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Screening, Brief Intervention, and Referral to Treatment (SBIRT) in a retail pharmacy setting: The pharmacist's role in identifying and addressing risk of substance use disorder.

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Abstract

Objective: This study determined the feasibility of interviewing and screening patients presenting to a retail pharmacy using Screening, Brief Intervention, and Referral to Treatment (SBIRT) interview protocols, and to compare SBIRT results to a risk score calculated from Prescription Drug Monitoring Program (PDMP) data.

Methods: Using the NIDA Quick Screen and NIDA Modified-ASSIST (NM-ASSIST) and the Alcohol Use Disorder Identification Test (AUDIT), retail pharmacy customers were screened for substance and alcohol use disorder and tobacco use. PDMP reports were collected on subjects and a PDMP-risk score was calculated based on the numbers of Schedule II-V prescriptions and prescribers over the previous 12 months.

Results: A total of 24 patients were included in this study (67% response rate). SBIRT screening revealed that 20.8% were at-risk for substance use disorder, 16.7% for alcohol use disorder, and 37.5% used tobacco. Overall, 33.3% of subjects were at-risk for substance use disorder or alcohol use disorder. Fifty percent of subjects required education and/or brief intervention based on their responses, 37.5% of all subjects were deemed at-risk based on their PDMP-risk score, and 60% of patients who were risk-positive by SBIRT screening were also PDMP-risk positive.

Conclusions: This study demonstrates the feasibility of performing SBIRT-based screenings in a retail pharmacy setting and combining these with PDMP-risk analysis to screen patients for prescription and illicit drug misuse. Findings from this study will inform the design of larger multi-site studies, which should validate these findings and include follow-up analysis to assess the efficacy of intervention on this patient population.

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Keywords

screening and brief intervention; SBIRT; pharmacy practice; substance use disorder; prescription drug use disorder; NM-ASSIST; pharmacy; PDMP; prescription

INTRODUCTION

There are 20.1 million people in the United States with substance use disorder (SUD) (SAMHSA 2017). The rate of prescription overdose deaths has increased 5 fold since 1999 and accounted for over 16,000 overdose deaths in 2016 (CDC 1999–2016). Prescription opioid misuse is a risk factor for heroin-use initiation (Muhuri PK 2013) and the development of opioid use disorder. (Suryaprasad et al. 2014, Jones et al. 2015). Over 75% of individuals who misused prescription opioids obtained them through prescriptions filled at a pharmacy for either themselves (36.8%) or a friend or family member (40.4%) (SAMHSA 2017). Together these data suggest that the benefits of implementing SUD screening practices in the community pharmacy setting could be advantageous.

Pharmacists are in a unique position to screen patients for SUD and provide brief intervention and referral when necessary. Screening, Brief Intervention, and Referral to Treatment or SBIRT (WHO Working Group 2002, Homeniuk et al. 2008) tools, have been developed and implemented in a number of settings including primary care (WHO Working Group 2002, Homeniuk et al. 2008, Matheson et al. 2017), emergency departments (Hankin et al. 2013), workers' compensation clinics (Parhami et al. 2012), hospitals (InSight Project Research Group 2009, Pringle et al. 2012, Newhouse et al. 2018), and criminal justice settings (Holmwood et al. 2008). Additionally, implementation of SBIRT has been demonstrated to reduce healthcare cost and utilization (Pringle et al., 2018); however, to our knowledge there are no studies demonstrating the feasibility of SBIRT screening, and comparison of SBIRT screening outcomes with PDMP-based risk assessments in the community pharmacy setting. Now that all 50 states have implemented a prescription drug monitoring program (PDMP) (US Department of Justice 2017), efforts to use prescription history to screen for misuse or diversion have gained traction. PDMP data have been used to establish algorithms that may predict high-risk controlled substance utilization (Daubresse et al. 2014). We propose implementing a follow-up, interview-based screening approach using established SBIRT protocols on patients identified as at-risk based on their PDMP data. Such an approach would provide a standardized means of screening and intervention for patients presenting to community pharmacies with SUD.

