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Deliberative Prescription Opioid Misuse Among Adolescents and Emerging Adults: Opportunities for Targeted Interventions

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Abstract

Background: One in five adolescents and emerging adults have reported prescription opioid misuse (POM), posing significant risks for opioid-related adverse outcomes. Devising prevention strategies requires a better understanding of the decisional factors underlying risky misuse behavior. This research examined the associations between past opioid use behavior, opioid risk knowledge and perceptions, and intentional POM decisions.

Methods: Participants aged 15–23 years completed surveys assessing past prescription opioid use and misuse, opioid risk knowledge, opioid risk perceptions, and pain relief preferences (i.e., analgesic benefit vs. risk aversion preference). The outcome, *Willingness to Misuse* (i.e., intentional decisions to use a prescription opioid in a non-compliant manner) was measured using hypothetical pain decision scenarios.

Results: Surveys were completed by 972 adolescents and young adults. In total, 44% had taken a prescription opioid and 32% of these reported past POM. Willingness to Misuse was significantly associated with lower opioid misuse risk perceptions ($\beta = .75$ [95% CI .66–.86]) and past opioid misuse ($\beta = 1.81$ [95% CI 1.13–2.91]) but not simple risk knowledge ($\beta = .81$ [95% CI .58–1.11]). The probability of future misuse was highest for those who reported past opioid misuse and had low risk perceptions (58.7% [95% CI 51.3–65.8]) and high pain relief preferences (53.4% [95% CI 45.3%–61.3%]).

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Conclusions: Findings suggest that simple knowledge of prescription opioid risks is insufficient to curtail misuse among adolescents and emerging adults. Rather, it may be important to heighten opioid risk perceptions and strengthen opioid risk aversion values when prescribing opioid analgesics to better prevent future misuse in this high risk population.

Keywords

Opioid misuse; Pain; Risky decision-making; Adolescents; Young adults

The number of prescription opioids dispensed to adolescents and young adults in the United States quadrupled over just one decade [1], likely due to an emphasis on pain management during that period. This surge in prescribing was accompanied by increased rates of opioid-related adverse events [2–4], poisonings [5], opioid misuse [6], and opioid use disorder [7]. These adverse event rates have continued to soar despite the recent plateauing and even declining prescribing rates for children and adolescents [8], suggesting a lingering and worrisome undertow of the prescription opioid epidemic. Exposure to prescribed opioids for medical reasons poses both immediate and long-term risks. Following surgery or injury, 5%–12.5% of opioid-naïve children and adolescents persistently or recurrently use a prescribed opioid [9,10] presenting a high risk for ongoing opioid-related adverse events and dependence. Furthermore, legitimate use during adolescence has been associated with higher rates of opioid misuse and substance use disorder symptoms during adulthood [11,12]. The term prescription opioid misuse (POM) encompasses several risky behaviors including “medical misuse” (e.g., non-compliant use such as taking larger or more frequent doses or taking it for an unintended purpose), “non-medical misuse” (e.g., taking someone else’s prescription), and “diversion” (sharing with others) [13]. Each of these subtypes of misuse poses increased risk for serious adverse outcomes including drug dependence (when drugs are taken longer than intended or over time), drug addiction and accidental overdose, particularly when the inherent risks of prescribed opioids are not known or are underestimated.

A primary motivation for POM for a majority (84%–88%) of adolescents and young adults is to treat pain [14], and 71% of those motivated by self-treatment of pain reported using a past personal prescription [15]. While these and other less common motivations for POM are well described, the decisional factors that may help explain these risky behaviors have not been well explored. Since many misusers are motivated by a desire to self-treat pain, it may be that a large portion of misuse behavior reflects a deliberative process involving a consideration of expected benefits (e.g., pain relief) and expected risks [16]. Higher perceptions of benefit, which are common among adolescents considering risky behavior [16], combined with lower risk perceptions may, thus, promote opioid misuse. Such deliberations are likely influenced by past experiences and the mental models formed in response [16,17]. For instance, experience with opioid use or misuse might leave an impression of the subjective benefits (“*I used it this way before*”, “*Something good happened*”) and lessen the perception of risk, particularly if no negative consequences occurred [16,17]. A better understanding of the cognitive and experiential factors associated with POM decisions is needed to optimize interventions to prevent future misuse. This observational, cross-sectional study, therefore, examined the associations between

adolescents' and young adults' prescription opioid risk knowledge, risk perceptions, their past experiences with prescription opioids, and their decisions to misuse a prescription opioid to treat pain. We hypothesized that (1) greater knowledge of serious opioid-related risks and higher risk perceptions would be associated with less willingness to misuse an opioid, and (2) past experience with prescription opioid use and misuse would be associated with an increased willingness toward future misuse.

