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SCREENING COMMUNITY PHARMACY PATIENTS FOR RISK OF PRESCRIPTION OPIOID MISUSE

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Abstract

Objectives—The current study tested screening feasibility and described the behavioral, mental, and physical health of patients filling prescriptions for opioid medications in the community pharmacy setting.

Methods—We conducted a cross-sectional survey in rural/urban community pharmacies with adult non-cancer patients. The survey included validated measures for opioid medication misuse risk, drug and alcohol use, and physical and mental health problems. Descriptive statistics were calculated, and bivariate and multivariable logistic regression evaluated relationships between opioid medication misuse risk and patient demographics, behavioral, mental, and physical health.

Results—164 patients completed the survey (87% response rate) revealing positive screens for prescription opioid misuse risk (14.3%), illicit drug use (7.3%), hazardous alcohol use (21.4%), depression (25.8%), and post-traumatic stress disorder (PTSD; 17.1%). Bivariate analyses revealed increased odds of a positive opioid medication misuse risk score with a positive screen for illicit drug use in the previous year (OR=3.91, 95% CI=1.05–14.63) and PTSD (OR=6.7, 95% CI= 2.54–17.69). In adjusted multivariable analyses, these relationships strengthened such that a positive screen for illicit drug use (AOR=12.96, 95% CI= 2.18–76.9) and PTSD (AOR=13.3, 95% CI= 3.48–50.66) increased odds for a positive opioid medication misuse risk score.

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Conclusion—Findings confirmed the feasibility of screening risk factors and positive opioid medication misuse risk among community pharmacy patients. Future research should validate these findings as a foundation to intervention development.

Keywords

Opioid medication misuse risk; screening; pilot study

The US is the largest consumer of opioid medications in the world (United Nations International Narcotics Control Board, 2013) with high rates of misuse and overdose (CDC, 2011). Opioid misuse specifically includes behaviors such as doctor shopping, early refills, and using medication for psychoactive effects (Kinsley et al., 2008; Sullivan et al., 2010; Smith et al., 2013). Misuse behaviors can be identified in clinical (Kinsley et al., 2008) and health system-level (Sullivan et al., 2010) contexts. A number of efforts have taken place to understand and influence prescribing to prevent misuse, such as developing guidelines limiting emergency department prescribing (Cantrill et al., 2012) and identifying problematic prescribing in health claims data (Liu et al., 2013; Logan et al., 2013). These efforts focus on an important aspect of the problem, but by no means have solved the issue. As a consequence, multiple approaches are necessary within the US health care system to address this issue. It is evident from the literature (Inciardi, et al., 2007; Cicero et al., 2011) and pharmacist reports (Cochran et al., 2013) that diversion of prescription opioids for misuse is a serious concern within community pharmacy. Yet, unlike other outlets for obtaining opioid medications for misuse (e.g., stealing from family/friends, drug dealers), misuse of medications legally filled in community pharmacies can possibly be mitigated effectively by the pharmacist. Before such pharmacist driven activities can take place, additional tools and training are critical for these professionals to engage patients (Cochran et al., 2013). One central aspect of these practitioners engaging patients is their ability to identify misuse and risk for misuse.

One example of a common mechanism in the community pharmacy setting for combating opioid medication diversion is prescription drug monitoring programs (Paulozzi et al., 2011; Haegerich et al., 2014). Although the objective information gathered within these programs can alert health professionals to possible medication-seeking behaviors and these programs have successfully improved prescribing behaviors (Baehren et al., 2010; Haegerich et al., 2014), they have had little apparent impact on overdose deaths (Paulozzi et al., 2011; Haegerich et al., 2014). The intent and outcomes of monitoring programs are valuable. However, prescription drug monitoring programs provide little additional information regarding more subjective physical, behavioral, and mental health characteristics associated with misuse. Such information would be necessary for community pharmacists to help patients manage opioid medication consumption and avoid adverse drug events, such as overdose and addiction.