The objectives of this study were to determine the feasibility of interviewing and screening patients presenting to a retail community pharmacy using SBIRT interview protocols, and to compare the results of SBIRT screening assessments to a calculated risk score based off data obtained from the PDMP. To date, there are several studies that have implemented screening tools to assess current tobacco and alcohol use within a patient population presenting to a pharmacy setting that implement pharmacist led strategies to support drug use cessation (Smith et al. 1995, Sinclair et al. 2014, Khan et al. 2013, Munarini et al. 2013, Mdege and Chindove 2014, Hattingh et al. 2016, Afzal et al. 2017). Additionally, there have been

several surveys, working groups and advisory boards constructed to understand the potential feasibility of implementing SBIRT protocols in the community pharmacy setting, as well as understanding the perceived barriers to implementation (Cochran et al. 2016, Sherwood et al. 2019). However, this is the first study that has attempted to implement SBIRT protocols, evaluating comprehensive substance use in the community pharmacy setting, and compare SBIRT screening outcomes with PDMP-based risk assessment.

METHODS

This study was performed in a single retail pharmacy in South Florida. Prior to conducting the study, the research coordinator responsible for administering the SBIRT interviews completed a 4-hour SBIRT Core Training Course (www.sbirttraining.com). Study participants were recruited from a convenience sample of patients presenting to the pharmacy. Subjects ≥ 18 years of age were asked if they were interested in participating in the study, and interested patients were given a document outlining the SBIRT procedure and asked to verbally confirm that they understood their involvement was voluntary, anonymous, and that only non-identifying data would be collected. Subjects then were asked to complete a form that collected general demographic data.

After consent was obtained, the research coordinator conducted SBIRT by utilizing the online tool, NIDA Quick screen, followed by the NIDA Modified-ASSIST (https://www.drugabuse.gov/nmassist/step/0) or the Alcohol Use Disorder Identification Test (AUDIT), as dictated by subject responses. The research coordinator was blind to the medication being filled by the subject at the pharmacy prior to screening. Any subjects scoring at Low Risk on the NM-ASSIST or within Zones I-II on the AUDIT were educated on the health risks associated with drugs and/or alcohol. Brief interventions were implemented for subjects to assess their readiness to change and help to reduce risky substance use. Subjects that scored Moderate/High Risk on the NM-Assist or Zone III/IV on the AUDIT, were referred to a licensed outpatient substance use treatment facility for assessment and follow up (The Recovery Research Network, LLC, Atlantis, FL). Any subjects using tobacco were assessed for their readiness to change, and brief interventions were conducted to reduce or stop use.

Once the SBIRT was complete, the pharmacist on duty recorded the number of controlled substance (schedule II-V; CS) prescriptions filled in the last 12-months, number of prescribers in the last 12-months, and the generic names of the specific prescriptions filled in the last 12-months. The PDMP-risk score was calculated according to Daubresse and colleagues, with some adaptations due to differences in data recorded (Daubresse et al. 2014). The number of prescriptions over the previous 12 months was converted to the average number over a 3-month period. Then 0.5 points were assigned for each of the first 8 prescriptions, and 1 point for each thereafter. The number of prescribers over the past 12-month period was taken and 1 point was assigned for the first 2 prescribers and 1.5 point for each there-after. The total number of points was summed and the patient was deemed at-risk if their total score was ≥ 11.

The study protocol was approved by the Palm Beach Atlantic University, Lloyd L. Gregory School of Pharmacy Institutional Review Board (IRB), and conducted in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration, as revised in 2004.

RESULTS

Of the 36 patients who were approached for inclusion, 24 consented (67%) and were included in the study. Demographic data for these patients is presented in Table 1. Subjects were assessed by the NIDA Quick screen, followed by the NM-ASSIST or the AUDIT to determine risk associated with use of prescription or illicit drugs, alcohol or tobacco products. In addition, each subject's PDMP data was collected for the previous 12 months and a PDMP-based risk score was calculated as described in the methods. In the previous 12 months, 70.1% (95% CI 50.8–85.1%) of subjects had filled 1 or more opioid prescriptions (full opioid agonists), 58.3% (95% CI 38.8–75.5-%) benzodiazepines, 20.8% (95% CI 9.2–40.5%) partial opioid agonists (i.e., buprenorphine), 16.7% (95% CI 6.7–35.9%) stimulants, 16.7% (95% CI 6.7–35.9%) muscle relaxants, 12.5% non-benzodiazepine sedatives (95% CI 4.2–31.0%), and 8.3% (95% CI 1.5–25.8%) steroids (Fig. 1A). The results of all assessments for each subject are summarized in Fig. 1B. Mean number of controlled substance (CS) prescriptions over previous 12 months was 34.9 ± 5.1, and the mean number of prescribers was 3.0 ± 0.7.