Methods

With approval from the Institutional Review Board at the University of Michigan (IRB-MED; HUM119543), trained research assistants approached healthy individuals aged 15–23 years in common areas (e.g., coffee shops, study areas) on and nearby the University of Michigan campus. All were approached independent of race, sex, or ethnicity, and STROBE guidelines [18] were followed. Following a brief study description and screen for age, verbal consent/assent was obtained and participants used an iPad to complete a Qualtrics survey. No personal identifiers were recorded to ensure anonymity and encourage honest disclosure.

Survey and measures

The survey assessed past pain experiences, pain relieving treatments, and sources of analgesics and information (see the Appendix for key measures). Both the generic and common brand names for all analgesics of interest were included (e.g., hydrocodone [Vicodin/Norco] and oxycodone [OxyIR/Roxicodone/Percocet]). Demographics and an assessment of recent substance use using specific screening items from the Screening to Brief Intervention Tool [19] (i.e., How frequently have you used...tobacco, alcohol, marijuana, and illegal drugs) were elicited.

Main measures

Past prescription opioid misuse.—This measure was modified from the widely cited Secondary Student Life Survey and Monitoring the Future items that assess lifetime medical misuse and non-medical misuse [20]. Specifically, we asked participants, *“Have you ever, at least once taken more of the opioid pain medicine than was prescribed or recommended (higher or more frequent dose, taken for a reason other than prescribed)”*. In the same manner as previous surveys, we followed a positive response to past POM with the question, *“Please provide the reason(s) why”* and provided a list of potential motives for doing so.

Pain relief preference.—This instrument assesses the relative importance that individuals place on obtaining analgesic benefit (pain relief) versus the importance of avoiding analgesic risks (risk aversion) [21]. This survey is similar to those that assess the values and preferences that individuals place on medical treatments which, in turn, have been associated with treatment adherence [22]. Participants ranked six risk-benefit items (e.g., *“Pain relief is more important than the side effects of prescription pain drugs”*) from strongly disagree (−2) to strongly agree (+2), yielding a summary score from −12 (strongly risk avoidant) to +12 (strongly pain relief [i.e., benefit] preferent). Scores of 0 reflect a relative ambivalence. This tool has demonstrated internal consistency (Cronbach's alpha.763) [21] and yields two

factors (i.e., benefit vs. risk avoidant preferent) that explain 57% of the variance in total score (KMO sampling adequacy $>.64$; $p < .001$) [23].

Opioid risk knowledge.—This tool assesses awareness of common (e.g., nausea, constipation) and serious (i.e., excessive sedation, slowed breathing and addiction) opioid-related adverse effects. Items have established content validity and were demonstrated to have predictive validity for opioid decision-making among adults [24]. For the purpose of this study, we summarized participant awareness of the serious opioid-related risks (addiction, over-sedation, and slowed breathing) into the opioid risk knowledge variable, where 1 = aware of all three serious effects and 0 = no or partial awareness.

Medical use and misuse risk perceptions.—To get a general sense of opioid risk perceptions, we asked participants to rate their perceptions of seriousness of adverse effects from 0 to 5, where 0 = not serious and 5 = extremely serious and to rate the overall riskiness over the counter and opioid analgesics [24,25]. Perceived seriousness of adverse effects has been shown to have predictive validity toward parental opioid decision-making [24]. Finally, similar to a recent study that measured perceived harmfulness of non-medical misuse from no risk to great risk, [26] we asked participants to rate the risk of taking a previously prescribed opioid for a new condition (medical misuse) and of sharing one's own prescribed opioid with a friend (non-medical misuse or diversion). The measure *POM* Risk Perception was imputed from these later two items and yielded a score ranging from 0 (not risky) to 5 (extremely risky).