Screening within community pharmacies for opioid medication misuse and known risk factors for misuse makes a great deal of sense clinically. Pharmacists are consistently ranked among the most trusted professionals in the US (Redman, 2012) and are some of the most prevalent (US Bureau of Labor Statistics, 2014) and accessible health professionals in the

country. Providing strategies whereby pharmacists can identify risk for misuse among patients has the potential to increase the capacity of the health care system to address the national opioid medication problem and enhance the reach of physicians and other prescribers to monitor and provide care to patients. Community pharmacists can provide a single point of medication management for patients receiving care from multiple prescribers.

Previous research has documented a number of key patient-level factors associated with risk of misuse of prescription opioids. Individuals engaged in opioid medication misuse behaviors have been found to have higher levels of drug and alcohol problems (Sullivan et al., 2010; Unick et al., 2013) as well as post-traumatic stress disorder (PTSD), mood disorders, and anxiety disorders (Huang et al., 2006; Becker et al., 2008; Novak et al., 2009). Physical health among those who misuse opioid medications also has been found to be generally poorer (Becker et al., 2008; Hudson et al., 2008) along with high levels of pain compared to those who do not misuse (Hudson et al., 2008; Sullivan et al., 2010). These risk factors have most frequently been identified and studied in non-community pharmacy settings (Sullivan et al., 2010; Logan et al., 2013; Roland et al., 2013). In attempting to strategize approaches for pharmacists to identify and intervene with all patients within a community pharmacy setting, the extant literature is limited.

The objective of the current study was to test the feasibility of screening the behavioral, mental, and physical health of patients filling prescriptions for opioid medications in community pharmacies. The purpose of this study was also to describe the results of the patient health screenings conducted. Specifically, we sought to learn whether patients filling opioid medication prescriptions could be successfully screened for risk of opioid medication misuse. We likewise sought to assess whether patients in this setting would screen positive for risk of misuse. We further sought to understand if screened patients would report acceptability of pharmacists screening and possibly intervening for prescription opioid misuse risk. This is the first study, to our knowledge, that has attempted to screen patients for opioid misuse risk within the community pharmacy setting.

Methods

Study Design and Sample

We conducted a cross-sectional survey among individuals filling prescriptions for opioid medications at two independent community pharmacies in southwestern Pennsylvania, one urban and one rural. These sites were selected based on their location within sub-state regions with known levels of misuse (urban ranked 2nd and rural ranked 4th for misuse in the state; SAMHSA, 2014a). The community pharmacies were also selected given their interest and willingness to partner in this screening project. Study participants were recruited from a convenience sample of pharmacy patients that presented with a prescription for opioid medication to the pharmacist or pharmacy staff. Patients were asked if they were interested in learning whether they might be eligible to participate in a health survey. Interested patients were handed a tablet computer wherein they were informed that to be eligible to participate in the survey, they had to: (1) be 18 years or older, (2) not be currently receiving treatment for cancer, and (3) not have completed the survey previously. Meeting these criteria, patients were then prompted to advance to the next screen that provided

details of the study, the purpose, contact information for the study Principal Investigator, and resource and referral contact information for health and human services. This page likewise informed participants the study was totally anonymous. Eligible patients who completed the survey received a $20 prepaid gift card. This study was supported by a small internal grant from the University of Pittsburgh Central Research Development Fund and was approved as exempt by the University of Pittsburgh Institutional Review Board.

Measures

Following the information page, participants answered a series of screening questions regarding their demographics (gender, age, education level, and employment status) behavioral, physical, and mental health. The survey took patients approximately 10 minutes to complete. Screening instruments used were intentionally selected for brevity and broad use in addiction health services research. Opioid medication misuse risk was assessed using the Prescription Opioid Misuse Index (POMI). This measure is comprised of six items that assess behaviors associated with prescription opioid misuse. An affirmative indication of two or more items on this measure indicates positive risk for opioid medication misuse (Knisely et al., 2008). Alcohol use severity was assessed using the Alcohol Use Disorders Identification Test-C (AUDIT-C). This three-item measure screens for hazardous alcohol use and risk for alcohol use disorders and has been tested in a number of healthcare settings and patient populations (Bradley et al., 2007). A score of four or more on this test for men or a score of three or more for women is considered positive (SAMHSA, n.d.). The Drug Abuse Screening Test-10 (DAST-10) was used to screen for illicit drug use in the last year. The DAST-10 contains 10 items, assesses for a variety of behaviors predictive of drug use disorders, and is recommended for clinical and research populations (Yudko et al., 2007). A positive indication on one or more items on the DAST-10 is considered positive for intervention (Skinner, n.d.).

