

Opioid contract use is associated with physician training level and practice specialty

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ABSTRACT

Opioid contracts are widely used to manage opioid prescribing in the treatment of pain conditions, but they are not well studied. A notable gap in our knowledge of opioid contracts involves the factors that determine their use. As an initial inquiry, this study evaluated the responses of a Web-based survey of trainees and faculty in an academic medical training context to determine correlates of opioid contract use.

All paid faculty, third- and fourth-year medical students, and residents in The University of Oklahoma College of Medicine were invited via email to participate in a Web-based survey of their attitudes and prescribing practices related to controlled prescription drugs. Respondents composing a subgroup of those who replied to the survey were identified by their prescription of opioids and by their designation that pain was the most likely diagnosis for which they would prescribe a controlled drug. Chi-square analysis was used to determine any correlation between contract use and respondents' demographic variables and categorical survey responses. Analysis of variance was used to determine any correlation between contract use and survey responses that involved continuous variables.

Our results showed that opioid contract use was significantly associated with resident status, primary care specialty, participant estimation of alcohol and illicit drug abuse by patients, and the participant's assessment of the risks in general of prescribing controlled drugs. A majority of contract users reported that the use of this tool increased their sense of mastery and comfort with prescribing controlled drugs.

The factors associated with opioid contract use found in this study suggest there are significant prescriber-specific determinants of the use of the tool, including training level, medical specialty, and risk appraisals. Opioid contracts' effects on mastery and comfort of the physician with prescribing opioids suggest that they may play an

important role in facilitating appropriate pain management with opioids. Further study is needed to elucidate environmental and patient-specific factors that may influence opioid contract use.

Key words: opioids, contract use, prescription, academic medicine

INTRODUCTION

The management of pain with opioid analgesics holds the promise of significantly alleviating suffering and improving quality of life for patients. However, opioid prescribing is attended by a number of concerns that may significantly impact clinical practice. To name a few, these issues include practitioner concerns regarding rising prescription drug abuse, fear of causing addiction, and uneasiness with regulatory oversight of and potential censure for opioid prescribing practices.^{1,2} Mindful of these issues, the thoughtful practitioner may be understandably hesitant to prescribe opioids, or he or she may prescribe opioids at suboptimal levels for appropriate pain control. On a broader public health level, such prescriber concerns may significantly contribute to inadequate medical treatment of pain.³

A widely used but poorly studied method for addressing prescriber concerns is the opioid contract.⁴ Recent research has begun to characterize these tools. Fishman and colleagues analyzed opioid contracts from 39 academic medical centers and reported their most common features.⁵ These features included common goals of facilitating informed consent, improving patient care through education, and fostering patient-prescriber agreement on the treatment. Also noted were frequently identified statements outlining terms of treatment, proscribed behaviors, and conditions for patient dismissal. Other research has attempted to identify the prevalence of opioid contract use, with one study reporting the use of opioid contracts by 42 percent of practitioners in a primary care setting.⁶ Others have identified potential problems

with opioid contracts, including the risk of stigmatizing patients with substance abuse, patients' perceiving the contracts as punitive, and practitioners' equating a signed contract with adequate patient compliance.⁵ Differences of opinion among medical professionals exist about the appropriateness of using opioid contracts, but, generally, such contracts are considered useful tools in managing opioid prescriptions for some patients.⁷ In recognition of such, the American Academy of Pain Medicine published a sample agreement form.⁸

Despite the growing knowledge about opioid contracts, important questions about these tools remain. Such questions include whether opioid contracts are efficacious for the purposes for which they are used. Additionally, it is not known whether they are binding or whether they may increase prescriber liability risk.⁵ Furthermore, it is not clear what factors might be associated with their use. In the face of a lack of demonstrated efficacy of opioid contracts, answering this latter question may be particularly important because it may help uncover the determinants of contract use. Knowledge from this avenue of inquiry may be useful for a number of reasons. Determining the factors associated with the use of opioid contracts may assist with providing a descriptive context for their use. Such topography could help frame or guide future research aimed at studying opioid contracts. Understanding factors linked to opioid contract use may also broaden understanding of physician behavior, particularly regarding concerns, beliefs, and motivations about opioid prescribing. Such knowledge may hold the potential ultimately to enhance physicians' clinical performance and care of patients. As a preliminary investigation, this study examined the prevalence and determinants of opioid contract use among medical faculty and trainees in a large university-based health system.

