

Factors that Predict Hospital Pharmacy Practice in Vietnam

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ABSTRACT

Background: Hospital pharmacy practice has emerged as a prerequisite to improving the health behaviors of patients given that adhering to this requirement enhances health care outcomes. Correspondingly, this study determined the factors that predict the aforementioned practice in Southern Vietnam.

Methods: This cross-sectional study was conducted from April to July 2019 in 35 hospitals located in Southern Vietnam. Multiple linear regression was performed to investigate the factors that predict hospital pharmacy practice (total score based on Basel Statement-driven evaluation). The factors were classified under managerial competency, work-related quality of life, and hospital characteristics (independent variables).

Results: The association between hospital pharmacy practice and the independent variables was determined through the following equation: total score in the Basel Statement-based assessment = $-33.916 + 9.056 \times \text{strategic management} + 7.326 \times \text{job and career satisfaction} + 0.798 \times \text{number of hospital beds}$. No statistically

significant associations were found between hospital pharmacy practice and hospital location, hospital level, type of hospital, age, gender, and other issues related to managerial competency and quality of work life.

Conclusion: The competence of pharmacy department heads in strategic management, the job and career satisfaction of hospital pharmacists, and the number of beds in hospitals were significant predictors of hospital pharmacy practice.

Keywords: hospital management, managerial competency, pharmacy practice, quality of work life, Vietnam.

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INTRODUCTION

Pharmacy practice has considerably expanded to encompass responsibilities related to patient-centered care.¹ Consequently, efforts to evaluate pharmacy practice and develop instruments that measure relevant outcomes have been documented in various countries.¹⁻⁴ Such outcomes, including medication safety, adherence, and appropriate use in hospitals, are important humanistic targets of health care professionals as these improve patient outcomes and avoid unnecessary health care spending worldwide.⁵⁻⁷ Interest in hospital pharmacy practice initially rose as a result of consumerism, but it has recently re-emerged as a prerequisite to the provision of adequate health care given its potential to enhance patient health and well-being.⁸⁻¹⁰ Patient outcomes are also potentially affected to a considerable extent by hospital pharmacy practice that is directly or indirectly related to institutional characteristics, such as hospital attributes, hospital pharmacists, and the managerial competency of pharmacy department heads.^{6,10-13}

Although interest in hospital pharmacy practice is growing in Vietnam, studies on this issue are rarely reported, with the minimal scope covering only some hospitals in a region or city and certain aspects of pharmacy practice.^{7-9,20-28} Moreover, no research has used the Basel Statements of the International Pharmaceutical Federation as guidelines in assessing hospital pharmacy practice in Vietnam. The Basel Statements strongly focus on evidence-based practice, medication safety, and the evolving role of pharmacists. The key elements of hospital pharmacy practice indicated in these statements should be accorded focus in the implementation of international standards to strengthen and standardize

pharmacy practice worldwide as well as achieve professional goals, satisfy societal expectations, and realize patient care targets. In consideration of this requirement, we assessed the overall quality of hospital pharmacy practice in Southern Vietnam, with the International Pharmaceutical Federation guidelines as basis. To this end, we determined the managerial competency of pharmacy department heads and work-related quality of life among hospital pharmacists. These variables, along with hospital characteristics, were then used as reference in ascertaining the predictive factors of hospital pharmacy practice.

MATERIALS AND METHODS

Study design and ethical considerations

This cross-sectional study was conducted between April and July 2019 in hospitals located in Southern Vietnam. The study protocol was approved by the Council of Medical Ethics at Thong Nhat Hospital in Ho Chi Minh City.

Study instruments

The International Pharmaceutical Federation addressed the future of pharmacy in a global conference that it hosted in Basel, Switzerland in 2009. During this conference, attendees established 75 principles known as the Basel Statements, which were then reduced to 65 declarations. These statements were used as benchmarks in measuring the quality of hospital pharmacy practice in 35 hospitals in Southern Vietnam.² Among the 65 statements, 58 were applicable to the Vietnamese context and were thus classified into seven principles: overarching and governance statements (OGS, 19 items), medicine procurement (MPC, 4 items), influence on

prescription (IOP, 5 items), preparation and delivery of medicines (PDM, 10 items), administration of medicines (AOM, 10 items), monitoring of medication therapy (MOM, 7 items), and human resources and training (HRT, 3 items). Each statement comes with discrete response choices of “yes” or “no.” The questionnaire was sent to hospital directors or pharmacy department heads.