20.8% (95% CI 9.2–40.5%; $n = 5$) of subjects were determined to be at low to moderate risk for substance use disorder based on the NM-ASSIST. 16.7% (95% CI 6.7–35.9%; $n = 4$) of subjects scored ≥ 4 in the AUDIT-C for alcohol risk, and 37.5% (95% CI 21.2–57.3%; $n = 9$) were using one or more tobacco products. Overall, 33.3% (95% CI 18.0–53.3%; $n = 8$) of subjects were at risk for either non-medical prescription drug use, illicit drug use, or alcohol use disorder, and 50% (95% CI 31.4–68.6%; $n = 12$) required alcohol, tobacco, or drug education and/or brief intervention based on their initial screen. Two of the five subjects scoring at low to moderate risk in the NM-ASSIST were at risk for cannabis use disorder, and neither of these patients were risk positive according to PDMP data.

Of the 37.5% (95% CI 21.2–57.3%; 9 of 24) of subjects who were considered 'at-risk' by their PDMP data (PDMP+), 33.3% (95% CI 12.1–64.6%; 3 of 9) also tested at low to moderate risk based on NM-ASSIST scores. Conversely, 60% (95% CI 23.1–92.9%; 3 of 5) of NM-ASSIST positive subjects were also risk-positive based on PDMP score. The two subjects with a positive NM-ASSIST screen and PDMP-scores both had positive NM-ASSIST risk for cannabis use. PDMP+ subjects had a significantly higher mean in the number of CS prescriptions (Fig. 1C) and the number of prescribers (Fig. 1D) over 12 months than those below the risk-cutoff. There were also significant differences in the total number of different CS drug classes filled by PDMP+ subjects, the number of different opioids and the number of different benzodiazepines over the previous 12 months (Fig. 1E–G).

DISCUSSION

This study demonstrates the feasibility of utilizing standardized screening tools, NM-ASSIST and AUDIT, to identify patients at risk for substance and/or alcohol use disorder in a community retail pharmacy setting. By combining these screening tools with patient PDMP-risk scores, we were able to compare the overlap between each method. The calculated PDMP-risk score detected a larger number of patients than NM-ASSIST, and 3 of 9 patients identified by NM-ASSIST were also identified by the PDMP-risk score method. Notably, the two NM-ASSIST patients who were not identified by PDMP data scored higher on their NM-ASSIST assessment due to cannabis or tobacco use disorder. Based on NM-ASSIST or AUDIT screening, at-risk patients received education and/or brief intervention for alcohol, tobacco, or drug education; however, data collected during the present study do not allow for any evaluation into the efficacy of brief intervention and/or referral to treatment. An important outcome in future studies will be to test the efficacy of brief intervention or referral to treatment on reducing risk and entry into treatment for this population of patients. It is plausible that many patients identified in the pharmacy setting may be in earlier stages of disease progression, and thus may have higher rates of response to brief intervention and referral to treatment than other previously studied populations.

A limitation of the current study is that the assessments were performed by a research coordinator and not the pharmacist on duty. It will be important to integrate pharmacists into the screening and intervention role in future studies. As this was a convenience sample, there may have been selection bias. Because this was a single-site study, the results may not be applicable to other pharmacy patient populations. Future studies should take these limitations into account and control for them to the extent possible.

The calculation of the PDMP risk score in this study has some limitations. For example, the number of prescriptions does not take into account the number of days/doses of each prescription. In fact, one patient who was identified as at-risk by the PDMP score was prescribed buprenorphine, which can often be prescribed at weekly intervals; therefore, this subject's PDMP-score was inflated by not taking this into account. Moreover, using the number of prescribers as a factor to assess risk does not take into account that some patients may legitimately see a different physician for each visit to the same practice group. The current calculation of the PDMP-risk score also does not factor the dosage strength nor changes in the dosage over time which might indicate the development of a tolerance to the drug. While it is unclear how these factors may improve the specificity of the PDMP-risk analysis, they are potentially important and should be explored in future studies.

Despite the final responsibility that pharmacists bear in dispensing schedule II-V drugs according to the Controlled Substances Act, effective strategies to integrate them into the continuum of care for substance and alcohol use disorders have been under-implemented and understudied. Over 90% of people in the United States live within 5 miles of a community pharmacy (NACDS 2017), and for the majority of patients who develop substance use disorder, the pharmacy is the initial source of their misused substances (SAMHSA 2017). Therefore, the pharmacist is well positioned to provide both initial and on-going intervention for substance and alcohol use disorder. Additionally, it is already well-

documented that pharmacist-initiated tobacco intervention can be effective at increasing cessation in tobacco users (Smith et al. 1995, Sinclair et al. 2004, Mdege and Chindove 2014, Afzal et al. 2017). Misuse of prescription drugs and use of illicit drugs, alcohol and tobacco can have profound effects on a patient's overall health and can interact with other prescribed medications dispensed by the pharmacy. Therefore, screening and intervention by pharmacists, are well within their scope of practice, and evidence-based strategies are needed to facilitate this.