METHODS

A Web-based survey assessing medical trainee and faculty attitudes and prescribing practices regarding controlled drugs, including opioids, was administered to third- and fourth-year medical students, residents, and paid physician faculty at The University of Oklahoma College of Medicine. The participants were practicing or training in various locations across Oklahoma, representing a broad range of primary care and specialty groups. Their patients were drawn from rural and urban areas and included those who were insured and uninsured. Participation was solicited via email, and participants submitted their responses anonymously through a link to a Web-page survey. Demographic information gathered included age cohort (five-year increments); gender; and training status as medical student, resident (with specialty training program), or faculty (with specialty). The study population was acquired by focusing analysis

on participants whose responses indicated a co-occurrence of opioid prescription and the diagnosis of pain as the most likely condition for which they prescribe controlled drugs. The chi-square test was used to perform several analyses. These included examining the relations between contract use and factors such as participant's demographic variables and their assessment of the risks of controlled drugs. Analysis of variance was used to examine the relationship between contract use and participants' estimation of their patients' abuse of alcohol and illicit drugs and of prescription drugs. Age and gender were examined as possible confounders by examining their relationship to contract use via chi-square analysis. Finally, contract users' evaluation of the effects of contract use on their sense of mastery and comfort level with prescribing opioids was assessed. A *p* value of 0.05 was considered statistically significant.

RESULTS

A total of 196 surveys were submitted by participants. Of this number, 52.6 percent were faculty, 26.0 percent were medical students, and 21.4 percent were residents. Representation by 10-year incremented age cohorts was 37.8 percent for ages 20 to 30 years, 24 percent for ages 31 to 40 years, 17.3 percent for ages 41 to 50 years, 16.8 percent for ages 51 to 60 years, and 4 percent for ages 61 to 70 years. One hundred ninety-three participants identified their gender. Of this group, 54.4 percent were male. Ninety-eight faculty members identified their practice specialty. Of this group, 30.6 percent were medical specialists, 52.0 percent were primary care physicians (e.g., general internal medicine, pediatrics, family medicine), and 17.3 percent were surgical specialists. The total number of paid faculty, residents, and third- and fourth-year medical students in The University of Oklahoma College of Medicine at the time of the survey was 1,419. The survey response rate was calculated to be 14 percent.

The study population was composed of those participants who indicated they prescribed opioids (directly or under supervision) and were most likely to prescribe controlled drugs for a pain diagnosis in their practice or training activities. This group numbered 122 (Figure 1). All of these participants identified their gender and training status. Of this group, 59 faculty identified their practice specialty. Age distribution was similar to that of the total survey response group.

There were no statistically significant differences in gender distribution across training status groups ($n = 122$, chi-square = 4.832, $df = 2$, $p = 0.09$) or across faculty specialty groups ($n = 59$, chi-square = 0.514, $df = 2$, $p = 0.77$). Faculty specialty groups did not differ from each other in age distribution ($n = 59$, chi-square = 14.841, $df = 16$, $p = 0.54$); however, training status groups differed significantly by age ($n = 122$, chi-square = 104.083, $df = 18$, $p < 0.0001$). The