The managerial competency of pharmacy department heads was evaluated using a self-administered questionnaire, which was based on the guidelines of the 2019 Malcolm Baldrige National Quality Award.²⁵ In each hospital, the head of the pharmacy department was invited to fill in the seven-domain questionnaire. Meanwhile, the work-related quality of life of hospital pharmacists was evaluated using the 32-item Work-related Quality of Life Scale-2 (WRQoLS-2), which comprises seven psychosocial subscales, namely, job and career satisfaction (JCS), general well-being (GWB), home-work interface (HWI), control at work (CAW), stress at work (SAW), work conditions (WCS), and employee engagement (EEN). Each item is scored on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The questionnaires were distributed to the participants, who were each given a maximum of 20 minutes to complete the instruments. The respondents who returned incomplete questionnaires were excluded from the research. Permission to use the data for non-profit research was obtained from Dr. Darren van Laar on March 22, 2019.²⁶

Sampling and data collection

Hospitals were chosen by convenience or cluster sampling from the list of 200 such institutions in Southern Vietnam. Among these hospitals, 88 had data on pharmacy practice, 77 had data regarding managerial competency, and 35 had information on quality of work life. The final sample we chose were the 35 hospitals, from which we also collected data on pharmacy practice and managerial competency. The sample comprised only the institutions that provided enough data for regression modeling (i.e., information on pharmacy practice, managerial competency, and quality of work life).

Data analysis

The precision, reasonability, and consistency of the data were analyzed using the Statistical Package for the Social Sciences

(version 23.0). The total scores obtained in the evaluation grounded in the Basel Statements (total BS scores hereafter) were employed to ascertain data normality, and linear regression was conducted to determine the association between predictive factors and total BS scores.

Multiple linear regression was performed to investigate the factors that predict hospital pharmacy practice (total BS scores). These factors were as follows:

- Components related to managerial competency, namely, leadership (LSD), strategic management (STM), customer/patient focus (CPF), measurement (MSM), human resource focus (HRF), and process focus (PRF);
- Issues associated with quality of work life among hospital pharmacists, namely, JCS, GWB, HWI, CAW, SAW, WCS, and EEN;
- Hospital characteristics.

RESULTS

The 35 hospitals investigated in this work represent about 20% of the total number of hospitals in Southern Vietnam. Tables 1 to 4 summarize these hospitals’ characteristics, the subdimensions of the managerial competency of pharmacy department heads, and the subdimensions of work-related quality of life among hospital pharmacists.

The linear regression was performed with hospital characteristics, the subdimensions of managerial competency, and the subdimensions of work-related to quality of life serving as covariates (predictors) of hospital pharmacy practice (Equation 1). The results revealed that the STM of pharmacy department heads, the JCS of hospital pharmacists, and the number of beds in hospitals were significant predictors of hospital pharmacy practice. In particular, the STM of pharmacy department heads was strongly associated with such practice (R square: 0.561, p-value: 0.002). A statistically significant association was found between JCS and hospital pharmacy practice (R square: 0.561, p-value: 0.007), but the number of beds in hospitals was less likely to be related to such practice (R square: 0.561, p-value: 0.022). No statistically significant associations were found between hospital pharmacy practice and hospital location, hospital level, type of hospital, age, gender, LDS, CPF, MSM, HRF, PRF, CAW, EEN, GWB, HWI, SAW, and WCS.

Table 1: Hospital characteristics

Location	N (%)	Prescriptions per day	N (%)
HCMC	12 (34.3)	<300	3 (8.6)
Others	23 (65.7)	300–500	4 (11.3)
Type		501–700	5 (14.3)
General	23 (65.7)	701–1000	4 (11.3)
Specialized	12 (34.3)	1001–1500	12 (34.3)
Ownership		1501–2000	5 (14.3)
Public	35 (100.0)	2001–2500	0 (0.0)
Private	0 (0.0)	2501–3000	0 (0.0)
Hospital level*		3001–4000	0 (0.0)
Class 1	4 (11.4)	>4000	2 (5.7)
Class 2	24 (68.6)	Pharmacy employees	
Class 3	7 (20)	<10	0 (0)
Bed capacity		10–15	0 (0)

<100	1 (2.9)	16–20	3 (8.6)
100–200	4 (11.4)	21–25	2 (5.2)
201–300	3 (8.6)	26–30	6 (17.1)
401–500	1 (2.9)	31–35	2 (5.2)
501–600	4 (11.4)	36–40	7 (20.0)
601–700	6 (17.1)	41–45	6 (17.1)
701–800	3 (8.6)	46–50	3 (8.6)
801–900	1 (2.9)	>50	6 (17.1)
901–1000	6 (17.1)	Affiliation	
1001–1200	3 (8.6)	Yes	32 (91.4)
>1200	3 (8.6)	No	3 (8.6)
Proficiency		Computerized prescription	
≤100%	20 (57.1)	Applicable	35 (100.0)
>100%	15 (42.9)	Not applicable	0 (0.0)
Number of drugs per prescription		Computerized medical records	
≤3	4 (11.4)	Completed	10 (28.6)
4 to 5	18 (51.4)	Not applicable	25 (71.4)
6 to 7	11 (31.4)		
>7	2 (5.7)		

*Hospital level was based on Circular 03/2004/TT-BYT issued by the Vietnamese Ministry of Health.

