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Pharmacy technician self-efficacies: Insight to aid future education, staff development, and workforce planning

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ABSTRACT

Background: The roles of pharmacy technicians are increasingly prominent given pharmacy's transition to patient-centered activities and evolving scopes of practice in many U.S. states and throughout the world.

Objectives: The aims of this study were to assess U.S. pharmacy technicians' self-efficacies for and attitudes toward performing current and emerging roles in hospital and in community pharmacy and to identify factors related to pharmacy technician self-efficacies in these roles.

Methods: A total of 5000 pharmacy technicians from 8 U.S. states were sent an electronic survey eliciting data on current involvement, self-efficacies, and attitudes for practicing in an expansive list of practice activities. The 8 states from which the sample was drawn were selected from a stratified randomized procedure using U.S. Census Bureau geographically defined regions. Pre-notification and response reminders were employed. Data were analyzed descriptively and with univariate, inferential tests, as appropriate, to determine associations with commitment, practice environment, experience level, and other variables.

Results: Of the 612 participants who responded, 494 were currently working as a technician and not enrolled in a PharmD program of study. Participants reported various activities in which they were highly engaged. Overall, attitudes toward performing most of the activities and self-efficacies were quite favorable, even for those activities in which technicians were currently less involved. There were some notable differences between technicians practicing in community versus hospital settings. Years of experience, profession commitment, and advanced employee ranking were associated with higher levels of self-efficacy, overall.

Conclusions: This initial examination of pharmacy technician self-efficacies identified areas that along with other factors could help employers with further expanding technician practice activities and vocational institutions with considerations for education and development of these key members of the workforce. The results would suggest technicians to be ready for continued evolution in their practice.

1. Introduction

Attention has been recently afforded to pharmacy technicians and other workforce cadres in discussions of pharmacy practice. This attention comes after years of relative omission, particularly when considering that the practice of support staff would naturally mature if pharmacists are to delegate some of their previous responsibilities to engage in more patient-centered care.[1,2] Much recent literature has focused on role expansions for technicians. In the United States (U.S.), this has most recently been codified in various State Board of Pharmacy statutes allowing for "check-tech-check", wherein technicians have the final review of refill prescription orders for accuracy.[3] This follows a designated CheckTech position authorized in the United Kingdom (U.K.) for nearly a decade[4] and a study in New Zealand demonstrating the effectiveness of a similar program with evidence that as a result, pharmacists actually shifted considerable amounts of time in practice from dispensing to patient-focused activities.[5] Recently, some U.S. states have either passed or are considering legislative rules allowing technicians to administer immunizations, such as for influenza inoculation.[6]

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The recent expansion of legal and regulatory scopes of practice for technicians follows a couple of decades where the roles of technicians were piloted and implemented on a limited basis, often to a particular health system. Examples of such roles include technician involvement in tobacco cessation programs,[7] naloxone distribution,[8] medication safety director,[9] medication reconciliation,[10] and medication-history taking,[11] to name but a few. These roles all represent expansions of technician responsibility and autonomy, even if not necessarily emblematic of regulatory or legal practice change.

Whether regulatory or not, and even whether the expanded role(s) underscore significant increases in cognitive workload and judgment, there is debate about technician education, training, and skills development that has been ongoing for quite some time.[12] On a global level, this can be witnessed by the myriad approaches taken in both developed and in developing nations, where education requirements vary from standardized education in Denmark to what is akin to apprenticeship, elsewhere.[13] Within the U.S., calls for standardization and elevation of education and training have been made repeatedly.[14]

While preliminary evidence suggests technicians generally embrace new roles[15] and are effective in their performance,[16] there has been no research evaluating on a broader scale their willingness to take on emerging responsibilities and their confidence in doing so. For that matter, there has been very little if any research evaluating technicians' self-efficacy in their performance of current responsibilities. Self-efficacy is an important construct implicated in attitude, performance, and behavior change.[17] Self-efficacy has been examined in pharmacists and demonstrated to be critical in their proficiency for delivering patient care.[18,19] Additionally, identification of areas where self-efficacy is lacking can become the backbone of future educational interventions and perhaps even help identify areas for restructure of technician vocational education, on-the-job training, and professional revalidation.[20]