There are a number of barriers that need to be addressed when considering implementing SBIRT strategies in a community pharmacy setting. These include lack of substance use disorder education within the pharmacy profession and within schools of pharmacy, time constraints for operationalizing the screening, and reimbursement for SBIRT. Additional studies are needed to assess the economic and health outcome impact of operationalizing SBIRT in a community retail pharmacy setting in order to provide the evidence to support adequate reimbursement for expanding the use of these effective tools. With adequate evidence demonstrating pharmacist led SBIRT can improve health outcomes and reduce overall healthcare costs, a model for implementation and reimbursement can be designed, allowing the community pharmacy to actively engage in identifying substance use disorder risk and intervention. Developing and implementing well designed protocols, which take advantage of PDMP-risk algorithms and that are reimbursed adequately, will allow for efficient delivery of SBIRT service, alleviating time constraints and financial barriers.

All too often, pharmacists' misconceptions of substance use disorder leads to the continued stigma of patients dealing with substance use disorder within our healthcare system. With more universities integrating substance use disorder education into medical education and developing fellowship programs to train future addiction specialists, an effective strategy to educate pharmacy students and residents on substance use disorder and solution on how to address these issues within pharmacy settings is critical. However, educating on the disease and bringing awareness is only the first step of a structured educational platform that must include an operational understanding of how to screen and assess patients for risky substance and alcohol use, protocols for intervention, and creating healthcare networks for a safe continuum of care to be established.

We do recognize that community retail pharmacy customers may already be in treatment for substance use disorder, in which case screening for risk associated with drug or alcohol use may not be necessary. This underscores the need for pharmacists to be integrated into healthcare provider networks, to ensure patient safety and to be able to assist in the continuous care for each patient they serve in a treatment alliance with other healthcare professionals, physicians, and addiction treatment facilities. Identifying all patients currently in substance use disorder treatment through the PDMP data can also be an issue, as opioid treatment programs (OTPs) that dispense buprenorphine and/or methadone are not required to report into the PDMP database. Pharmacy customers may be engaged in a buprenorphine treatment program or in an opioid treatment program for diagnosed opioid use disorder, and could potentially have a PDMP score that would designate the patient for further screening by the pharmacist; however, this may be unnecessary and may not be readily apparent or

taken into consideration by the pharmacist, if they are not actively engaged in a treatment network with the specific substance use disorder providers.

Through this proof of concept study, we want to highlight the important role pharmacists can play in identifying risks associated with pharmaceutical medication misuse, or drug, alcohol, or tobacco use. As with any disease, early identification and intervention improves the prognosis of those developing a substance use disorder. Currently, pharmacists may not have familiarity with the local options for substance use disorder treatment; however, by developing a network of substance use disorder treatment providers, pharmacists can support an operational continuum of care, where patients are able to transition from intervention to evidence-based treatment that improves long-term outcomes. Leveraging currently funded community based substance use disorder treatment providers can be an effective avenue to explore in developing these networks, as oftentimes funding of these programs is contingent on utilization of evidence-based standards of care. There are obstacles that need to be overcome in order for these programs to be effective in a retail pharmacy setting, most notably how will the pharmacist be reimbursed for administration of the SBIRT and where will documentation be reported, which are obviously operational considerations that are beyond the scope of this initial study, but should be a consideration for future development.

CONCLUSIONS

Overall, this study confirms the feasibility of SBIRT in the pharmacy, and compares screening results with PDMP risk data. Together these screening methods may be combined to improve the accuracy and efficiency of screening and referral of patients for substance use disorder by the pharmacist, and the findings in this study will inform the design of larger multi-site studies that will be critical for the successful implementation of this practice in the future.

