



Contents lists available at ScienceDirect

Currents in Pharmacy Teaching and Learning

journal homepage: www.elsevier.com/locate/cptl

Research Note

Bachelor of pharmacy graduates' perceptions of the pharmacy administration curriculum in Trinidad and Tobago

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ARTICLE INFO

Keywords:

Pharmacy administration
Curriculum
Trinidad
Pharmacists

ABSTRACT

Introduction: As the profession of pharmacy has evolved, pharmacy education has developed to include competencies and skills related to pharmacy administration services. Competencies taught in pharmacy administration courses are expected to provide graduates with skills to effectively undertake administrative functions. Our study aimed to assess perceptions about knowledge and skills gained by the pharmacists during the Pharmacy Administration course at the School of Pharmacy, the University of the West Indies (UWI), Trinidad and Tobago.

Methods: A cross-sectional survey was carried out among pharmacists working in hospitals and community pharmacies in Trinidad using non-probability convenience sampling. A structured questionnaire was distributed to 262 pharmacists who completed the Pharmacy Administration course. Two-hundred eighteen (83%) usable responses were included for analysis.

Results: Many (45.4%) respondents agreed that the course provided them with the knowledge of running a business, 78% said they were able to apply the skills in their practice, and 80% mentioned that the course should be mandatory. Pharmacists found that the course on business management enhanced their knowledge in the fields of managing human resources, conflict management, marketing, project management, corporate turnaround, inventory, and financial management.

Conclusions: The Pharmacy Administration course in the bachelor of science degree in pharmacy programme at the School of Pharmacy, UWI remains relevant in the areas of marketing, human resource management, and inventory management. The programme can be extended to a full time masters course to interested pharmacy graduates.

Introduction

The profession of pharmacy has evolved over the past two decades, moving from the primary function of compounding and dispensing to include pharmaceutical quality assurance, pharmaceutical care, medication therapy management, and social and administrative pharmacy. The latter, also called pharmacy administration, integrates business administration with the management of

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<https://doi.org/10.1016/j.cptl.2020.01.015>

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medicines in systems and populations. Integral to this function is the need for pharmacists to understand the complexities of healthcare systems and their role in the aspects of management, leadership, marketing, and planning to contribute to efficient health system operations.^{1,2} Hence, pharmacy education has developed to include competencies and skills related to the administration of pharmacy services.³

Pharmacy administration courses are offered either as undergraduate or graduate programs in various universities and commonly include managerial aspects related to pharmacy such as economics, marketing, inventory management, human resource, strategic planning, and communications. The Pharmacy Administration course at the University of the West Indies (UWI), Trinidad and Tobago incorporates these concepts in the curriculum. Various schools of pharmacy in developed and developing countries (e.g., United State of America, United Kingdom, India, Trinidad and Tobago, Australia) have introduced pharmacy administration or equivalent education into their programs.⁴⁻¹⁰ For example, in the United States of America, St. John's University offers a master's program in pharmacy administration,⁴ the University of Mississippi offers a course in pharmacy administration as part of graduate studies,⁵ Duquesne University offers a master of science degree in pharmacy administration,¹⁰ and several other universities offer pharmacy administration programs at the graduate level. Manipal Academy of Higher Education, through its School of Pharmacy (referred to as Manipal College of Pharmaceutical Sciences) in India, offers a master of pharmacy degree in pharmaceutical administration.⁹ The University of Ulster, United Kingdom and University of Sydney, Australia offer courses in pharmacy management/administration as master's and undergraduate programs, respectively.^{7,8}

