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Short communication

Opioid medication misuse among unhealthy drinkers

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ABSTRACT

Background: Combining opioid medications and alcohol has serious implications for patient health, including overdose. Information regarding those who use/misuse opioid medications and engage in unhealthy alcohol use is limited to pharmacological and epidemiological descriptions. This study presents opioid medication misuse and behavioral, mental, and physical health characteristics of persons filling opioid medications that are engaged in unhealthy alcohol use.

Methods: We conducted a cross-sectional survey at 5 community pharmacies in Southwestern, Pennsylvania among patients filling opioid medications. Respondents completed validated opioid medication misuse, alcohol use, illicit drug use, depression, posttraumatic stress disorder (PTSD), and physical health functioning assessments. We present univariate and multivariate statistics describing opioid medication misuse and health risks among those positive for unhealthy alcohol use.

Results: A total of 344 patients completed the survey (75.8% response). A total of 15.9% of respondents screened positive for opioid medication misuse, of whom 20.3% reported unhealthy alcohol use. Taking opioid medications too often was reported among a larger proportion of the sample with unhealthy alcohol use (34.3%) compared to those without (22.1%, $p = 0.04$). Further, among respondents with unhealthy alcohol use, illicit drug use (Adjusted odds ratio [AOR] = 12.14, 95% Confidence Interval [CI] = 1.64-89.72) and PTSD (AOR = 9.77, 95% CI = 1.70-56.11) were associated with increased odds for opioid medication misuse.

Conclusion: Results suggest respondents with unhealthy alcohol use had distinct health profiles, which may place them at risk for opioid misuse and adverse events, such as overdose. Continued research must work to further understand these relationships and identify intervention and treatment strategies.

1. Introduction

Approximately 4 million people in the US in 2015 were found to have current opioid medication misuse (SAMHSA, 2016). Individuals who misuse opioid medications have a number of attendant behavioral health conditions, such as depression, anxiety, posttraumatic stress disorder (PTSD), illicit drug use (Amari et al., 2011; Becker et al., 2008; Smith et al., 2016; Sullivan et al., 2010), severe pain (Amari et al., 2011; Hudson et al., 2008; Novak et al., 2009; Sullivan et al., 2010); and general poor health (Becker et al., 2008; Hudson et al., 2008).

Unhealthy alcohol consumption is among these attendant health issues (Wang et al., 2013). One-third of persons with opioid use disorder drink alcohol in excess of NIH guidelines for unhealthy alcohol consumption (Nolan et al., 2016). In 2010, 18.5% (n = 81,365) of emergency department visits related to opioid pain medications also involved patient consumption of alcohol (Jones et al., 2014). Unhealthy alcohol use is a risk factor for opioid overdose (CDC, 2016; Cochran et al., 2016): overdose deaths rates are 0.63 per 100,000 lives for those who used both opioid medications and alcohol (Calcaterra et al., 2013).

Given that both opioids and alcohol act upon μ-opioid receptors (Amato et al., 2011), simultaneous use of these substances can potentiate the analgesic and side-effects of opioids (Brands et al., 2008). These effects include increased drowsiness, increased dizziness, impaired motor control, unusual behaviors, memory problems, slowed or difficulty breathing, and increased risk of overdose (Kuerbis et al., 2014). Furthermore, some prescription opioids contain acetaminophen, which can worsen liver damage associated with alcohol intake (Brands et al., 2008).

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Information available in the field regarding those who use/misuse opioid medications and engage in unhealthy alcohol use is limited primarily to pharmacological interactions and epidemiological descriptions. Among those with unhealthy alcohol use and use/misuse of opioid medications, little information is available describing their behavioral, mental, and physical health and demographic characteristics as well as increased misuse risks associated with these characteristics. Therefore, among a sample of those filling opioid prescriptions, we sought to (1) describe patient demographics, health characteristics, and opioid medication misuse patterns and (2) estimate opioid medication misuse risks for patients with unhealthy alcohol use and for those without. These data have the potential to assist clinical researchers and practitioners to more effectively understand this population and work toward reducing unnecessary risks.

2. Materials and methods

We surveyed a convenience sample of patients filling opioid pain medications in 5 community pharmacy settings (3 urban and 2 rural) in southwestern Pennsylvania from September 2014 to June 2015. This study was designated as exempt by the University of Pittsburgh Institutional Review Board.

2.1. Sample

Pharmacists and pharmacy staff members were trained by the principal investigator in the study procedure. When patients dropped off prescriptions identified by pharmacy staff as opioid pain medications, they were asked if they were interested in participating in a brief health survey while waiting. Interested patients were handed an iPad tablet that contained 3 initial screening questions to ensure patients were ≥18 years of age, were not receiving treatment for a cancer diagnosis, and had not previously completed the survey instrument. Participants were provided with a $20 gift card for their time.