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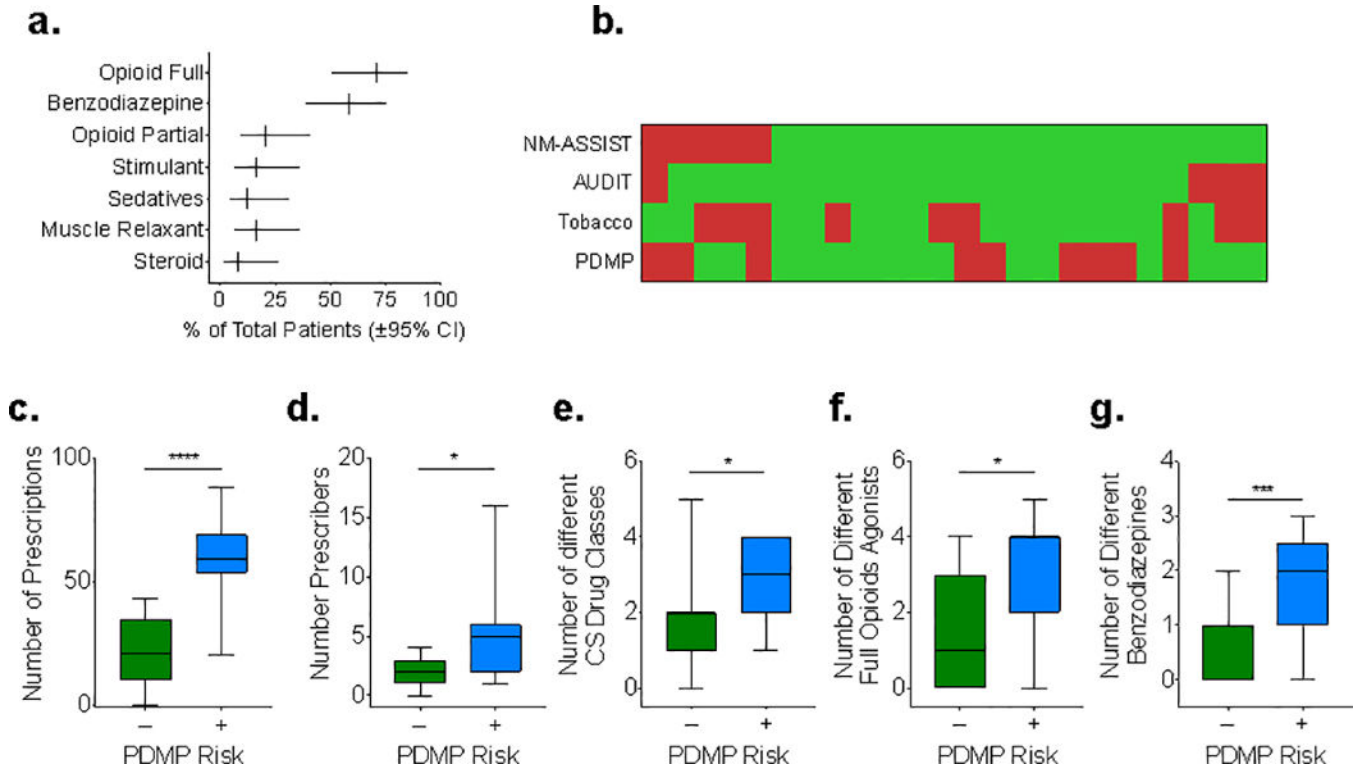

Figure 1. Results of SBIRT screening and PDMP-risk analysis.

(a) Graph shows the percentage (±95% confidence interval) of subjects relative to the total number of included subjects who were prescribed at least 1 full opioid agonist, benzodiazepine, partial opioid agonist (buprenorphine), stimulant, sedative, muscle relaxant, or steroid over the past 12 months prior to inclusion in the study. **(b)** The results for SBIRT screening (NM-ASSIST, AUDIT and tobacco) are shown along with the calculated PDMP-risk score for each subject in the study (red = positive risk and green = no risk). Comparison between subjects grouped based on PDMP-risk (risk-negative: "–" or risk-positive: "+") in the number of **(c)** prescriptions, **(d)** prescribers, **(e)** different classes of controlled substances (CS), **(f)** different full opioid agonists, or **(g)** different benzodiazepines over the previous 12 months. Significance was determined by two-tailed t-test (* $p<0.05$, *** $p<0.001$, **** $p<0.0001$).

Table 1.

Patient Demographics

Variable	Total (*n* = 24)	
	n	**%**
Age		
18–25	0	0%
26–35	1	4%
36–45	3	13%
46–55	11	46%
56–65	6	25%
>65	3	13%
Sex		
Male	14	58%
Female	10	42%
Race		
White	18	75%
Black	3	13%
Native American	1	4%
Other	2	8%
Did Not Answer	0	0%
Ethnicity		
Non-Hispanic	14	58%
Hispanic	2	8%
Decline to Answer	8	33%
Insurance		
Commercial	8	33%
Medicaid/Medicare	12	50%
None	3	13%
Other *	1	4%

* Patient answered “Yes” to whether or not they were covered by insurance, and N/A for Private (commercial) vs. Public (Medicaid/Medicare) insurance