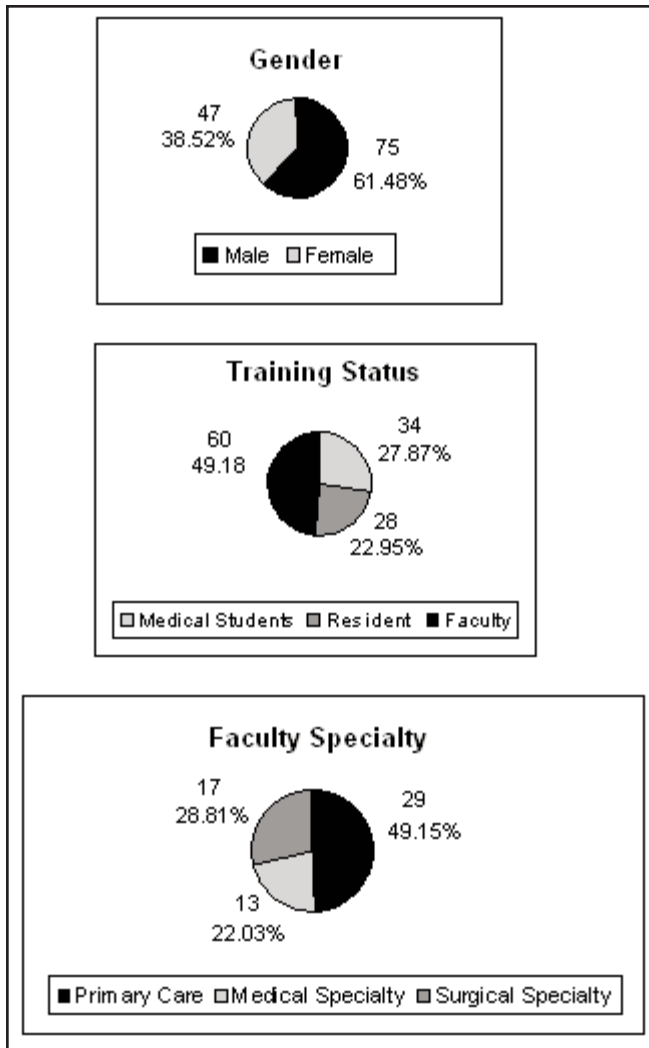


Figure 1. Participant distribution by gender, training status, and faculty specialty.

majorities of students (86.1 percent) and residents (60.7 percent) were at or below 30 years of age, whereas most faculty (75.0 percent) were 36 to 60 years of age.

Regarding contract use, residents were more likely than medical students or faculty to use a drug contract ($n = 122$, $\chi^2 = 6.125$, $df = 2$, $p = 0.047$) (Figure 2). Among faculty members, primary care physicians were more likely than medical or surgical specialists to use a drug contract ($n = 59$, $\chi^2 = 25.9$, $df = 2$, $p < 0.0001$) (Figure 3). Users and nonusers of drug contracts significantly differed in how they assessed the risks and benefits of prescribing controlled drugs ($n = 121$, $\chi^2 = 6.843$, $df = 2$, $p = 0.033$). Contract users were more likely to view risks and benefits as varying significantly with each case, whereas contract nonusers were more likely to endorse the idea that benefits outweigh risks in most cases. Also bearing on the use of contracts is the participant's assessment of the prevalence of alcohol and drug abuse among his or her patients. Contract users

tended to estimate such rates as higher than contract nonusers ($n = 105$, $p < 0.001$) (Figure 4). Interestingly, participants' estimation of the prevalence of their patients' abuse of prescription drugs did not correlate with contract use ($n = 106$, $p = 0.201$).

Because age and gender were considered as possible confounders, their relationship to contract use was examined. There were no correlations between opioid contract use and participant age ($n = 122$, $\chi^2 = 9.928$, $df = 9$, $p = 0.36$) or gender ($n = 122$, $\chi^2 = 0.744$, $df = 1$, $p = 0.39$).

The majority of contract users indicated that contract use improved their sense of mastery (54 percent) and comfort level (64 percent) with prescribing controlled drugs.

DISCUSSION

This preliminary study demonstrates several findings that may shed light on the determinants of opioid contract use. Within the context of an academic medical training system, residents are more likely than faculty or medical students to use opioid contracts. One explanation may be a cohort effect. Residents as a group may be more familiar with opioid contracts as a recent tool in pain management. Resident use of contracts may also be influenced by their training demands. Resident physicians carry a relatively large load of patient care responsibility and are still honing their clinical skills. They may find the use of such tools especially helpful in managing opioid prescribing in their frequently complex patients. In contrast, faculty members, who have acquired clinical competency and experienced judgment, may not feel they require the structured assistance an opioid contract provides. Faculty members typically apply expert skills in an automatic fashion that may negate the perceived need for a contract. Medical students, who typically function at a more basic skill level, may not be aware of the availability of or need for contracts. Furthermore, because medical students do not have prescriptive authority, they are somewhat removed from managing opioid analgesics and may have little motivation for using opioid contracts. Finally, the lack of correlation between age and contract use would contend with arguments that residents' preferential contract use owed to age effects.