Physical health was assessed using two items from the Short-form 12 (SF-12). This 12-item instrument assesses health-related domains, such as level of functioning and patient limitations because of health problems. The utility and validity of the Short-form 12 in measuring health has been demonstrated in a variety of patient populations (Jakobsson et al., 2012). The General Health (1=Excellent, 2=Very good, 3=Good, 4=Fair, 5=Poor) and Pain single item subscales (interference of pain with regular activities; 1=Not at All, 2=A little bit, 3=Moderately, 4=Quite a bit, 5=Extremely) were used in this project to assess physical health functioning.

Assessment of patients' mental health included screening for depression and PTSD. Patient depression was assessed using the Patient Health Questionnaire-2 (PHQ-2). This two-item instrument is a brief screener for general depression, with a score of three or more indicating a positive screen (Kroenke et al., 2003). PTSD was measured using the Primary Care-PTSD Screen. This four-item instrument screens for post-traumatic stress symptomology and is designed for rapid delivery in healthcare settings. A score of three or more indicates a positive screen (Prins et al., 2003).

The final items in this survey queried patient perception of the acceptability of pharmacist screening and discussing opioid medication misuse with patients. Patients were asked to rate

their level of agreement from one to five (1=Strongly agree, 2=Agree, 3=Neutral, 4=Disagree, and 5=Strongly disagree) with the following statements: "*I would feel okay if my pharmacist asked me about my pain medication use*," and "*I would feel okay discussing my pain medication use with my pharmacist if he/she had any concerns with it*."

Analyses

Descriptive statistics were calculated to describe participant responses to the survey. Specifically, measures of central tendency, frequencies, and percentages were used to describe sample demographics, health, and acceptability of possible screening and intervention. In addition, χ^2, Fisher's exact, and t-tests were also calculated to contrast proportional and mean differences for respondents in rural versus urban community pharmacy settings. Logistic regression was used to assess bivariate and multivariable associations between a positive screen for risk of opioid medication misuse and patient demographic and health characteristics. Analyses were carried out using Stata 13.1 SE (StataCorp, 2013).

Results

A total of 85 patients in the urban community pharmacy practice were asked to complete the survey between October 2014 and February 2015; 66 patients completed the survey (a response rate of 78%). A total of 103 patients in the rural community pharmacy practice were asked to complete the survey between September 2014 and February 2015; 98 patients completed the survey (a response rate of 95%). The combined response rate was 87%. Table 1 displays results for the entire sample and compares results for rural versus urban settings. Just over half of patients screened were women (56.4%, n=92), and age ranged from 18–80 years (M=49.2; SD=12); more than half had completed high school (52.5%, n=85), and most were unemployed (68.7%, n=112). For the rural setting, the largest proportions of individuals reported having a high school level education (60.2%, n=59, p=0.03) and being unemployed (79.6%, n=78, p=0.001).

Approximately 14.3% (n=23) of the total population had a positive risk score for prescription opioid misuse; 21.4% (n=31) screened positive for hazardous alcohol use, and 7.3% (n=12) screened positive for illicit drug use in the last year. In addition to behavioral health, 25.8% (n=42) of the sample screened positive for depression, with the largest portion of positive patients being in the rural community pharmacy setting (33.7%, n=33, p=0.004). PTSD was also positive among 17.1% (n=27) of patients. In addition, on the five-point general health scale (with higher scores representing worse health), patients in the rural setting reported having, on average, "fair" health (M=3.8, SD=0.9) compared urban patients who reported having "good" health (M=3.3, SD=1, p<0.001). Similarly, on the five-point pain scale (with higher scores representing more pain), patients in the rural setting reported, on average, pain interfering with normal work "quite a bit" (M=3.8, SD=0.9) and those in the urban setting reported pain interfering "moderately" (M=3.2, SD=1.2, p<0.001).