Outcome measure

Willingness to misuse an opioid.—Similar to previous studies of opioid decision-making, we used scenarios to assess misuse intent. Scenario-based questions have been successfully used to assess variability in analgesic decision-making based on differing situational pain signals [25]. The scenarios used here were assessed among six undergraduate college students who supported their face validity as measures of misuse intent. Each scenario described a hypothetical pain situation after which participants were asked to decide among several choices (e.g., “*Take 2 of the prescribed Vicodin*”... “*Take 1 Advil*”... “*Take nothing*”) or to write in an action not listed. The first scenario assessed participants' decisions to medically misuse (i.e., take their own opioid prescribed a year ago for wisdom teeth extraction for a new, unrelated condition-unrelieved headache). The second assessed decisions to medically misuse for unrelieved oral surgery pain (i.e., take a higher dose of their own currently prescribed Vicodin) or non-medically misuse (i.e., take a friend's offered oxycodone). The last scenario assessed participants' willingness to divert (i.e., share a prescribed opioid with a friend). The *Willingness to Misuse* binary variable reflects any reported misuse intent.

Statistical analysis

We used SPSS (version 24, IBM Corporation, Armonk, NY) for analyses. We characterized the sample and assessed normality using descriptive statistics and then compared parametric and non-parametric data with unpaired t and chi square tests, respectively. To test the hypotheses, we used a logistic regression model to regress the outcome onto subject

characteristics, opioid risk knowledge and perception variables, and past opioid experience. *p* Values of $<.05$ were considered significant. Data are presented as odds ratios (OR) or mean differences (MD) with 95% confidence intervals (CI). To more clearly depict the effect of risk perceptions and analgesic preferences on the outcome, we used a posthoc generalized mixed effects logistic regression models (accounting for repeated measures and subject effects) to describe the estimated predicted probabilities of willingness to misuse for (1) the group overall, (2) the group adjusted for high and low pain relief preferences (i.e., benefit vs. risk avoidant preferent), and (3) the group adjusted for high and low risk perceptions. This description enhances the interpretability of the effects of these factors.

Based on previous census data, we estimated that 33,000 adolescents and young adults aged 15–23 years live in the Ann Arbor campus area. Using standard survey methodology, we determined that 1,000 respondents was more than sufficient to provide a representative sample to calculate estimates of prescription opioid use and misuse with a confidence level of 95% and a confidence interval (margin of error) of $\pm 4\%$ [27]. This sample was deemed more than sufficient to detect a modest effect size (OR 1.7; power .8, significance .05) for our main factors of interest on the outcome (expected proportion 10% [28]) [29].

Results

Sample description

One thousand thirteen volunteers were surveyed from May through September 2017, but 41 (4%) were incomplete due to Internet connection problems or time constraints, leaving 972 for analyses. Our convenience sample was representative of the community at large with the exception of sex (69% female in our sample compared to 52% for the community; that is, 2015 university census demographics include 52% female, 13% Asian, 5% black, 5% Hispanic, 66% white, 4% >two, and 7% other/unknown; City of Ann Arbor 2016 data include 49% female, 16% Asian, 7% black, 4% Hispanic, 68% white, 4% >two, and 1% other/unknown).

Table 1 depicts the past pain history and analgesic preferences of respondents who had previously used a prescribed opioid compared to those who did not. Notably, 90% of respondents overall reported at least monthly pain and 96% reported past analgesic use (mostly over-the-counter nonopioids).

Importantly, 32% of past prescription opioid users reported POM, and 99% of these did so to relieve pain. Other reasons for past POM included the following: to sleep ($n = 33$ [8%]), relieve anxiety ($n = 7$ [2%]), get high ($n = 8$ [2%]), or experiment ($n = 6$ [1%]). Pain relief preference scores were significantly lower (i.e., more risk averse) for respondents who had never misused a prescription opioid compared to those who had (MD -0.76 [95% CI -1.24 to -0.28]).

Analgesic knowledge and risk perceptions

Table 2 shows the differences in opioid risk awareness and perceptions between those who had previously used an opioid compared to those who had not. In addition to the noted differences between these groups, the sample overall rated the riskiness of sharing an opioid

with others (i.e., diversion) significantly higher than the risk of misusing one's own past prescription (i.e., medical misuse; MD 2.08 [95% CI 2.01–2.05]). Additionally, participants who reported past POM had significantly lower risk perceptions of medical misuse (i.e., misusing one's own prescription; MD –0.497 [95% CI –0.76 to –0.24]) and diversion (i.e., MD –0.449 [95% CI –0.68 to –0.22]) compared to those who had never misused.