Table 2: Subscales of work-related quality of life and managerial competency

Subscale of WRQoL	Mean (SD)	Subscale of managerial competency	Mean (SD)	Level of managerial competency
JCS	3.68 (0.45)	LDS	4.35 (0.34)	Highest
GWB	3.43 (0.43)	STM	4.18 (0.43)	High
HWI	3.75 (0.33)	CPF	3.71 (0.64)	High
CAW	3.56 (0.38)	MSM	3.76 (0.64)	High
SAW	2.99 (0.32)	HRF	4.10 (0.72)	High
WCS	3.63 (0.37)	PRF	3.86 (0.78)	High
EEN	3.62 (0.50)	Overall managerial competency	3.99 (0.41)	High
Overall WRQoL	3.49 (0.36)			

Table 3: Model summary and coefficients of multiple regression analysis

	R Square	Durbin-Watson	B	p-value	Lower Bound	Upper Bound	Tolerance	VIF
Constant			33.916	0.007	-57.921	9.910		
STM	0.561		9.056	0.003	3.679	14.433	0.855	1.169
JCS	0.561	1.128	7.326	0.007	2.189	12.462	0.882	1.134
Beds	0.561		0.798	0.022	0.126	1.470	0.954	1.048

The equation used in the multiple linear regression was as follows:

$$Y = -33.916 + 9.056 \times STM + 7.326 \times JCS + 0.798 \times Beds \quad (1)$$

where Y denotes the total BS score, STM refers to strategic management, JCS stands for job and career satisfaction, and Beds pertains to the number of beds in a hospital.

DISCUSSION

Our results are consistent with the findings of many previous studies. For example, Mekonnen et al.⁶ and Sarwar et al.¹⁰ reported that the factors influencing clinical pharmacy service or the reporting and monitoring of ADR include the knowledge and skills of clinical pharmacists and those of other health care professionals.¹²⁻¹⁵ Brazinha and Fernandez-Llimos¹² identified increased workload as an influencing factor. Clinical pharmacy service is a part of hospital pharmacy practice; if pharmacy department heads exhibit competency in respect of STM, then they can solve problems related to all these factors.

According to Boockvar et al.¹⁶ and Penm et al.,²⁷ MPC is affected by the lack of formulary systems and pharmaceutical therapeutic committees in hospitals - factors that are related to the role played by pharmacy department heads. Excellent STM can also help heads rectify these deficiencies. The heads of pharmacy departments should familiarize themselves with best pharmacy practices as a comprehensive understanding of all the activities related to hospital pharmacy practice will enable them to establish policies that support these activities. Additionally, the government should develop policies that promote pharmacy practice in hospital settings and complement the initiatives of health human resources in

engaging in this practice. Although pharmacy heads are knowledgeable about the issues occurring in their departments, they need to determine priority objectives to be acted on because pharmacy personnel tend to be very limited. If pharmacy directors can pinpoint primary areas for improvement, they can focus extensively on tackling these matters, capitalize on the strengths of their employees, address their weaknesses through training, and determine the number of employees needed for implementation. The key components of implementation are human resources and training courses. Monitoring and evaluation by directors are also needed after the operationalization of plans. Incentives are likewise essential not only in retaining staff but also in motivating them as these rewards encourage positive behaviors, which in turn, increases productivity. These favorable outcomes augment total BS scores.

On the basis of our results, career satisfaction was associated with hospital pharmacy practice. Penm et al.^{27,28} and Trinh et al.²³ highlighted the importance of motivation and support from the heads of pharmacy departments and administrators as predictive factors for clinical pharmacy service. Hospital performance can be improved if hospital goals are coordinated between administrators and hospital pharmacists. If hospital pharmacists are inspired by their supervisors, they are more likely to share their insights and innovative ideas. The acknowledgment of good performance from superiors' boosts morale, whereas indifference may lead to non-performance. Moreover, if hospital pharmacists are encouraged to develop new skills, such as communication, presentation, and IT competencies, they may be more confident and productive. The acquisition of new skillsets can also provide the support necessary for them to accomplish their current jobs.

Job satisfaction and enhanced opportunities may also facilitate future promotion. Long-term plans can be established, thereby elevating performance. The satisfaction of hospital pharmacists with training courses is expected to translate to knowledge application in their work. Overall, job and career satisfaction affect hospital pharmacy practice and total BS scores. The findings reflected that the number of beds in hospitals was less likely to be associated with hospital pharmacy practice. When the number of beds increased in the investigated institutions, the budgets and pharmacy employees also needed to be expanded. When bed capacity increases without a corresponding rise in pharmacy staff, these employees can be overloaded, thus diminishing JCS. Under increased bed capacity and number of employees without sufficient demand, imbalance in workloads may occur, and JCS would still deteriorate. All in all, these phenomena can affect pharmacy practice and reduce total BS scores. If hospital administrators enforce policies to support and reward hospital pharmacy employees, JCS and total BS scores can improve. No study has been devoted to the number of beds in hospitals as it relates to hospital pharmacy practice.

Given some limitations in the sampling, the hospitals in the current work might not be representative. Generalization should therefore be approached with caution.

CONCLUSION

Overall, the STM competency of pharmacy department heads, the JCS of hospital pharmacists, and the number of hospital beds significantly predicted hospital pharmacy practice. The Basel Statements are useful guidelines for assessing the quality of hospital pharmacy practice in Vietnam.

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CONFLICT OF INTEREST

The authors declare that no conflicts of interest emerged in this work.

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