These lines of thought regarding self-efficacy in technician practice come in light of emerging data on pharmacy workforce cadres.[21] Pharmacy support staff have varied roles worldwide, where some technicians are basically the only dispenser of medications in certain under-developed nations, to others where they have taken on a more clinical role examined specifically for their part in safety within the medication use process.[13] From a global perspective, technicians take on varied roles and education training in certain settings, even while in some countries such as Denmark, all technicians (pharmaconomists) are educated entirely at one institution nationwide, regardless of setting.[22] In the U.S., technicians ostensibly have different roles than other pharmacy support staff, such as clerical personnel; however, it has been noted that at least among the lay clients (patients), there is often difficulty distinguishing one staff member type from another and that their roles might not always be clearly delineated.[23]

Very few studies have examined, or compared responsibilities and attitudes between technicians in various practice settings. While some technicians might have practiced in various settings throughout their career, others might very well have been in either hospital or community practice for an extensive period of time. The two settings vary considerably, with the pharmacy technician, particularly in the U.S., responsible for customer service and an integrated series of steps involved in the prescription dispensing process, whereas hospital pharmacy technicians interact little with the public/patients, yet have a wider range of responsibilities beyond medication dispensing, owing to the complexity of distribution, storage, inventory, and record-keeping inherent to the hospital setting.

To that end, the aims of this study were to assess U.S. pharmacy technicians' self-efficacies for and attitudes toward performing current and emerging roles in hospital and in community pharmacy and to identify factors related to pharmacy technician self-efficacies in these roles.

2. Methods

2.1. Design and sample

Institutional review board (IRB) exemption for study procedures were granted by the universities home to the investigators of this study. The study design was cross-sectional, featuring use of a survey to a stratified randomized sample of technicians from 8 U.S. states. Using a sample size calculation recommended by Dillman et al.,[24] an estimated 384 respondents were deemed required to meet the study objectives. Assuming a response rate of approximately 10%, the researchers conservatively sought contact information from 5000 subjects from these states. Selection at the state level was performed with geographic diversity as a key tenet. The U.S. is divided into 4 geographic regions by the U.S. Census Bureau: Northeast, Southeast, Midwest, and West. Two states from each of those regions were sampled. The State Boards of Pharmacy from those states selected were contacted to provide its registry of technicians. If the State Board was unable to provide such a registry in an appropriate form (eg, Excel spreadsheet or comma, delimited electronic format), or if the registry was cost-prohibitive (over $500), then another state from that geographic region was sampled. Once the registry of all technicians from all 8 states was acquired, the total number of registrants (eligible respondents) was determined by summing them; and that sum served as a denominator to calculate an equal proportion of the sample from each state. The study subjects were then selected from each state using a random number generator program that provided the numbers corresponding to the record number of each state registry.

The survey was designed and implemented using Qualtrics technology.[25] The procedures for survey conduct were in accordance with recommendations by Dillman et al.[24] to maximize rate of return. Sampled subjects received a pre-notification email approximately 9–10 days prior to launch of the survey, with an option to contact a research investigator to opt out with their preference not to participate. In doing so, those who opted out were replaced by the next individual from their same state of residence by the next registrant from the random number generator. Eleven respondents opted out and were replaced, in addition to another 94 whose pre-notification were returned as undeliverable. Respondents then received the survey via an email link along with a cover letter. The cover letter explained the salience of the study in advancing pharmacy technician professionalization, education, and preparation for future practice, as well as proper consent and assurances via IRB approval. The sampled technicians then received three additional reminder emails approximately one week apart, with the survey coming to a close on 1 March 2017.

2.2. Study variables

Self-efficacy in performing roles/activities was assessed using 10-point scales of confidence wherein respondents indicated such as it pertains to them currently performing the role. This mechanism of measurement is adopted from Bandura's self-efficacy theory[17] using a similar approach to assess confidence specific to a certain task or behavior. This is apt for measuring affinity toward roles or tasks that are situation-specific and takes into account perceived difficulty, as opposed to self-esteem, which is an overall evaluation of one's worth, otherwise known as the self-concept.[26] For the same set of tasks/roles (36 for community pharmacy and 36 for hospital pharmacy, with those like totals being coincidental),

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