Willingness to misuse a prescribed opioid

Overall, 249 respondents (26%) indicated a willingness to misuse an opioid for one or more of the scenarios. Past prescription opioid users were significantly more likely to indicate this willingness compared to nonusers (29% vs. 23%; OR 1.34 [95% CI 1.001–1.79]). More specifically, 56 (6%) would medically misuse a prescribed opioid for the first scenario (unrelenting headache), 167 (17%) would medically misuse their own and 55 (6%) would non-medically misuse someone else's drug for unrelieved toothache in the second scenario, and 25 (3%) would share a prescribed opioid with a friend in pain. In addition, one respondent would use marijuana or “*dank kush*” for headache, another would use “*cold water extraction of the hydrocodone*” for either headache or toothache (this latter description coded as willing to misuse).

Hypothesis tests

Table 3 depicts the adjusted odds for all associations between factors and the outcome, willingness to misuse an opioid. The model supported, in part, the first hypothesis in that higher perceived riskiness of misuse was significantly associated with lower willingness to misuse, whereas greater *awareness* of the potential serious risks of opioids was not associated with this outcome. The model also supported, in part the second hypothesis, that is, past prescription opioid use itself was not independently associated with the outcome but past misuse was associated with greater willingness to misuse. Indeed, individuals who had misused an opioid in the past were nearly twice as likely as those who had not misused to be willing to misuse again. To better clarify and interpret the effect of risk perceptions and pain relief preferences, Figure 1 shows how the predicted probability of future misuse was highest for individuals (both those who never misused and those who had misused in past) with the lowest misuse risk perceptions and for those with highest pain relief preference (i.e., benefit preferent).

Discussion

Findings from this large community survey of adolescents and young adults suggest that perceptions of opioid misuse riskiness, pain relief preferences (i.e., analgesic benefit), and past opioid misuse experience help to explain what may be deliberative prescription opioid misuse decisions among those considering self-treatment of pain. These findings have significant implications for strategizing better interventions to mitigate prescription opioid misuse among transitional aged youth.

Importantly, we found *no association* between simple awareness of serious opioid-related adverse outcomes (e.g., addiction, excessive sedation, respiratory depression) and willingness to misuse a prescription opioid. This finding suggests that provision of simple

risk information alone, such as that included in newly mandated opioid consent forms, is likely to be insufficient toward mitigating the potential for later prescription opioid misuse. In contrast, we found that stronger preferences for analgesic benefit (i.e., pain relief) and lower risk perceptions were strongly associated with misuse intention. These findings align with studies of risky decision-making among adolescents and young adults who respond more to the possibility of short-term benefit than to the potential long-term and rare risks, and whose risk perceptions are strongly associated with behavioral willingness [30]. Together, these findings suggest a need to heighten opioid risk perception and strengthen risk aversion preferences.

Of note, past prescription opioid users in our sample ranked the riskiness of addiction (a long-range outcome) lower compared to past nonusers but ranked the excessive sedation risk higher. This risk appraisal may reflect a mental model derived from personal experience with the more immediate adverse effect, sedation. These findings are not surprising since adolescents' risk perceptions are often reappraised downward after experience with a risky behavior [17,30]. Indeed, longitudinal data show how experience with drinking and driving, unprotected sex, or heroin use together with failure to experience negative outcomes leads to lowered risk perceptions [16,31].

Since adolescents exhibit cognitive appraisal during risky decision-making, some suggest that behaviors may be best modified by *discouraging* deliberative analysis of risks and benefits and, rather, by enhancing risk perceptions and risk avoidance values [30]. Giving verbatim or quantitative information about low rates of negative outcomes (e.g., overdose, dependence, and addiction) could provide a “rational calculus of risk promotion” that endorses risk-taking and intentions among youth who focus on potential benefits [16]. Conversely, enhancing gist risk perceptions (i.e., simple global perceptions) has been found to decrease risky intentions [16]. Devising the most effective health-risk messaging for adolescents is complex given the impact of “unpunished” experiences and that gist-based risk perceptions develop slowly as experience matures [17]. Novel prevention strategies aimed at strengthening the perceived benefits of health-promoting behaviors may, therefore, end up being more successful in reducing risk-taking among adolescents. For instance, promoting healthier approaches to pain management (e.g., non-opioid analgesics and non-pharmacologic methods) in combination with messages that enhance prescription opioid risk perceptions may better prevent intentional POM for self-treatment of pain.