The literature was examined to understand the relevance and essentiality of management related courses for practicing pharmacists. Davies et al.¹¹ reported that pharmacists were often responsible for the management or administration of certain parts of the pharmacies where they were employed.¹¹ The study found that pharmacists who had been taught managerial skills were able to apply those skills effectively to their jobs and work efficiently within their profession. Pharmacists felt that business skills positively affected their everyday responsibilities. As noted by Davies et al.¹¹ in their study, the World Health Organization has indicated that pharmacists should possess managerial skills in order to support the efficient and effective practice of pharmacy. Basic management skills need to be taught to pharmacy students since pharmacists are eventually responsible for managing patients, drugs, or colleagues at some point in their career.¹² Another study identified how pharmacists utilize their business skills in the community setting to ensure efficient and effective running of their pharmacies.¹³ The role of the pharmacist as a manager, the way in which the pharmacy was managed, and principles of planning, leading, controlling, and communicating were all included as functions of a pharmacist in the community setting.¹³ This indicates the need for prior pharmacy administration knowledge before practice. However, the roles and responsibilities of pharmacists with basic knowledge of pharmacy administration may vary in different settings. For example, the role of a pharmacist in a hospital pharmacy differs from the role of a pharmacist in a community setting. Additionally, pharmacists may have different perceptions of their role. A survey of pharmacists in Canada by Al Harmaneh et al.¹⁴ found that many pharmacists perceived their role primarily in medicines distribution and dispensing, while others perceived a patient-centred role.¹⁴ Some recent studies have focused on measuring the effect of didactic business management knowledge of students on pre- and post-course self-perceived knowledge about pharmacy business management subjects such as inventory, personnel, and cash flow management.¹⁵ It was found that students' knowledge and understanding, which was limited before the course, improved through didactic business management material.¹⁵ Hence, the importance of management concepts among pharmacy students is desirable. Another study measured pharmacy students' interests to become entrepreneurs.¹⁶ The study found that entrepreneurial orientation of pharmacy students may help identify future entrepreneurs.¹⁶ As entrepreneurs, these pharmacy graduates would certainly need to have basic knowledge about business and management. Abrika et al.¹⁷ carried out a study among pharmacy practitioners in Libya regarding importance of social pharmacy education. The study found that respondents had positive opinions regarding inclusion of social pharmacy courses in undergraduate curricula.¹⁷ It has also been observed that knowledge about pharmacy management is offered as part of social and administrative pharmacy courses in a few universities.¹⁸

The competencies taught in the Pharmacy Administration course at School of Pharmacy, UWI are expected to provide graduates with skills to effectively undertake administrative functions in the community, hospital, and institutional settings. A pharmacy graduate must complete six months' internship to register with the Pharmacy Board of Trinidad and Tobago. After completion of one year of supervised work, pharmacists are licensed to practice. The School of Pharmacy, UWI, St. Augustine has offered a four-credit course in pharmacy administration since the 2008-2009 academic year to undergraduate students in the bachelor of science (BSc) degree in pharmacy programme. This managerial course is designed to create understanding among students regarding basic business principles and management of a pharmacy, which could help them set up their own business units after graduation, to obtain a license to practice pharmacy, to get involved in community pharmacy, and to offer pharmaceutical care to the patients. Seven cohorts of students have undertaken the course. Our study aimed to assess perceptions about knowledge and skills gained by the pharmacists during Pharmacy Administration at School of Pharmacy, UWI, Trinidad and Tobago in their daily practice of managing a pharmacy in various settings as well as to identify the potential for extending the program as a masters course to interested students.

Methods

A cross-sectional survey was designed to capture practice experiences of pharmacists working in hospitals and community pharmacies on the island of Trinidad using non-probability convenience sampling. The questionnaire was reviewed by experts through multiple steps. The first expert was a professor in the school of pharmacy who was also the acting director of the Pharmacy Administration course. The second person to review the questionnaire included a professor in business who identified if questions were double barreled or unclear. Based on inputs received from the experts, a pilot study was conducted using a group of ten pharmacists to gain insights on clarity and strength of the questions. All unclear and ambiguous questions were dropped or reworded.

Table 1
Demographics of respondents ($n = 218$).

	n (%)
Gender	
Male	52 (24)
Female	166 (76)
Age	
21 to 30 years	158 (72)
31 to 40 years	38 (18)
41 to 50 years	18 (8)
51 to 60 years	4 (2)
Year of graduation	
2008 to 2012	121 (55)
2013	76 (35)
2014	21 (10)

Based on experts' reviews of the preliminary questionnaire and subsequent pilot testing, a structured questionnaire was developed that included close-ended, multiple choice, and dichotomous questions (Appendix 1). The paper-based questionnaire was distributed in hospital and clinical pharmacy settings. Before administering the questionnaire, the respondents were screened for graduation from the School of Pharmacy, UWI before 2008-2009. Only those respondents who had graduated from 2008-2009 onwards were eligible to participate in the study. After distributing 262 questionnaires, usable responses were received from 218 respondents (83%). The respondents were pharmacists working in five public hospitals (four general, one women's hospital) and seven private retail pharmacies in the community setting. The responses for the study were collected for a period of two months. Only descriptive statistics were used to analyze the results. Ethical approval was received from the campus ethics committee for conducting the study.