Another major finding of this study is that, among faculty, opioid contracts are more likely to be used by primary care physicians than by medical or surgical specialists. A possible explanation is that primary care faculty members are more likely than specialists to provide continuous care over time for patients with pain conditions. Longer-term care may promote a more in-depth doctor-patient relationship, with all of its attendant rewards and potential complications. In this context, opioid contract use may facilitate positive and predictable doctor-patient

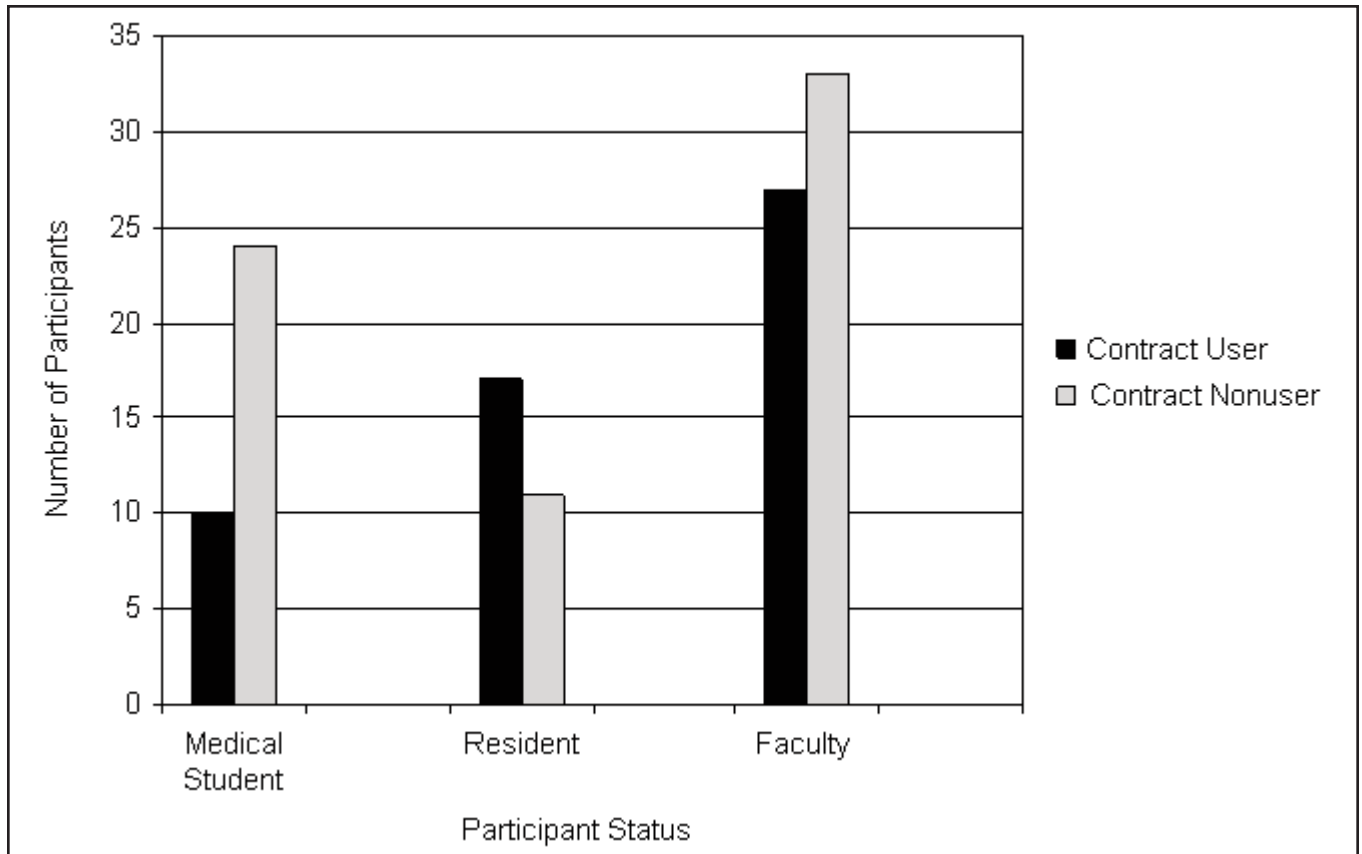


Figure 2. Opioid contract use among medical students, residents, and faculty.

interactions, potentially smoothing the sometimes-difficult course of treating pain.

How a prescriber assesses the risk/benefit ratio of prescribing opioid analgesics is correlated with opioid contract use. Specifically, contract users are more likely to see risks and benefits as varying significantly case by case. By comparison, contract nonusers tend to view benefits as outweighing risks in most cases. This finding suggests that contract use may be influenced by a physician's priority of awareness of the risks of opioids vis-à-vis their benefits. Indeed, contracts may be viewed by users as an important method of containing risks while retaining benefits. As such, contracts may improve physicians' comfort levels with prescribing opioids, thus supporting and promoting opioid prescribing. This idea is supported by our finding that a majority of contract users reported contract use as having improved their comfort with and mastery of prescribing opioids. This implies that opioid contracts have a significant role to play in overcoming physician concerns that may prevent appropriate opioid prescribing for pain.