Notably, more respondents in our sample indicated a willingness to misuse a personal prescription than to use a friend's or share with a friend (non-medically misuse or diversion), reflecting common misconceptions about the safety of prescribed opioids [32]. Additionally, similar to others [33–35], we found an association between substance use behavior and willingness to misuse a prescription opioid. Together, these findings suggest a need to better assess past prescription opioid behaviors and substance use and to introduce preventive interventions at the time of prescribing before the slippery slope of misuse and subsequent risk reappraisal has the chance to emerge.

Our findings must be considered in light of the following limitations. Our convenience sample was drawn from one university community and our sample included primarily older,

white and female adolescents. Thus, our sampling limits the potential generalizability to other population. Next, the data reflect self-report of potentially sensitive information. However, surveys were anonymous and the questions were carefully worded to be nonjudgmental to promote honest disclosure and reduce the potential for response bias. Additionally, our findings are validated, in part, by previous, broader-based community data showing similar rates of self-reported pain [36], analgesic use [37], prescription opioid use (including racial differences in use) and misuse [38]. Despite some external validation, the ability to generalize to other populations of youth is limited by our sampling. Next, although we did not directly measure perceived *personal* vulnerability, we did find that riskiness of personal opioid misuse was ranked lower than riskiness of sharing or diversion which is in line with data regarding personal invulnerability among youth [39]. Our study explored decisional factors related to intentional risk taking specifically for treatment of pain, and thus, factors related to impulsive POM may differ. Indeed, recent data suggest that perceived harmfulness was *not* associated with non-medical prescription opioid use in college students who scored high in sensation-seeking [26]. Such differences suggest a need for differing interventional strategies for different target populations. Last, it could be argued that hypothetical decision-making may not align with real-world decision-making. Yet, empirical studies have shown that hypothetical decisions are highly correlated with real behavior and provide the opportunity to manipulate key variables that are otherwise difficult to ascertain in the real world [40].

Despite these limitations, this study identified important risk perception and experiential factors that may contribute to adolescents' and emerging adults' risky decisions to misuse prescription opioids. Our findings have important implications given that millions of prescriptions are dispensed to this group annually, posing ongoing and potentially significant risks of misuse and adverse events. Our data can also inform recent policy mandates for parental consent and youth education. We find the likely targets for intervention include the need to heighten opioid misuse risk perceptions (not simple risk awareness alone) and strengthen analgesic risk aversion values when prescribing opioids to treat pain in adolescents and young adults.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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IMPLICATIONS AND CONTRIBUTION

This study of adolescents and young adults demonstrates how prescription opioid misuse risk perceptions, analgesic risk avoidance preferences, and past opioid misuse behavior factor into decisions to misuse prescription opioids for pain. These data suggest modifiable targets for interventions when prescribing opioids to mitigate opioid misuse among emerging adults.