Results

As shown in Table 1, the majority of respondents were female pharmacists aged between 21 and 30 years. Many respondents were young, as the course in pharmacy administration was offered from 2008-2009 onwards. More than one-third of respondents graduated in 2013. Ninety-nine (45.4%) respondents agreed that the course provided them with the knowledge of running a business and pharmacy (Fig. 1). A total of 170 (78%) respondents stated that they were able to apply the skills in their practice of running a pharmacy (Fig. 2). One-hundred seventy-four (80%) respondents were of the opinion that the Pharmacy Administration course should be mandatory in the curriculum, not optional (Fig. 3). This was despite 30% reporting that they did not find the course to have enhanced their business knowledge. One-hundred sixty-six (76%) respondents found the course to be relevant in both hospital and community settings (Fig. 4). Skills that were found relevant in practice included application of business principles, inventory management, marketing principles, strategic planning, and financial management as shown in Table 2.

Discussion

As stated earlier, the role of pharmacists has evolved from only dispensing the drugs to offering patient care in the practice of pharmacy.¹⁹ The expansion in scope of pharmacy practice has also resulted in increased educational requirements for students.²⁰ One of the many avenues of expanding scope of practice of pharmacy is through pharmacy administration, which has many facets including leadership and support to pharmacists in any setting.²¹

Our study aimed to understand perceptions and application of concepts studied at the undergraduate level in the Pharmacy Administration course into real life practice. The pharmacists in our study would have had no more than five years of practice in their fields after graduation. As a result, all the pharmacists who responded to the study questionnaire may not have held managerial roles, which limits their ability to apply the concepts learned in Pharmacy Administration. Nevertheless, this information may be pertinent

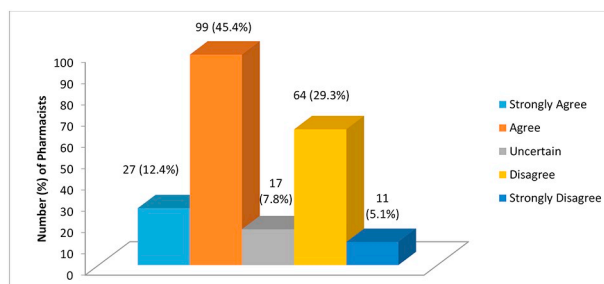


Fig. 1. Pharmacist agreement regarding benefit of the Pharmacy Administration course by provision of the knowledge of business and running a pharmacy.

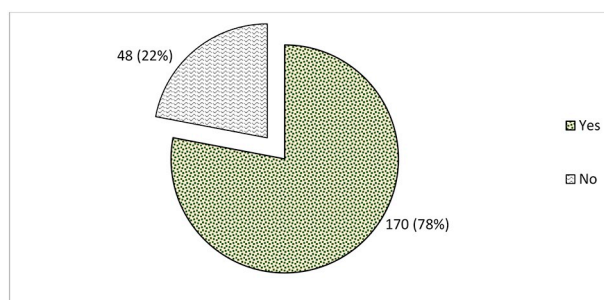


Fig. 2. Response regarding ability to apply skills learnt during the Pharmacy Administration course.

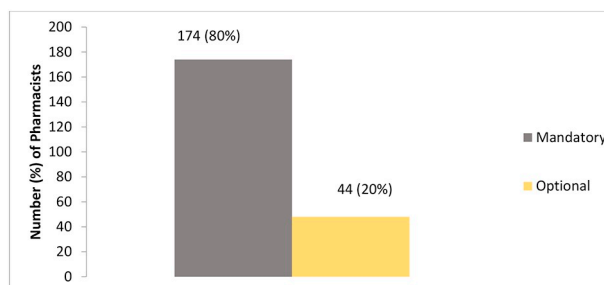


Fig. 3. Opinion of pharmacists whether the Pharmacy Administration course should be mandatory or optional.

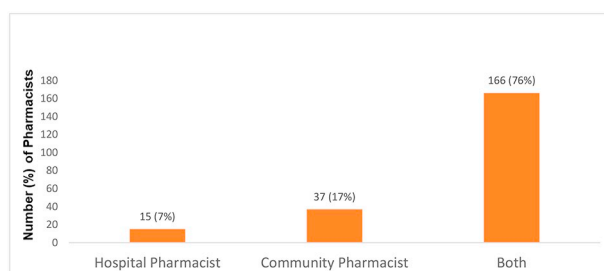


Fig. 4. Perceptions of the setting in which the Pharmacy Administration course was most beneficial.

Table 2

Skills perceived to be important by pharmacists who underwent the Pharmacy Administration course (n = 218).