Related to the previously described evaluation of risk is prescriber estimation of patient abuse of alcohol, illicit drugs, and prescription drugs. This study found that contract users estimated significantly higher rates of alcohol and illicit drug abuse in their patients than contract

nonusers. This finding further supports the idea that contract use may be motivated, at least in part, by prescriber awareness and concerns regarding addiction as a potential problem among patients. As previously noted, contract use may be perceived as helping the prescriber manage addiction risks as they may arise in the context of opioid prescribing. However, there were no significant differences in how contract users and nonusers estimated the prevalence of their patients' abuse of prescription drugs. This would seem to contend with the view of the opioid contract as a risk management tool. A potential explanation may, however, lie with differences in how physicians anticipate their patients will use opioids based on their estimation of those patients' abuse of alcohol/illicit drugs and prescription drugs. Physicians may perceive that alcohol and illicit drug abuse raises the risk of abuse of opioids relatively higher than it does their similar estimate of risk regarding prescribed drugs. In other words, the perceived likelihood of alcohol and illicit drug abuse may promote opioid contract use more effectively than the perceived likelihood of prescription drug abuse. There is some support in the literature for these perceptions. For example, some studies report that among chronic pain patients, the risk of drug abuse, dependence, and addiction is comparable to that in the general population.^{9,10} However, studies examining the