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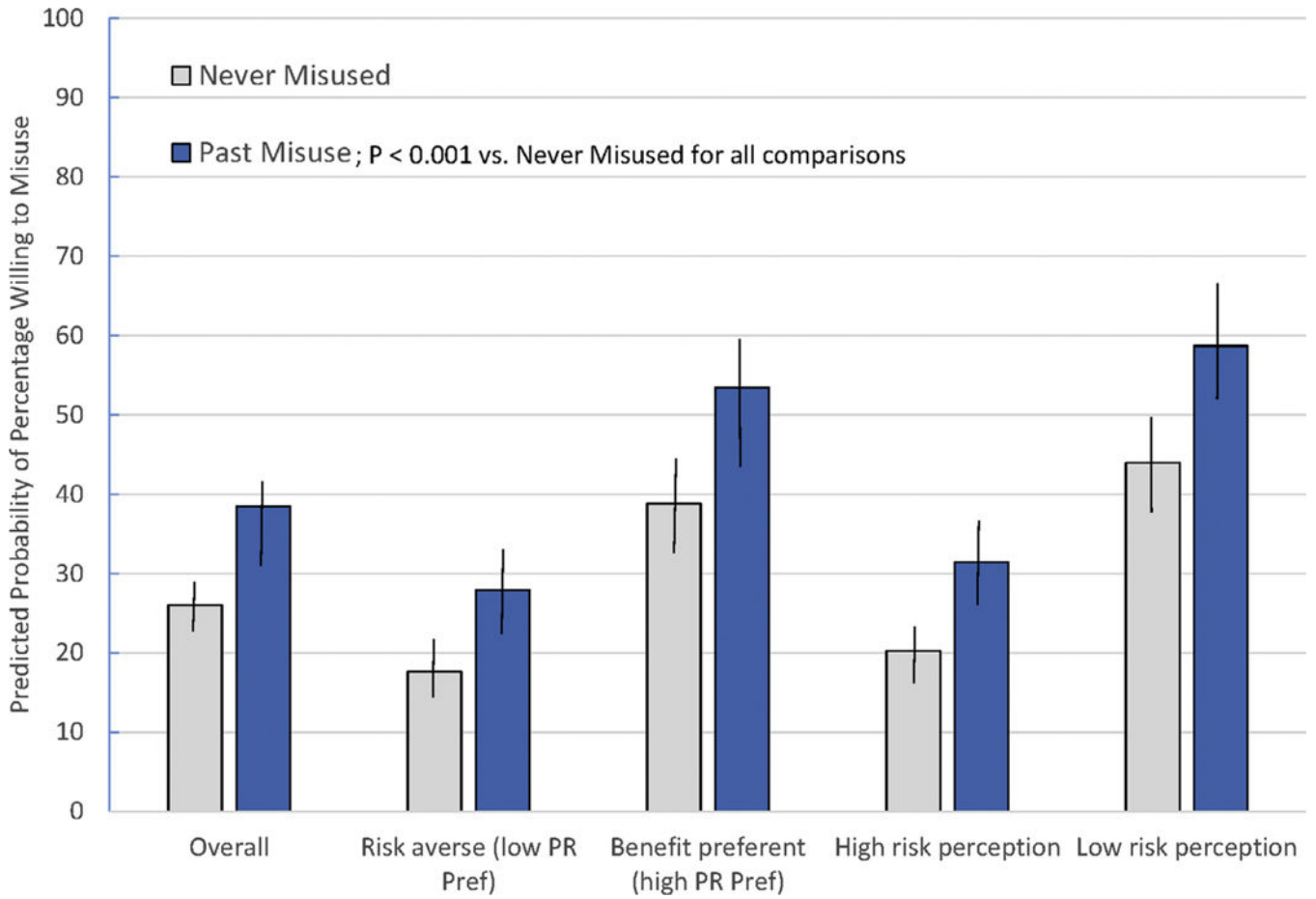


Figure 1. Predicted probabilities of willingness to misuse among past prescription opioid misusers and nonmisusers.

Results are based on five mixed effects logistic regression models where pain relief preference scores were fixed at high (+8) values, and then low (-8) values, and perceived opioid misuse riskiness was fixed at high (5) and low (1) values. In each model, all other continuous variables were fixed at the mean. The estimated marginal means and (95% confidence intervals) are shown.

Table 1

Characteristics of the sample (n = 972)

	Previously used a prescription opioid (n = 432)	Never used a prescription opioid (n = 540)	Univariate comparisons between groups
Age (years)	19.91 ± 1.3	19.4 ± 1.5	MD -0.51 (CI -.69 to -.33)
Female sex	289 (67%)	381 (71%)	OR .84 (CI .64–1.12)
Race			
White	342 (79%)	331 (61%)	OR 2.4 (CI 1.8–3.2) versus all
Asian	42 (10%)	130 (24%)	Others
Black	15 (4%)	33 (6%)	
Hispanic	14 (3%)	23 (4%)	
Other	19 (4%)	23 (4%)	
Substance use within 30 days			
Tobacco	78 (18%)	62 (12%)	OR 1.71 (CI 1.19–2.45)
Alcohol	380 (89%)	379 (71%)	OR 3.37 (CI 2.36–4.81)
Illegal drugs	127 (30%)	131 (24%)	OR 1.31 (CI .98–1.75)
Pain and analgesic use history			
Pain types			
Headache	393 (91%)	469 (87%)	OR 1.53 (CI 1.01–2.31)
Abdominal	342 (79%)	415 (77%)	OR 1.15 (CI .84–1.56)
Muscular-Skeletal	371 (86%)	384 (71%)	OR 2.47 (CI 1.78–3.43)
Frequent analgesic ^a use (once or twice a month)	365 (85%)	374 (69%)	OR 2.42 (CI 1.76–3.32)
Used marijuana for pain	69 (16%)	39 (7%)	OR 2.43 (CI 1.6–3.7)
Pain relief preference score (<i>normally distributed</i>)	-47 ± 3.87	-1.22 ± 3.67	MD -.77 (CI -1.23 to -.28)

