opioid use initiation and progression, but most importantly, participants were asked to explain their responses and provide more information to place their responses to structured questions in context. In addition, the RAPID interviews gather demographic variables along with data on psychiatric co-morbidity and prior substance abuse. The RAPID sample was sub-divided into two groups based on initial exposure to a prescription opioid. Participants (N = 214) were asked to endorse the reason they first used an opioid prescription drug: those that make up the Rx group indicated that their initial exposure was a legitimate prescription from a doctor to treat pain (44.9%); the Non-Rx group comprised of participants that endorsed any other reason for first opioid use or abuse other than a valid prescription to treat pain. Differences between these two groups were analyzed by comparing demographics, psychiatric co-morbidity, first substance of abuse, ages of onset and drug usage habits. The independent samples t-test was used to compare ages, while the chi-squared test of independence was used on all other variables in the analysis to determine significant differences in the characteristics of abuser populations.

Table 1
Differences in demographics of Rx and Non-Rx samples.

	Rx (%) n = 96	Non-Rx (%) n = 118	Sig.[a] p value
Gender			
Male	42.4	46.4	0.56
Female	57.6	53.6	
Mean Age	36.8 ± 10.1	35.3 ± 8.87	0.27
Race/Ethnicity			
White	92.4	91.0	0.72
Non-White	7.6	9.0	
Income			
Employed	72.6	64.6	0.22
Education			
Post-High School	86.3	78.0	0.12
High School or Less	13.7	22.0	
Residence			
Urban	45.7	50.0	0.54
Suburban/Rural	54.3	50.0	
Health Care Coverage			
Any Coverage	79.2	77.1	0.72
No Coverage	20.8	22.9	

[a] Independent samples t-test used for age (±SD), Pearson's chi-squared was used for all other variables.

Statistics were used to analyze quantitative data on motivations for opioid use in the RAPID data set were completed using IBM SPSS Statistics v22. Qualitative data, outside of direct quotes, are reported here based on the frequency of stem words (e.g., the stem word "talk" would include all derivations such as "talking") in the data. The top fifty stem words are shown in the form of word frequency clouds, where the more frequent the stem word is found in the data, the larger the word is presented in the overall word cloud. Qualitative responses were reviewed and selected words were collectively coded by the authors to provide rates of endorsement of the populations, as opposed to overall number of words as is found in the word clouds. Representative quotes are presented verbatim Word clouds and coding were develoepd using NVivo version 9. Data for these studies were collected over a series of five RAPID interviews from the third quarter of 2013 to the third quarter of 2014, with a follow-up survey in the first quarter of 2015 (Rx, N = 70; Non-Rx, N = 80). Participants in the RAPID program were compensated with a $20 Wal-Mart gift card per interview. All protocols were approved by the WUSTL Institutional Review Board.

3. Results

3.1. Demographics

Table 1 summarizes the gross demographic features of those eligible for the RAPID (N = 214) analysis broken down by the reason for first exposure to an opioid: Rx (N = 96) or Non-Rx (N = 118). There were no significant differences between them. Both groups consisted of men and women (slightly more of the latter) in their mid-30s, who were employed with some higher education, carried health insurance, and were evenly divided in their residential urbanicity.

3.2. Psychiatric co-morbidity and prior substance abuse

Table 2 shows that while both groups had a host of psychiatric disturbances that required treatment at some point in time, the Rx group had a significantly greater incidence than the Non-Rx group (77.9% vs. 62.7%, p = 0.04), most notably for depression (70.6 vs. 53.0%, p = 0.03). Specifically, while, prescribed opioids were more often the first drug of abuse among the Rx group, compared to the Non-Rx group (14.5% vs. 3.9, p = 0.03), the vast majority of both groups had experience with other psychoactive substances prior to