



Original Research

# Using the theory of planned behavior to examine pharmacists' intention to utilize a prescription drug monitoring program database

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## Abstract

**Background:** Prescription drug monitoring programs (PDMPs) are state-operated electronic databases that contain patients' controlled drug histories. Most states provide these data to pharmacists via online web portals to combat prescription drug abuse and diversion.

**Objectives:** The objectives of this study were to: 1) explore the theory of planned behavior's (TPB) utility in predicting Texas pharmacists' intention to utilize an online accessible PDMP; 2) to determine the contribution of each construct, attitude (A), subjective norm (SN) and perceived behavioral control (PBC) in predicting pharmacists' intention; and 3) test whether the addition of perceived obligation (PO) is significantly related to pharmacists' intention.

**Methods:** A cross-sectional, 36-item questionnaire was developed from focus groups and literature of pharmacists' views regarding prescription drug abuse. A total of 998 practicing Texas community pharmacists were surveyed to collect data on their intention to utilize a PDMP database. Descriptive statistics, multivariate and hierarchical logistic regression analyses were used to address the study objectives.

**Results:** The response rate was 26.2% (261/998). TPB constructs were significant predictors of pharmacists' high intention to utilize the PDMP. Pharmacists with positive attitudes were almost twice as likely to have high intention (odds ratio [OR] = 1.8, 95% confidence interval [CI] = 1.2–2.8). SN was the strongest predictor of pharmacists' high intention (OR = 2.2, 95% CI = 1.4–3.3). Pharmacists with high PBC were also twice as likely to have high intention (OR = 1.9, 95% CI = 1.2–3.0). Additionally, pharmacists' PO contributed to the prediction of high intention (OR = 1.8, 95% CI = 1.0–3.1) above that explained by the TPB model constructs ( $X^2 = 4.14$ ,  $P < 0.05$ ).

**Conclusions:** TPB with the addition of PO was useful in predicting pharmacists' high intention to utilize a PDMP database. Interventions that address pharmacists' A, SN, PBC, and PO may be valuable to increase pharmacists' high intention. Pharmacists' utilization of PDMPs may lead to a decrease in the morbidity and mortality associated with prescription drug abuse. Future studies that assess

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whether intention to use PDMPs translates to actual usage are needed to strengthen these findings.

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**Keywords:** Community pharmacists; Prescription drug monitoring program; Diversion; Theory of planned behavior; Intention

## Introduction

The epidemic of prescription drug abuse continues to plague the U.S.<sup>1,2</sup> In 2010, 7 million persons aged 12 and older reported past month misuse of prescription drugs.<sup>3</sup> The Drug Abuse Warning Network (DAWN) reported that prescription drug abuse and misuse involving pharmaceuticals accounted for 1.3 million emergency department visits in 2010.<sup>4</sup> Considering that opioids are effective treatment for pain management, prescribers and pharmacists must balance access in an environment of abuse and diversion.<sup>5,6</sup> Prescription drug monitoring programs (PDMPs) have been highlighted as a key component in the national drug control strategy to combat doctor shopping and diversion of controlled prescription drugs (CPDs).<sup>1</sup>

State PDMPs are electronic databases of CPDs dispensed from community and outpatient pharmacies in their respective states.<sup>1,7,8</sup> Variations exist among state PDMPs, which include monitoring: only Schedule II prescriptions; all scheduled prescriptions; or non-scheduled prescriptions with high abuse potential (e.g., tramadol).<sup>9</sup> In many states, prescription data are accessible via an online web portal for prescribers and pharmacists to query prior to prescribing or dispensing CPDs.<sup>10,11</sup> Prescriber use of PDMPs prior to prescribing monitored drugs has been steadily increasing<sup>12</sup> despite the fact that in 17 states, the law does not explicitly require prescribers to access PDMP data prior to prescribing CPDs.<sup>13</sup> Thus, pharmacists' use of PDMP data may be even more critical to preventing diversion and ensuring appropriate medication use. Pharmacists are the gatekeepers of access to CPDs<sup>14</sup> with a specific mandate outlined in the Drug Enforcement Administration's (DEA) Pharmacist's Manual.<sup>15</sup> In addition, pharmacists are required by the DEA to verify the validity of prescriptions written for CPDs prior to dispensing.<sup>15</sup> Prior research in peer reviewed, literature on pharmacists' use of PDMP data prior to dispensing is limited, but the available literature suggests that utilization among pharmacists is lacking.<sup>12,16</sup> A Kentucky evaluation of the PDMP

revealed that only 16% of pharmacists in the state were registered for PDMP access.<sup>12</sup> However, among survey respondents who reported being registered for access, 77% reported past utilization.

The importance of PDMP use is highlighted by several studies that indicate their effectiveness in reducing abuse and diversion. Reifler et al<sup>17</sup> reported an association between PDMPs and a decrease in opioid abuse and misuse. A study of emergency department physicians showed that reviewing PDMP data prior to dispensing changed treatment in 41% of cases. In a study comparing New York to Pennsylvania in terms of prescription overdose-related deaths, New York's PDMP was credited with contributing to a lower mortality rate from prescription drug abuse.<sup>18</sup> Green et al<sup>19</sup> also concluded that PDMPs that are online accessible to prescribers and pharmacists have a greater impact on reducing prescription opioid overdose and diversion, compared to states without online access. These studies highlight the potential impact of online accessible PDMPs, if used by prescribers and pharmacists.

Balancing diversion with appropriate access to CPDs is a complex issue, especially for pharmacists. The American Society of Health-System Pharmacists (ASHP) purport that pharmacists are in a unique position to help reduce the negative impact of prescription drug abuse.<sup>20</sup> As of 2012, 45 states provide pharmacists with online access to PDMP data via secure encrypted websites.<sup>9</sup> Without PDMP database access, pharmacists must make dispensing decisions based on their professional judgment,<sup>15</sup> which can be subjective in nature and may lead to pharmacists' unnecessary refusal to dispense prescribed CPDs.<sup>14</sup> Furthermore, suspicion of patients diverting CPDs usually requires additional phone calls to prescribers and pharmacies for verification.<sup>21</sup> Pharmacists' utilization of PDMP data prior to dispensing CPDs could lead to a decrease in abuse and diversion, but more importantly, it may improve appropriate access to needed medications. However, there are no known studies which have examined the behavioral factors associated

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