2.2. Instruments

The survey captured demographics (age, sex, education, work status, and pharmacy rural/urban location), behavioral and mental health, physical functioning, and opioid medication type. The Prescription Opioid Misuse Index assessed current opioid medication misuse, with a score of ≥2 affirmative responses indicating misuse (Knisely et al., 2008). Unhealthy alcohol use was assessed using the Alcohol Use Disorders Identification Test-C. A score of ≥3 for women and ≥4 for men are cut-offs for unhealthy alcohol consumption (Bradley et al., 2007; Bush et al., 1998; Gordon et al., 2001; Williams et al., 2012). Illicit drug use severity in the last year was assessed using the Drug Abuse Screening Test-10 (DAST-10). A score of ≥1 indicates the need for intervention (Yudko et al., 2007).

Depression screening was conducted using the 2-item Patient Health Questionnaire-2 (PHQ-2). A score of ≥3 indicates a positive screen (Corson et al., 2004; Kroenke et al., 2003). PTSD was assessed using the 4-item Primary Care Post-Traumatic Stress Disorder (PC-PTSD) screen, with a score of ≥3 indicating PTSD (Ouimette et al., 2008; Prins et al., 2003; Van Dam et al., 2010).

Physical health functioning was assessed using the Short-Form Survey-12 (SF-12). Two single-item subscales within this measure ask patients to indicate on 5-point Likert scales their level of general health (5 = poor, 4 = fair, 3 = good, 2 = very good, 1 = excellent) and pain that interferes with work (5 = extremely, 4 = quite a bit, 3 = moderately, 2 = a little bit, 1 = not at all).

Opioid medication type was captured by asking patients, “What is the name of your pain medication?” Patients were given a textbox to enter in the medication name. Medications were coded into generic names for comparability and dichotomized into binary indicators for patients filling more than one opioid.

2.3. Statistical analyses

To characterize differences among patients who were positive for unhealthy alcohol use and those who were not among patients filling opioid medications, we conducted univariate descriptive analyses for proportional and mean differences using chi-square and *t*-test statistical analyses. We also report predicted probabilities of engaging in unhealthy alcohol use for those engaged in opioid misuse. Finally, we developed two logistic regression models to assess relationships between behavioral, mental, and physical health status and a positive screen for opioid medication misuse among (1) those positive for unhealthy alcohol use and (2) those that were not involved in unhealthy alcohol use. Models were adjusted for respondent demographic characteristics. Analyses were conducted using Stata 14.2 (StataCorp, 2016).

3. Results

A total of 344 patients completed the survey. The average response rate across the 5 pharmacies was 75.8% (rates: rural pharmacy A = 94.2% [98 completed/104 approached]; rural pharmacy B = 13.3% [75 completed/565 approached], urban pharmacy A = 87.7% [100 completed/114 approached]; urban pharmacy B = 92.3% [60 completed/65 approached]), and urban pharmacy C = 91.7 [11 completed/12 approached]). Analyses showed no statistically significant differences for rural pharmacy B compared to the other pharmacies on any demographic or health indicator, with the exception that rural pharmacy B respondents were underrepresented among those with more than a high school education (29.3%, standardized residual = −1.99) compared to the other pharmacy locations (49.1%, standardized residual = 1.06, $p = 0.002$, results not shown).

3.1. Demographics

A total of 22.3% of the sample (n = 70) screened positive for unhealthy alcohol use. No differences for unhealthy alcohol use were detected for age (Mean [M] = 49.1, standard deviation[SD] = 12.4), gender (female = 56.1%), or education (high school or less education = 57.6%). A significantly larger portion of the sample with a positive screen for unhealthy alcohol use also reported living in urban settings (61.4%) compared to negative respondents (45.9%, $p = 0.02$).

3.2. Opioid misuse, behaviors, and medications

The predicted probability of engaging in unhealthy drinking was 0.21 (95% CI = 0.09-0.39) for those who misused their opioid medication and was 0.20 (95% CI = 0.14-0.25) for those who did not misuse their opioid medication. Table 1 displays misuse and health characteristics of the sample overall and for those engaged in unhealthy and non-unhealthy alcohol use. Overall, 15.9% of the sample screened positive for opioid medication misuse. Of these, 20.3% were engaged in unhealthy alcohol use. The most common misuse behavior, taking medications too often (24.8%), was reported among a larger proportion of the sample with unhealthy alcohol use (34.3%) compared to those without unhealthy alcohol use (22.1%, $p = 0.04$). All other misuse behaviors, although not statistically significant, were reported by a larger portion of the sample with unhealthy alcohol use compared to those without.

Data also suggested hydrocodone was the most common opioid medication filled among those positive for unhealthy alcohol use (47.1%) compared to non-unhealthy consumers of alcohol (34% $p = 0.05$). The second largest proportion of the sample with unhealthy alcohol use reported using oxycodone (32.9%).