In addition to the health measures, on average, patients "agreed" that they would feel okay if pharmacists asked them about their pain medication use (M=2, SD=1.1). Similarly, patients

also “agreed” they would feel okay if pharmacists discussed their pain medication use with them if the pharmacist had concerns (M=1.7, SD=0.8).

We also calculated the strength of the relationships between a positive risk score for opioid medication misuse and patients’ demographics and health indicators. Within the bivariate models (Table 2), the odds of having a positive opioid medication misuse risk score were nearly four times higher for those who reported a positive screen for illicit drug use in the previous year (SE=2.6, 95% CI= 1.05–14.63), and 6.7 times higher among patients who screened positive for PTSD (SE=3.3, 95% CI= 2.54–17.69) compared to those who did not. Similarly, the multivariable analysis (Table 2) showed the odds of having a positive opioid medication misuse risk score were 12.96 times higher for those who reported a positive screen for illicit drug use in the previous year (SE=11.8, 95% CI= 2.18–76.9) and 13.3 times higher for those who reported a positive PTSD screen (SE=9.1, 95% CI= 3.48–50.66) compared to those who did not.

Discussion

The results of this project provide tentative evidence that potential prescription opioid misuse can be identified among adult non-cancer patients filling prescriptions for opioid medications within both rural and urban community pharmacy settings. Further, patients appear amenable to being screened and having discussions with pharmacists about possibly problematic opioid medication use. The results of this study also provide tentative evidence that physical, mental, and behavioral health risk factors for prescription opioid misuse can also be screened and identified in these community pharmacy settings. Altogether, the importance of these findings is that, to our knowledge, the systematic screening of community pharmacy patients for opioid misuse risk has not been reported in the literature. Identification of misuse risk within community pharmacy settings has the potential to open an important avenue for intervention and referral to treatment within national efforts to address opioid medication misuse.

The 14% detected rate of opioid medication misuse risk corresponds to the approximate midpoint of previously published estimates of pain medication misuse. For instance, misuse rates in the general US population in 2012 were approximately 2%, and estimated rates of misuse between 2010 and 2012 were 4–5% within the sub-state regions where the pharmacy sites in this project were located (SAMHSA, 2014c). Among publicly and privately insured non-cancer chronic opioid therapy patients, rates of possible misuse have been documented to be 20–24% (Sullivan et al., 2010). Given the pilot nature of our data along with the high levels of variation in definition and measurement of opioid medication misuse in the field (Cochran et al., in press), it is not entirely possible to directly compare our rates to those previously published. Our findings suggest a clear signal of possible misuse among screened patients.

Our results also provide tentative evidence that health risk factors for opioid medication misuse and overdose, such as alcohol use problems, illicit drug use, mental health conditions, and poor physical health, can be identified among adult non-cancer patients filling prescriptions for opioid pain medications in rural and urban community pharmacy

settings. Reported rates of PTSD in the current study (17%) appear also to reasonably fit with those previously reported. Rates of PTSD are approximately 8% among clinical populations prescribed opioid medications (Phifer et al., 2011) and are as high as 47% among drug treatment seeking patients with prescription opioid medication problems (Meier et al., 2014). Rates in the current study of positive screens for hazardous alcohol use (21%), illicit drug use (7%), and depression (26%) appear to possibly be higher than some previously published findings. For instance, rates of major depressive disorder (mild, moderate, and serious) are roughly 7% in the general US population (Kessler et al., 2005) and are approximately 5% among those who report non-medical use of pain medications (SAMHSA, 2014b). Given that our study screened a population in a setting that has received little attention in the literature with measures distinct from those previously published, it is not clear whether findings are directly comparable. Nevertheless, identifying risk factors associated with possible misuse is of critical importance among health care professionals—including pharmacists. For example, patients with ≥1 PTSD diagnoses or ≥1 depression diagnoses have been observed to have a 2.5 times higher odds for opioid medication misuse than those without PTSD or depression diagnoses ($p<0.05$; White et al., 2009).