MD = Mean difference; OR = Odds ratio; CI = 95% confidence interval.

^aIndicates overall analgesic use that includes over-the-counter agents.

Table 2
Opioid risk knowledge and perceptions among past prescription opioid users and nonusers

	Past prescription opioid users (n = 432)	Nonusers (n = 540)	Univariate comparisons between groups
	n (%)	n (%)	Odds ratio (95% confidence interval); <i>p</i> value
Aware of serious opioid-related risks			
Addiction	362 (84%)	356 (66%)	2.71 (2.0–3.71); <.001
Over-sedation	368 (86%)	298 (56%)	4.74 (3.45–6.52); <.001
Slowed breathing	219 (52%)	199 (37%)	1.83 (1.41–2.37); <.001
Know all three	215 (51%)	186 (35%)	1.94 (1.49–2.51); <.001
Risk perceptions (measured from 0 to 5, where 0 = not risky/serious and 5 = most risky/serious)			
	Mean ± SD	Mean ± SD	Mean difference (95% confidence interval); <i>p</i> value
Perceived seriousness ^a of opioid-related risks			
Addiction	3.27 ± 2.14	3.61 ± 1.92	.34 (.08–.60); .011
Over-sedation	2.85 ± 1.48	2.56 ± 1.48	-.29 (-.48 to -.09); .004
Slowed breathing	3.03 ± 2.02	3.21 ± 1.84	.18 (-.07–.43); .168
Perceived riskiness ^a of taking over-the-counter analgesics	.84 ± .86	1.05 ± .93	.20 (.09–0.32); .001
Perceived riskiness ^a of taking a prescribed opioid	2.02 ± 1.19	2.29 ± 1.30	.26 (.10–.41); .001
Perceived riskiness ^a of taking one's own past prescription for an unrelated condition (medical misuse)	3.81 ± 1.16	3.93 ± 1.18	.12 (-.03–.26); .128
Perceived riskiness ^a of sharing one's own opioid left-overs with a friend (diversion)	4.23 ± 1.04	4.26 ± 1.06	.03 (-.10–.17); .643

^aSeriousness and riskiness rated from 0 (not serious or risky) to 5 (extremely serious or risky).

Table 3

Results from the logistic regression model (chi-square = 77.77; df = 11; $p < .001$)

Factors	OR [95% CI]; p value
Age	1.01 [.91–1.13]; .808
Female sex (vs. male)	.74 [.53–1.04]; .085
White race (vs. others)	.86 [.61–1.21]; .387
Pain relief preference	1.07 [1.03–1.12]; .002
Monthly analgesic use (vs. less frequent to none)	.96 [.65–1.41]; .829
Recent substance use ^a	1.67 [1.20–2.33]; .003
<i>Hypothesis 1: Greater knowledge and higher perceived riskiness of opioid misuse predict less willingness to misuse an opioid (i.e., any intent for medical or non-medical misuse or diversion) for pain treatment</i>	
Awareness of all serious opioid risks (vs. no awareness)	.81 [.58–1.11]; .187
Perceived riskiness opioid misuse (rank 0–5)	.75 [.66–.86]; <.001
<i>Hypothesis 2: Past opioid use and misuse behaviors increase the willingness to misuse an opioid for pain treatment</i>	
Prescribed opioid use (vs. none)	1.10 [.74–1.61]; .646
Past opioid misuse (vs. none)	1.81 [1.13–2.91]; .015

OR = Odds ratio; CI = Confidence interval, df = Degrees of freedom.

^aIncludes alcohol, illicit drugs, and marijuana.