Original Research

Examination of psychosocial predictors of Virginia pharmacists' intention to utilize a prescription drug monitoring program using the theory of planned behavior

Paul Gavaza, Ph.D.[a,*], Marc Fleming, Ph.D.[b], Jamie C. Barner, Ph.D.[c]

[a]*Department of Pharmaceutical, Social and Administrative Sciences, Appalachian College of Pharmacy, 1060 Dragon Road, Oakwood, VA 24631, USA*
[b]*Department of Clinical Sciences and Administration, College of Pharmacy, University of Houston, 1441 Moursund St., Houston, TX 77030, USA*
[c]*Health Outcomes and Pharmacy Practice Division, College of Pharmacy, The University of Texas at Austin, 1 University Station A1900 Austin, TX, USA*

Abstract

Background: Little is known about the main drivers of pharmacists' intention to utilize prescription drug monitoring programs (PDMPs) when making care decisions and the actual contribution of these factors in explaining intention and behavior.
Objectives: This study examined what theory of planned behavior (TPB) model constructs (i.e., attitude, subjective norm [SN], perceived behavioral control [PBC]), past utilization behavior (PUB) and perceived moral obligation (PMO) were significant predictors of Virginia community pharmacists' intention to utilize a PDMP.
Methods: A cover letter with a link to a 28-item online survey was e-mailed to 600 members of the Virginia Pharmacists Association. Multiple regression analyses were used to determine the association between pharmacists' intention to utilize the PDMP database and attitude, SN, PBC, PUB and PMO.
Results: Ninety-seven usable responses were received, for a response rate of 16.2%. A majority of the respondents were Caucasian (96.4%), female (50.5%), working in independent community pharmacies (60.4%) with an average age of 49.5 ± 13.4 years. Overall, pharmacists intended to utilize a PDMP (mean = 5.3 ± 4.6; possible range: −9 to 9), had a positive attitude toward utilizing PDMP (mean = 6.3 ± 5.3; possible range: −12 to 12), perceived that others wanted them to utilize a PDMP (SN score = 3.7 ± 2.4; range: −6 to 6), and believed that they had control over utilization behavior (PBC score = 4.5 ± 4.0; range: −9 to 9). Attitude ($\beta = 0.723$, $P < 0.001$), SN ($\beta = 0.230$, $P = 0.014$) and PBC ($\beta = -0.215$, $P = 0.026$) significantly predicted pharmacists' intent, accounting for 56.7% of the variance in intention to utilize the PDMP database ($P < 0.001$). The addition of PMO ($P < 0.001$) significantly contributed to explaining the variance in intention but PUB did not.
Conclusions: Members of the Virginia Pharmacists Association who responded to the survey showed a strong positive intent to utilize PDMP database. Pharmacists' attitudes, subjective norm, perceived behavioral control and perceived moral obligation were significant predictors of intention but past utilization behavior was not. The TPB is a useful theoretical framework when predicting PDMP utilization behavior of community pharmacists, accounting for 56.7% of the variance in intention.

* Corresponding author. Tel.: +1 276 498 5216; fax: +1 276 498 5211.
E-mail address: pgavaza@gmail.com (P. Gavaza).

Introduction

Prescription drug abuse is a significant and increasing problem in the U.S. Approximately 7 million Americans aged 12 years and older use prescription drugs for a non-medical purpose.[1] Many people die or are hospitalized due to controlled substance prescription drug abuse.[2] In 2006 there were 13,800 opioid-related deaths and 26,400 drug overdose deaths.[2]

To combat the growing epidemic of prescription drug abuse, many states ($n = 44$) including Virginia have implemented prescription drug monitoring programs (PDMPs).[3] These state-operated electronic databases are designed to collect, store and disseminate designated data on controlled substances dispensed in the state.[4,5] The history of PDMPs, their individual characteristics and their potential effectiveness in curbing prescription opioid abuse has been documented in the literature.[5] Studies illustrate the significant benefits of implementing PDMPs.[6–8] PDMPs are useful in reducing prescription opioid diversion, abuse, overdose and doctor shopping.[5,6] Highly functional PDMPs provide the opportunity for authorized users (e.g., pharmacists) to identify aberrant drug-procurement behavior and thus offer an opportunity to intervene immediately while the patient is in the medical setting.[7] Health care professionals are more comfortable with using a PDMP because it is less confrontational than other approaches (e.g., pain contracts, urine drug testing). Additionally, a PDMP may identify patients who are receiving multiple legitimate prescriptions for opioids or benzodiazepines and are at risk for complications from polypharmacy. Tools similar to PDMPs are found in other countries.[9,10]

Since 2006, Virginia has collected data for all scheduled medications (C-II to C-V) dispensed in the state. Law enforcement, nurse practitioners, physicians and pharmacists can query and review this data to obtain patients' controlled substance medication history.[11] This process helps in determining the appropriateness of dispensing controlled substance medications to patients. Prescribers and pharmacists can identify drug seeking behaviors and deter drug diversion, abuse and doctor shopping through utilizing PDMPs at the point of care.[12,13] Pharmacists' utilization of PDMP data can be instrumental in decreasing morbidity and mortality associated with abuse of controlled substance medications. Two studies showed that pharmacists agree that PDMPs are needed and they recognize the benefits of implementing PDMPs in helping to decrease incidences of doctor shopping.[1,14]

PDMPs are not optimally utilized by health care professionals for various reasons, including lack of time to access PDMP, unavailability of internet access at work, lack of time to enroll in PDMP, lack of awareness of the program, viewing PDMPs as unnecessary for practice, and lack of real-time data.[1] Seeing that pharmacists are the "last line of defense" to preventing drug diversion, this study was conducted to determine if pharmacists' attitudes and beliefs about PDMPs were important predictors of their utilization intentions and behaviors.

A better understanding of pharmacists' behavior can be attained by utilizing framework of health behavior to investigate these behaviors. The theory of planned behavior (TPB)[15] is one of the most widely used theoretical models of individual behavior. The TPB has been used successfully to predict many health-related intentions and behaviors of pharmacists.[16,17] Thus, the TPB was the guiding theoretical framework in the current study (Fig. 1). The main constructs of the TPB are behavior (not investigated in this study), intention (dependent variable), attitude, subjective norm, and perceived behavioral control (independent variables). In brief, the TPB holds that an individual's intention to engage in a behavior is influenced primarily by his/her attitude toward engaging in the behavior (attitude), his/her perception of norms associated with it (subjective norm, SN), and his/her perceived ease or difficulty of engaging in the behavior (perceived behavioral control, PBC).[18] Evidence from previous research on nurse and pharmacist intentions/behaviors shows that the predictive power of the TPB can be improved by adding other variables such as past behavior and perceived moral obligation or moral norm.[19–21] Moral norm has long been considered as an important determinant of behavior[22] and is supported by empirical research.[23,24] In a meta-analysis of studies using the TPB, moral norms predicted an additional 4% of the variance in