Adding to the challenge of comparison for the current study to previously published works is the fact that the instruments used in this study were purposefully brief in order to reduce pharmacist and patient burden. As a consequence, the extent and severity of identified risk factors among the population recruited for our study could be improved in future research by administering full assessments in conjunction with the brief screeners. Data from full assessments might better predict associations between risk factors and misuse; as drinking, depression, poor health, and pain did not significantly predict positive risk for opioid misuse in the current study.

Moreover, this study did not capture information on current treatment/management of opioid use problems. As a result, it is possible that patients who had a positive risk score for misuse and/or who possessed health risk factors for misuse were engaged in care or prevention programming. Such possibilities should be explored in future research. However, even if a portion of patients in our sample at risk for misuse were already known to other health care professionals, ascertaining risk status at the point of medication dispensing is critical for medication management and proactive prevention of adverse drug events—both being core pharmacist services. Therefore, screening patients to identify risk for opioid medication misuse is an important task that supports patient safety and medication adherence in addition to possibly setting the stage for intervention, referral, and integrated care.

In clinical practice, community pharmacists evaluate the appropriateness of each patient's medications on a daily basis. These professionals assess that each medication is indicated, will be effective and safe, and can be taken by the patient. If the results of this project were to be replicated in a larger more generalizable population, screening for and intervening upon opioid misuse and risk factors could be integrated into this workflow in the form of targeted interventions given that identifying, resolving, and preventing drug-related problems is pharmacists' standard of care (Cipolle et al., 2012). Targeted interventions are pharmacist-led two minute (or less) conversations using motivational interviewing principles at the point of dispensing (Bacci et al., 2014; Pringle et al., 2014). Furthermore, for

pharmacies in which medication therapy management (MTM) has been incorporated into the workflow, these locations may have an even greater capacity to carryout multidimensional health screening. MTM services (often reimbursable) are pharmacist patient sessions wherein medications are reviewed, medication-related problems are detailed, and plans are created to help patients address medication-related concerns (American Pharmacists Association, 2008).

Results from our pilot work presented herein calls for future, larger scale screening projects in community pharmacy settings for opioid misuse risk in order to better understand characteristics of the broader community pharmacy population. In the current study, screening was limited in that the pharmacists and staff only screened patients when they had additional time to engage patients in these busy pharmacy settings. Recruiting more patients from a greater number of community pharmacy settings would help increase the external validity of this project. Additional cases would also likely reduce variability in associations for drug use and PTSD with a positive risk score for opioid medication misuse that, in the current project, have likely resulted in modestly wide confidence intervals around these two estimates (Table 2).

Conclusion

Pharmacists practicing in the community pharmacy setting have the capacity to identify patients who at risk for misuse of opioid medications. Community pharmacy stands to be an important point of integration for comprehensive behavioral health management. In spite of the fact that community pharmacy settings are among the primary locations where patients legally fill opioid medications that are subsequently diverted and misused, addiction research to date has paid little attention to these settings. The current study is the first of its kind, to our knowledge, to screen adult non-cancer patients filling prescriptions for opioid medications in urban and rural community pharmacy settings. Findings show non-trivial proportions of screened patients had a positive risk score for opioid medication misuse as well as behavioral, mental, and physical health risk factors for misuse. Future research should attempt to replicate and validate the findings produced herein.