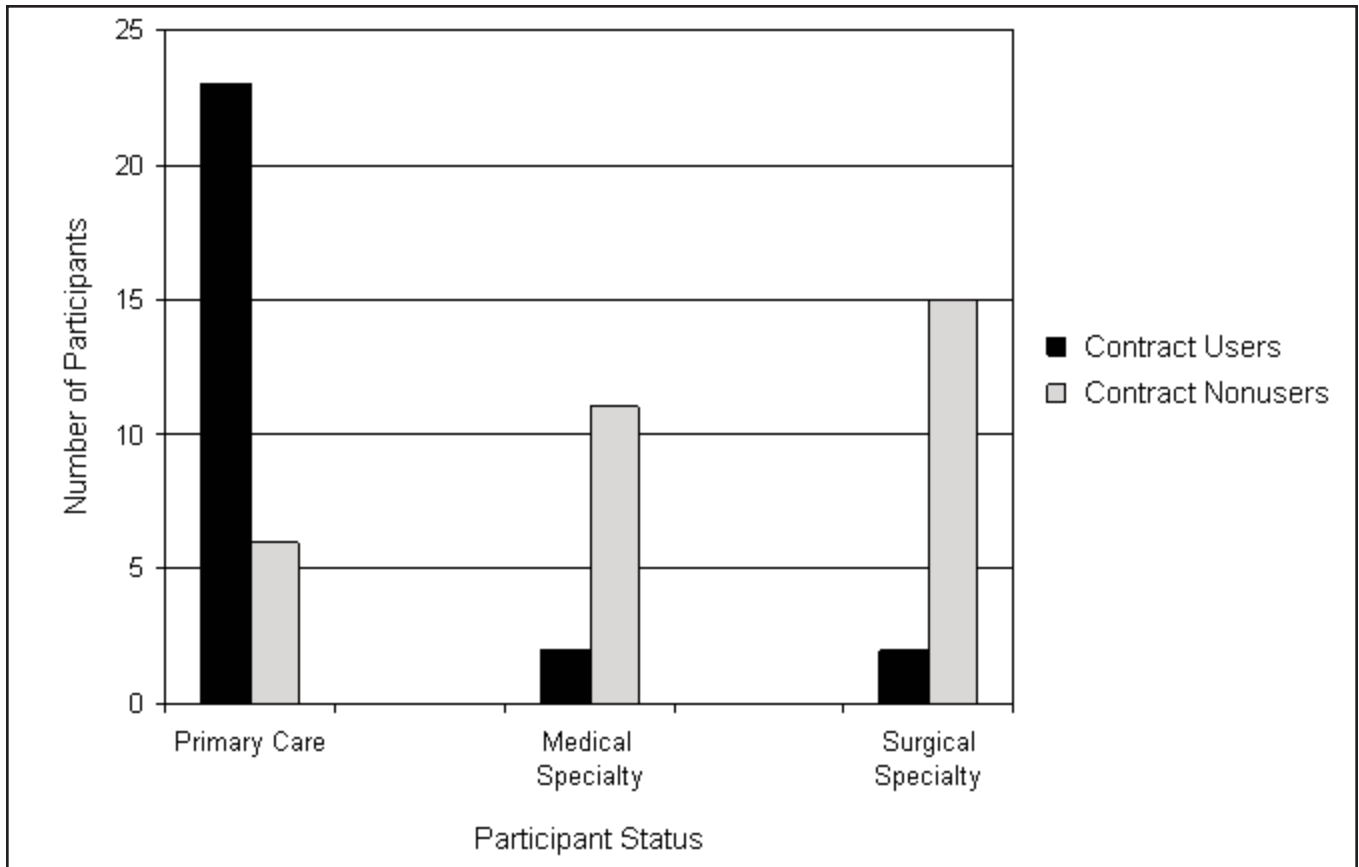


Figure 3. Opioid contract use differences by faculty.

comorbidities associated with alcohol disorders have indeed demonstrated an increased risk of other drug dependencies.¹¹

The limitations of this study center on sampling issues. This study solicited participants voluntarily through university email using preconfigured contact lists. Because the sampling method was not random, self-selection bias is a possibility. Nonresponders might have declined participation for a number of reasons. They might have been uninterested, felt they were too busy to participate, or might have been excluded from participating by email filters or by nonuse of their university email. On the basis of these selection factors, however, it is unclear that nonresponders would necessarily differ significantly from responders in how they answered the survey questions. It is possible that some faculty elected not to participate owing to the nature of their academic pursuits; that is, these faculty members may not be involved in direct patient care, and may devote their time exclusively to administrative and/or research pursuits. This assumption is reasonable and has the net effects of reducing the pool of potential survey participants and raising the survey response rate.

The survey response rate was calculated to be 14 percent; however, for reasons noted previously, the actual

response rate is likely higher. We might reasonably estimate our response rate to actually be in the 20 to 30 percent range. Two sources suggest that this response rate is within the range of expectation. One source reports that samples drawn from a consumer email database of those opting in for contact will have response rates in the 20 to 50 percent range.¹² Another source, a review of studies using email surveys, reports an average response rate of 31 percent.¹³ Thus, the response rate to our survey appears comparable to those of other online surveys. Nevertheless, it is probably wise to interpret the findings of this study with caution. Given the response rate to the survey, the results may not provide a complete picture of

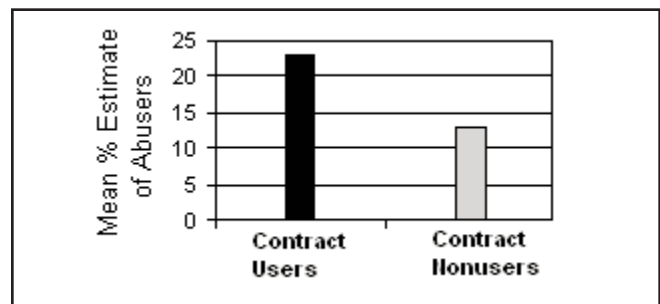


Figure 4. Opioid contract use as a function of the estimated percentage of patients abusing alcohol and drugs.

the university-based population it samples. Additionally, the study findings may not be generalizable to nonacademic practice settings.

Despite its limitations, this study offers important insights into the possible determinants of opioid contract use. Our findings suggest that these include the physician prescriber's level of training, assessment of alcohol and illicit drug abuse prevalence among one's patients, and practice specialty. Furthermore, opioid contract use may be reinforced by the increased sense of mastery and comfort they provide to users and might be viewed as vehicles for promoting and sustaining appropriate pain management with opioids. These findings suggest the use of opioid contracts is a complex behavior influenced by several prescriber-specific factors. Our study focused on prescriber-specific factors, but patient-specific or environmental factors, such as patient age or regulatory oversight of opioid prescribing, may also influence opioid contract use. In addition to replicating and expanding on the findings of this study, further research might examine these external factors. Ultimately, a better understanding of physician behaviors involved in prescribing opioids may allow for improved physician confidence in and understanding of opioid prescribing, potentially enhancing the management of pain.

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