	Number (% of respondents)
Application of business principles	83 (38)
Inventory control concepts	78 (36)
Application of marketing principles	69 (32)
Strategic planning	69 (32)
Human resource management	46 (21)
Organization skills	37 (17)
Financial management	37 (17)
Effective communication	27 (12)
Improved coordination	14 (06)

in determining whether or not these young pharmacists were able to effectively incorporate some of the skills they learnt during the course. A majority of the pharmacists strongly agreed that the course enhanced their knowledge in the fields of human resources, conflict resolution, marketing, project management, corporate turnaround, inventory, and financial management; about 30% did not find utility of the business management course in their practice. The majority of the pharmacists found the course to be useful in community as well as hospital settings. In terms of content of the course, the topics included in the syllabus were applicable to the practice of pharmacy. It was observed that the application of business principles, inventory control concepts, application of marketing concepts, and strategic planning were perceived as more important to practice than other skills. The findings are similar to study by

Rollins et al.²² wherein they assessed perceived value of business management materials and principles through a simulation exercise in a pharmacy management and administration course. The study found that simulation enhanced student understanding of principles of business management topics.²²

Pharmacists believed that the course offered them sufficient knowledge of business relationships and how to run a successful pharmacy. This may be due to the structure of community pharmacies in Trinidad and Tobago, where a pharmacist is the manager of the services offered. Thus the Pharmacy Administration course may be more readily applicable in community than in hospital pharmacies, though as stated earlier, pharmacists in our study found this course to be relevant in both settings. Over 70% of the pharmacists indicated that they were able to apply the skills learnt in their regular daily practice due to the content of the course. The course is offered as a mandatory course since pharmacists are required to work in the retail sector in the country and by extension in the Caribbean. The curriculum is modelled on the lines of pharmacy administration programs offered in the United States so as to expand opportunities and employability for the pharmacists.

Some of the topics taught in the course include leadership, personnel management, human resource management, conflict resolution, accounting, inventory management, ethics, marketing, business law, pharmacoeconomics, project management, and corporate turnaround. As seen in Table 2, pharmacists perceived that application of business principles and inventory control were major skills learnt and employed in their practice, followed by strategic planning and marketing principles. Human resource management, financial, and organization skills were other major aspects that were found to be important in practice that were learnt in the course. Application of business principles and inventory management are important in running a pharmacy since pharmacists are responsible for improving the business of pharmacy while ensuring patient care. Application of skills regarding inventory management is crucial since pharmacies need to ensure that required products are stocked in pharmacies in sufficient quantities to avoid stock-outs, which might adversely affect their business in future. Hence, principles of inventory control and various techniques of inventory management taught in the curriculum could be useful to pharmacists in their practice. Overall, pharmacists believed that Pharmacy Administration had become an integral part of their practice. Based on the responses from the pharmacists, it can be safely inferred that the course is relevant to pharmacists in Trinidad and Tobago. The course can also be modified to be offered as a masters course to the students of pharmacy in Trinidad and Tobago within the regulatory framework of the pharmacy board.

A study with larger sample size could be carried out in future to understand the shortcomings of the course and advanced topics that could be more relevant to the present day requirements of pharmacy practice and administration. Future study shall also assess the role of information technology and social media in the practice of pharmacy and its administration.

This study has limitations which include: (1) possible selection bias, where some invited participants were unwilling to participate in the survey; (2) limited access to community pharmacies and district hospitals (apart from those aforementioned) due to lack of transportation; (3) lack of sufficient time to carry out the study involving a larger sample; (4) lack of generalizability of the results; and (5) lack of use of advanced statistical tools while interpreting results. Despite these limitations, the study can help statutory agencies and administrators in pharmacy schools expand the scope of pharmacy education by offering a master's program in pharmacy administration/management.

Conclusions

The Pharmacy Administration course in the BSc pharmacy degree programme at the School of Pharmacy, UWI provides knowledge in important aspects of pharmacy practice to pharmacists in Trinidad. This course remains relevant in developing knowledge in the areas of marketing, human resource management, inventory management, and extending pharmaceutical care to patients. The course can also be offered as a master's course to interested students.

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.cptl.2020.01.015>.

Author statement

SM conceptualized the study and administered the project, AB, AA, NB, AB, ND, NS collected data, validated it, carried out formal analysis and prepared original draft, RE conceptualized study, reviewed and edited the draft, MJ curated data, reviewed and edited the draft.

Disclosure

None.

Declaration of competing interest

None.

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