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Table 1

Respondent characteristics by setting (N=164)

	Total	Urban (n=66)	Rural (n=98)		
Demographics	**% (n)**	**% (n)**	**% (n)**	**χ^2 (df)**	***p***
Gender					
Male	43.6 (71)	47.7 (31)	40.8 (40)	0.8 (1)	0.38
Female	56.4 (92)	52.3 (34)	59.2 (58)		
Age [a]	49.2 (12.0)	50.3 (12.8)	48.5 (11.3)	−0.96 (153)	0.34
Education					
Less than high school	3.7 (6)	3.1 (2)	4.1 (4)	6.6 (2)	0.03[b]
High School	52.5 (85)	40.6 (26)	60.2 (59)		
College or technical school	43.8 (71)	56.3 (36)	35.7 (35)		
Employment					
Full time	23.3 (38)	38.5 (25)	13.3 (13)	15.1 (2)	0.001
Part time	8 (13)	9.2 (6)	7.1 (7)		
Unemployed	68.7 (112)	52.3 (34)	79.6 (78)		
Behavioral health					
Opioid medication misuse	14.3 (23)	14.5 (9)	14.3 (14)	0.001 (1)	0.97
At-risk alcohol use	21.4 (31)	29.8 (17)	15.9 (14)	4 (1)	0.05
Last year illicit drug use	7.3 (12)	10.6 (7)	5.1 (5)	1.8 (1)	0.18
Mental health					
Depression	25.8 (42)	13.8 (9)	33.7 (33)	8 (1)	0.01
Post-traumatic stress	17.1 (27)	11.5 (7)	20.6 (20)	2.2 (1)	0.14
Physical health					
General health [a]	3.6 (0.9)	3.3 (1.0)	3.8 (0.8)	3.6 (156)	<0.001
Pain [a]	3.6 (1.1)	3.2 (1.2)	3.8 (0.9)	3.5 (159)	<0.001
Screening and intervention					

	Total	Urban (n=66)	Rural (n=98)		
Demographics	**% (n)**	**% (n)**	**% (n)**	**χ^2 (df)**	***p***
Would feel okay if asked [a]	2.0 (1.1)	2.1 (1.1)	1.9 (1)	−1.41 (158)	0.16
Would feel okay if pharmacist discussed [a]	1.7 (0.8)	1.8 (0.8)	1.7 (0.9)	−0.47 (158)	0.64

[a] Mean, SD, t, df;

[b] p-value based on Fisher's Exact test

Table 2

Associations between opioid misuse, demographics, and health

	Bivariate			Multivariate		
Demographics	**OR (SE)**	***p***	**(95% CI)**	**AOR (SE)**	***p***	**95%(CI)**
Male	0.44 (0.2)	0.08	(0.18–1.01)	0.66 (0.4)	0.47	(0.2–2.11)
Age	0.99 (0.0)	0.97	(0.96–1.03)	1.01 (0.0)	0.74	(0.96–1.07)
Less than high school/high school [a]	1.48 (0.7)	0.41	(0.59–3.72)	1.64 (1.1)	0.45	(0.45–6)
Employment [b]						
Full time	1.2 (1.1)	0.8	(0.22–6.9)	1.21 (1.4)	0.87	(0.12–12.07)
Unemployed	0.81 (0.7)	0.8	(0.16–4.04)	0.68 (0.78)	0.74	(0.07–6.55)
Rural setting	0.98 (0.5)	0.97	(0.4–2.43)	2.57 (1.9)	0.2	(0.61–10.89)
Behavioral health						
At-risk alcohol use	1.68 (0.9)	0.33	(0.59–4.81)	1.65 (1.2)	0.49	(0.39–6.93)
Last year illicit drug use	3.91 (2.6)	0.04	(1.05–14.63)	12.96 (11.8)	0.01	(2.18–76.9)
Mental health						
Depression	2.11 (1.0)	0.11	(0.84–5.33)	1.37 (1.1)	0.68	(0.3–6.21)
Post-traumatic stress	6.7 (3.3)	<.001	(2.54–17.69)	13.3 (9.1)	<0.001	(3.48–50.66)
Physical health						
General health	1.09 (0.3)	0.73	(0.66–1.81)	1.39 (0.63)	0.47	(0.57–3.36)
Pain	1.09 (0.2)	0.67	(0.72–1.66)	1.1 (0.39)	0.79	(0.55–2.19)

[a] High school and less than high school were merged given empty cells for opioid misuse and having less than a high school education.

[b] Part-time employment was the reference group.